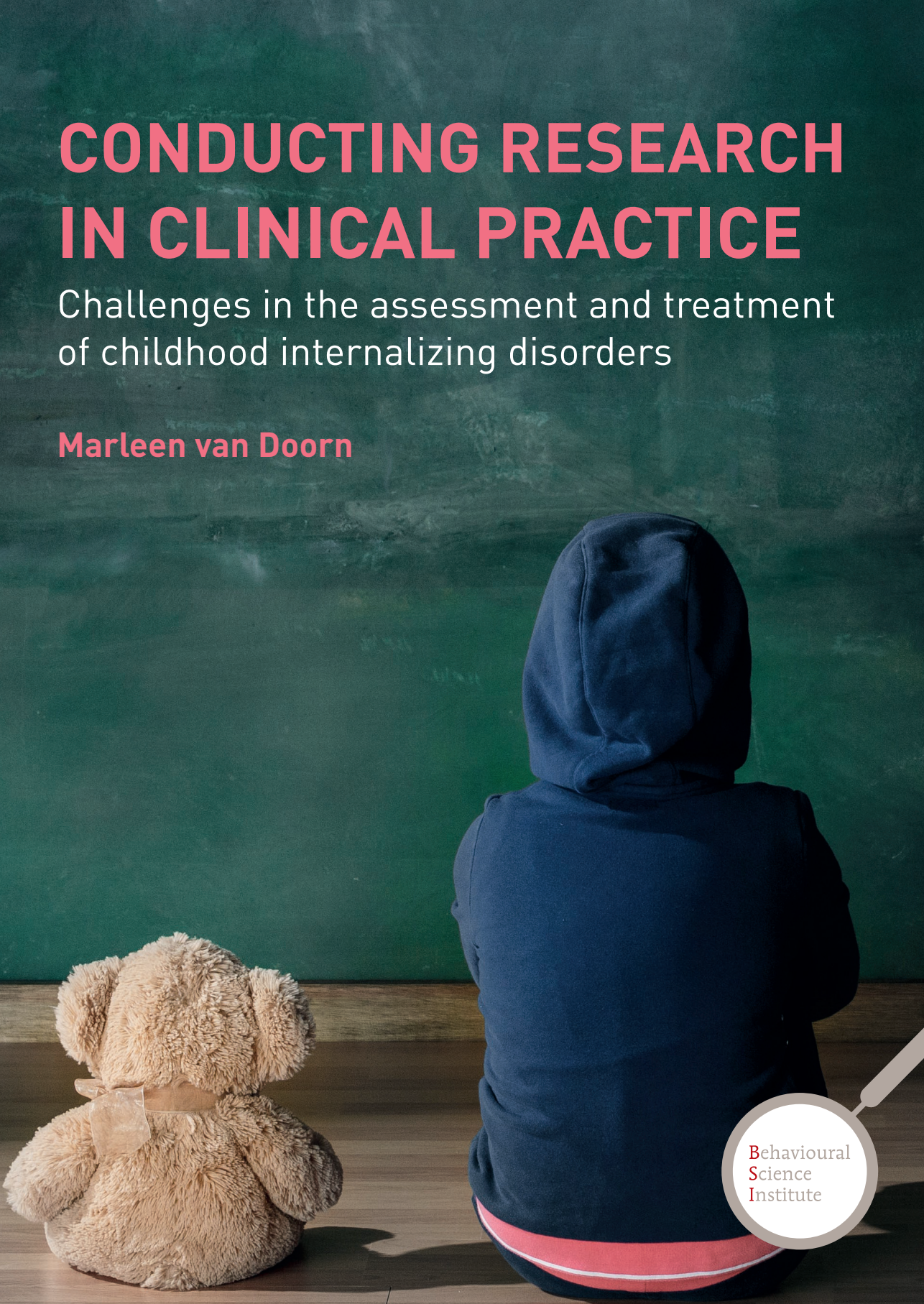
CONDUCTING RESEARCH IN CLINICAL PRACTICE

Challenges in the assessment and treatment of childhood internalizing disorders

Marleen van Doorn



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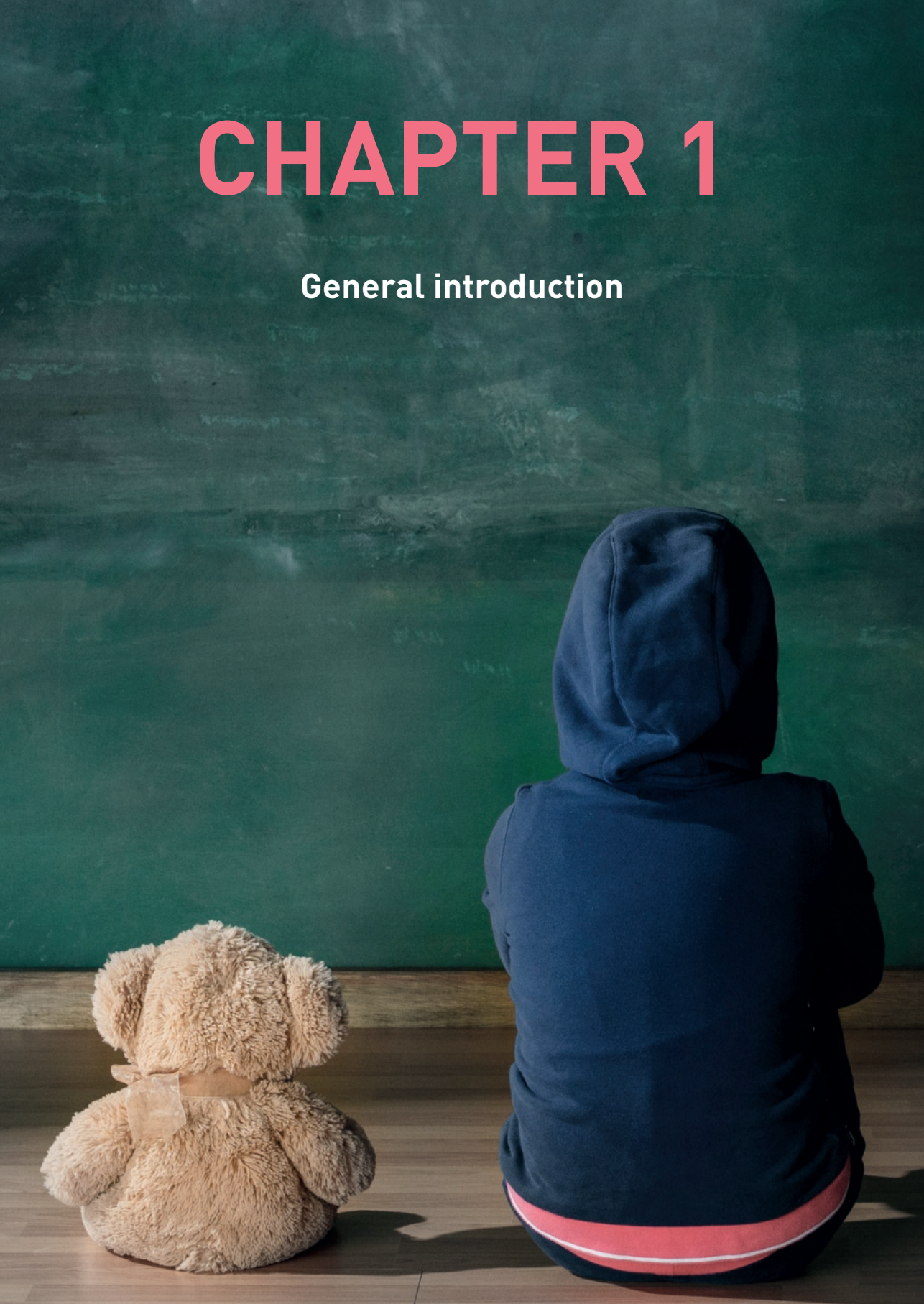
CHAPTER 1

General introduction



INTERNALIZING DISORDERS: SCOPE OF THE PROBLEM

When one speaks about troublesome children, you probably imagine the child that throws a tantrum in the line of the supermarket, the child that runs around screaming in the classroom, or the child that hits other children in the playground. You are less likely to consider the child that sits quietly in the corner of the sandpit, playing by herself. Maladaptive behavior that is directed towards a child's environment, the so called externalizing problem behavior (e.g., aggressive and hyperactive behavior) is disturbing towards the child's environment (Achenbach, 1991). Children that display these behaviors receive in general the most attention due to the negative impact their behavior has on others. In contrast, children that internalize their problems and keep everything inside, the so called internalizing problem behavior, receive considerable less attention. Internalizing problem behavior, such as anxious, depressed and withdrawn behavior, are less observable and unsettling to others (Tandon, Cardeli, & Luby, 2009). These problems are less likely to be noticed by parents and teachers (Miller, Martinez, Shumka, & Baker, 2014). This is worrisome, since untreated internalizing problems in childhood can grow into large problems later in life, such as academic underachievement, drug dependence, problems with employment, and adulthood psychopathology (Aronen & Soininen, 2000; Woodward & Fergusson, 2001).

Internalizing problems in childhood include anxious and depressed symptoms (Tandon et al., 2009). There is substantial overlap between these symptoms and growing evidence suggests that anxiety and depression comprise an 'internalizing cluster' (Weersing, Rozenman, Maher-Bridge, & Campo, 2012). However, the latest edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) describes separate anxiety and depressive disorders and there had not yet been an anxious-depressive disorder been defined. In the current dissertation, I refer to internalizing disorders when results apply to both anxiety and depressive disorders.

The DSM-5 describes several anxiety disorders, such as generalized anxiety disorder, social anxiety disorder, and separation anxiety disorder. The common factor in anxiety disorders is that they feature excessive fear and anxiety. Fear refers to an emotional response to a real or perceived threat, while anxiety refers to the anticipation of future threat (APA, 2014). Although these states are closely related and somewhat overlap, fear relates more to autonomic arousal responses for an immediate fight or flight reaction, whereas anxiety relates more to caution and avoidance behaviors in preparation for future danger. Anxiety disorders are among the most common types of psychopathology during childhood, with a prevalence of 12.3% in children between 6 and 12 years of age (Costello, Egger, Copeland, Erkanli, & Angold, 2011).

Depressive disorders, such as major depressive disorder and persistent depressive disorder, are defined by the DSM-5 by a cluster of symptoms including the presence

of a sad or irritable mood and somatic and cognitive changes that have a significant impact on the ability to function (APA, 2014). Examples of these somatic and cognitive changes are loss of interest in activities, increased fatigue, loss of confidence or self-esteem, problems with concentration, unreasonable ideas of worthlessness, and recurrent thoughts of death or suicide. The differences between the various depressive disorders are related to issues of duration, timing, and presumed etiology. Depressive disorders are relatively less common in children compared to anxiety disorders. The prevalence of depressive disorders is 2.8% in children under the age of 13 (Costello, Erkanli, & Angold, 2006). Taken together, the high prevalence of anxiety and depressive disorders and their associated impairments in functioning, require effective interventions.

COGNITIVE BEHAVIORAL THERAPY: A BRIEF OVERVIEW

Cognitive behavioral therapy (CBT) has been identified as the preferred method for the treatment of childhood internalizing disorders (Arnberg & Öst, 2014; James, James, Cowdrey, Soler, & Choke, 2015). CBT is a form of psychotherapy that is based on a combination of cognitive and behavioral principles (Beck, 2011). Treatment is directed towards solving current problems and altering dysfunctional thinking and behavior. The therapist motivates and helps the patient to modify anxious and/or negative thoughts to ultimately bring emotional and behavioral change. CBT was originally developed for adult psychopathology and it was not until the 1970's that the principles of CBT were administered to the treatment for children (e.g., Kendall & Finch, 1978). Behavioral theories explained the behavior of children by respondent conditioning (also referred to as classical conditioning) and operant conditioning. This was especially important for childhood anxiety treatment, since it was the foundation for the concepts of extinction, i.e., repeated exposure to the feared stimuli without the expected negative consequence will lead to the extinction of anxiety, habituation, i.e., the level of arousal decreases after long periods in the presence of the feared stimulus without the expected negative consequence, and positive reinforcement, i.e., a rewarding consequence for completing an exposure task (Benjamin et al., 2011).

When cognitive theories were combined with behavioral theories, CBT emerged with a greater variety of effective behavioral change strategies. Cognitive psychology brought the concepts of modeling, i.e., children can learn by observing behavior of others even without respondent or operant reinforcement, self-instruction training, i.e., children learn to control their behavior by overt speech that gradually becomes covert and self-generated, and problem solving, i.e., an internal thought process that brings change in the behavior and cognitions of children (Benjamin et al.,

2011). Furthermore, two influential cognitive psychologists came with the theories of irrational thinking, i.e., irrational thinking leads to maladaptive behavior and/or negative emotions (Ellis, 1962) and cognitive distortions, i.e., basic beliefs about oneself, others, and the world (cognitions) affect behavior and emotions (Beck, 1976). With the growing empirical evidence for the effectivity of the clinical practices based on these models, CBT emerged and expanded rapidly. Over the last few decades, CBT for children has been further developed and was specified for various internalizing disorders (Kendall, 2013). Despite this progress in the right direction, there are still crucial challenges for clinicians who conduct treatment to children with internalizing disorders to overcome. In the current dissertation, I address three of these key issues.

CHALLENGES IN CLINICAL PRACTICE PART I

Informant discrepancies

One of the main challenges clinicians face is to adequately diagnose childhood internalizing disorders even before treatment can be administered. Clinicians are confronted with disagreement between information about children's symptoms provided by children and other informants, such as parents and teachers (De Los Reyes & Kazdin, 2005). A robust finding in research is that the agreement between ratings of different informants has been estimated as low-to-moderate with *r*s ranging from .20 to .60 (Achenbach, McConaughy, & Howell, 1987). Higher disagreement between informants has been observed for internalizing compared to externalizing problems, regardless of whether examined by rating scales (Wren, Bridge, & Birmaher, 2004), behavioural observations (Ollendick & Hersen, 1993), or diagnostic interviews (Cosi,Canals, Hernández-Martinez, & Vigil-Colet, 2010). It is hypothesized that informants disagree more when problems are less observable, such as with internally experienced anxious and depressive feelings in the child, compared to more observable problems, such as overt aggression and hyperactivity (Achenbach et al., 1987). Furthermore, informants vary in the contexts (e.g., at school or at home) in which they observe children's behavior (De Los Reyes & Kazdin, 2005).

Informant discrepancies are explained by the Attribution Bias Context (ABC) Model (De Los Reyes & Kazdin, 2005). The ABC Model states that three components influence informant discrepancies. First, informants may differ in their attributions of the cause of the child's problems. Children are more likely to view their problems as caused by their environment (e.g., being shy because the classmates are not kind), whereas parents and teachers are more inclined to attribute the cause to the child's nature (e.g., the child is anxious). Second, informants may have different perspectives

whether certain behavior warrants treatment. Because children are more inclined to view their problem as contextual, they are less likely to warrant treatment. In turn, teachers and parents are more likely to perceive a need for treatment and thus, report problems in support of this view. Third, the goal of clinical assessment is gathering information regarding the negative aspects of the child's behavior. Children are less willing to provide this type of information compared to parents and teachers.

Despite the research that has been conducted on informant discrepancies, both researchers and clinicians still struggle with the implementations and consequences for research and clinical practice (De Los Reyes, 2011). There is general agreement that each informant contributes valid information and that no informant is more 'right' than another (De Los Reyes & Kazdin, 2005). Furthermore, the multi-informant approach by which multiple reports are collected and assessed has been set as a standard for research and clinical practice (Kraemer et al., 2003). Nevertheless, clinicians are still confronted with what Hawley and Weisz (2003) call the 'therapist dilemma'. Clinicians must gather and integrate contradictious reports of the child, parent and the teacher to construct their diagnosis and treatment plan for the child. Studies have found that clinicians are inclined to prioritize information of the parent over the child (Dirks, De Los Reyes, Briggs-Gowan, Cella, & Wakschlag, 2012). Children are often considered less reliable due to their limited cognitive and social-emotional development (Zeman, Klimes-Dougan, Cassano, & Adrian, 2007) and their tendency to response in a socially desirable manner (Comer & Kendall, 2004). Though, no evidence exist that parents are more accurate reporters. There is even evidence that children are better at predicting their own anxiety in stressful situations (DiBartolo & Grills, 2006). However, clear guidelines for clinicians how best to deal with informant discrepancies are missing.

Recently, a framework has been proposed that should direct empirical research on multi-informant assessment into meaningful conclusions and potential guidelines (De Los Reyes, Thomas, Goodman, & Kundey, 2013). De los Reye et al. propose the Operations Triad Model (OTM) by which researchers are expected to pose priori hypotheses whether they anticipate findings based on multi-informants reports to result in consistent (Converging Operations) or discrepant findings (Diverging Operations). According to the model, Converging Operations are different ways of observing or examining the same behavior that point to the same conclusion. Diverging Operations, in contrast, suggests that discrepancies among informants are due to different people observing the same behavior in a different way and these differences reflect meaningful variation. Researchers who foresee diverging findings are encouraged to also form priori hypotheses about what these discrepancies reflect. If results are not supportive of either converging or diverging operations,

researchers should examine whether results can be explained by measurement error (Compensating Operations).

This framework should result in more helpful information for clinicians who deal with informant discrepancies, such as who to cost-effectively include as an informant for which subtype of internalizing disorder or how to personalize assessment (De Los Reyes et al., 2013). In the current dissertation, this framework was used in a multi-informant and multi-assessment study for clinically referred anxious children (*Chapter 2*). We examined whether informant discrepancies between mother and child varied among different subtypes of anxiety disorders. It was hypothesized that agreement between mother and child would be higher for subtypes of anxiety problems that are characterized by more observable and external components (e.g., separation anxiety) and lower for subtypes of anxiety problems that are characterized by less observable symptoms and more internal distressing components (e.g., generalized anxiety). Furthermore, we explored whether observations of the children's anxious behavior were stronger related to subtypes of anxiety disorders that are characterized by more obvious symptoms compared to those that are characterized by less noticeable symptoms.

PART II

Parental influences

Another key issue for clinicians is how and whether or not they should include parents in treatment. Clinicians who treat children with internalizing disorders are not only dealing with the anxious or depressed child, but also with his or her parent(s). Substantial research over the years has indicated that parents play an important role in the development, maintenance, and transmission of internalizing disorders in children (Creswell, Murray, Stacey, & Cooper, 2011; McLeod, Weisz, & Wood, 2007a). Children with an anxiety or depressive disorder are much more likely to have a parent with an anxiety or depressive disorder (Cooper et al., 2006; Goodman et al., 2011), suggesting a familial transmission of internalizing problems. Clinicians actively include parents in the treatment, but studies examining the effectiveness of involving parents in the treatment demonstrate contradictious results (e.g., Barrett, Dadds, & Rapee, 1996; Bodden et al., 2008). Thus, it is crucial to understand the mechanisms by which internalizing disorders are transmitted and maintained. Once these mechanisms are identified, improvements in treatment can be made by addressing the effective parental influences.

Over the last few decades, there has been expanding evidence found for an association between parenting behaviors and internalizing problems in children (Yap

& Jorm, 2015). Traditional models categorized parenting behaviors into the two broad continuous dimensions of acceptance versus rejection and psychological granting of autonomy versus psychological control (Rapee, 1997). Both parenting dimensions represent positive parenting behaviors at one end of the continuum (i.e., acceptance and psychological granting of autonomy) and negative parenting behaviors at the other end (i.e., rejection and psychological control). Studies examining parental rejection and control have been criticized for the lack of clear definitions (Wood, 2006). In answer to this critique, McLeod et al. (2007a; 2007b) specified rejection and control into five sub-dimensions and reviewed existing literature examining parenting and internalizing disorders. The sub-dimension of parental rejection were withdrawal (i.e., lack of parental involvement or emotional support), aversiveness (i.e., parental hostility), and low amounts of warmth (i.e., lack of pleasant interactions between parent and child). Parental control was defined by over-involvement (i.e., parental interference with children's independence) and low amounts of autonomy granting (i.e., parental discouragement of children's opinions and choices).

The meta-analysis of McLeod et al. (2007a; 2007b) showed that parental rejection and control were both related to childhood anxiety and depression, but parental rejection was stronger associated with childhood depression and parental control with childhood anxiety. More specifically, parental aversiveness and low amounts of parental warmth were stronger associated with childhood depression and low amounts of parental autonomy granting were stronger associated with childhood anxiety. Thus, depressive children are more likely to have parents that display hostility, criticism, punishment, and conflict in interaction with their children. This parental rejection is hypothesized to impair children's emotion regulation skills, lower children's self esteem, encourage a sense of helplessness, and stimulate the development of negative self-schemas (McLeod et al., 2007a). Anxious children are more likely to have parents who struggle with granting autonomy, in such a way that they have a low tendency to encourage and solicit children's perspectives, opinions, and input. It is presumed that parents anticipate potential treat and therefore restrict children's engagement (Rapee et al., 2009). When parents are very controlling in situations in which it is appropriate for children to act autonomously (e.g., attending elementary school), children may experience little self-efficacy, and thus, more anxiety (Wood, 2006).

Recently, Yap and Jorm (2015) reviewed literature examining parental factors and childhood internalizing disorders with a focus on the 5 to 11 age range. The authors did not only include studies examining childhood anxiety or depression, but also studies examining childhood internalizing problems. Internalizing problems are commonly assessed in studies involving children and there is preliminary evidence suggesting that parental behaviors examined in childhood anxiety and depression are not specific

to either disorder (Yap, Pilkington, Ryan, & Jorm, 2014). Results of Yap and Jorm (2015) were grouped according to the quality of the existing evidence base. Findings indicated that there was sound evidence that parental aversiveness increased the risk for both childhood depression and internalizing problems. Furthermore, there was sound evidence that less parental warmth and more over-involvement increased the risk for internalizing problems. No sound evidence was found for the relation between parenting behaviors and childhood anxiety. This lack of strong evidence might be the result of the low number of longitudinal studies on childhood anxiety compared to childhood depression and internalizing problems. There was emerging evidence that more parental aversiveness, modeling of anxiety, over-involvement and less autonomy granting increased the risk for childhood anxiety disorders. For childhood depression, there was emerging evidence for an association with less parental warmth and more monitoring and over-involvement.

The combined finding from these meta-analyses is that parental behaviors accounted only for a small amount of variance in child outcomes, ranging from less than 2% to 9% (McLeod et al., 2007a, 2007b; Yap & Jorm, 2015). Such findings might suggest that parenting behaviors do not play an important role in the development of internalizing disorders in children. However, it is also possible that the association between parenting behaviors and child outcome is more complex. For instance, parental rejection and control have also been associated with parental psychopathology. Anxious parents are more likely to display intrusive and controlling parenting (Soenens, Vansteenkiste, & Luyten, 2006), whereas depressive parents tend to show negative (i.e., hostile/coercive) parenting behavior (Lovejoy et al., 2000). It has been theorized that parenting behaviors serve as a mediator of the association between parental depression and child outcome (Goodman, 2007). For instance, parental criticism has been found to mediate the association between maternal depression and childhood depression (Hilsman, 2001) and less maternal social support has been found to medicate the association between maternal depression and childhood internalizing problems (McCarty & MacMahon, 2003).

In the current dissertation, the Integrative Model for the Transmission of Risk to Children of Depressed Mothers (Goodman & Gottlib, 1999) was used to test the premise that parenting behaviors mediate the association between maternal depression and child outcome (*Chapter 3*). We examined whether maternal warmth and psychological control mediated the relation between maternal depression and children's internalizing (and externalizing) problem behavior. This was tested in a multi-informant cross-sectional study with mother-child dyads in which the child was referred for treatment. It was hypothesized that higher rates of maternal depressive symptoms predicted higher rates of children's mental health problems, and that this relation was mediated by low maternal warmth and high maternal psychological control.

PART III

Applying evidence-based practice

Over the last few years, clinicians have been increasingly encouraged to apply evidence-based practice to clinical practice. Evidence-based practice in psychology has been defined by the American Psychological Association (APA) as the integration of the best available scientific evidence concerning therapy with clinical expertise in the context of client preferences, characteristics, and culture. However, many clinicians have strong reservations about applying scientific evidence into clinical practice (Lilienfeld, Ritschel, Lynn, Cautin, & Latzman, 2013). A key concern is that the empirically supported treatments (ESTs) do not fit in the reality of everyday clinical practice (Weisz, Krumholz, Santucci, Thomassin, & Ng, 2015). Most studies investigating treatment for children have been conducted within specialized, mostly university related, treatment centers (Weisz, Jensen-Doss, & Hawley, 2006). In these centers, researchers can control the procedures, set up strict inclusion and exclusion criteria, and clinicians are properly trained in the treatment. These experimental treatment conditions are not always a good representation of 'real world' clinical practice. In everyday clinical practice clinicians are challenged by a substantially large caseload of children, children presented with a broad range of disorders and problems, and fluctuations in which particular problems needs immediate attention during treatment (Weisz et al., 2015). Thus, it is critical that the effectiveness of childhood treatment is examined outside of highly controlled clinical trials.

A related concern is that in the past decade there has been a strong emphasize on effective manualized treatment programs instead of on effective therapeutic interventions (Higa-McMillan, Francis, Rith-Najarian, & Chorpita, 2016). The APA Task Force on Promotion and Dissemination of Psychological Procedures (1995) has set up guidelines to evaluate the efficacy of childhood treatments. Treatments have been evaluated as either 'well-established', 'probably efficacious', 'possibly efficacious', or 'experimental'. In the first review of Ollendick and King (1998) specific therapeutic interventions were identified, such as systematic desensitization, verbal self-instruction, modeling, and cognitive-behavioral interventions. After this review, an addition was made to the guidelines. A treatment manual was required for interventions to be evaluated as well-established or probably efficacious. This led to a significant growth in numerous manualized treatment programs that clinicians had to choose from. In the subsequent update of Silverman, Pina, & Viswesvaran (2008), multiple manualized treatment programs were examined and most manualized CBT programs were only classified as probably efficacious. An example of a probably efficacious manualized CBT program is the Coping Cat for anxiety disorders (Kendall & Hedtke, 2006). Treatment manuals are acknowledged for being useful

for the provision and training of specific interventions, but most clinicians usually apply manuals flexibly and use parts selectively (e.g., Southam-Gerow et al., 2010). Manualized CBT programs have been criticized for constraining clinician's creativity and flexibility to individualize treatment to meet the distinctive needs for children in everyday clinical practice (Weisz et al., 2015).

Thus, there is a strong need for testing ESTs in everyday clinical practice. A randomized controlled trial (RCT) is often considered the gold standard for a clinical trial (Moher et al., 2012). Participants in a RCT are randomly allocated to either the treatment that is being examined or to the placebo/control condition. An important advantage of randomization is that it minimizes selection bias. Outcome differences between both conditions are then considered to be a result of the treatment. RCTs that have tested manualized CBT programs often compare a strict delivery of the program to waiting list conditions and studies comparing manualized CBT to with routine clinical practice are scarce.

In the current dissertation, a RCT was conducted comparing a manualized CBT program with treatment-as-usual (TAU) in Dutch mental health centers for clinically referred anxious children (*Chapter 4 and 5*). There were no restrictions to the TAU condition. Agency employed clinicians decided which treatment was provided to the child and what the frequency and duration of the treatment was. Treatment could include elements of CBT, as well as several other treatment elements. In the manualized CBT condition, agency employed clinicians received a training and provided a strict delivery of the manualized CBT treatment to the anxious children. The study was registered prior to beginning (Trial registration number: NTR2967) and hypotheses were published in a protocol paper (*Chapter 4*). The first aim was to evaluate the effectiveness of the manualized CBT by comparing it to TAU in everyday clinical practice. We hypothesized that both treatments would be effective in reducing anxiety symptoms and problem behavior, but expected children receiving manualized CBT to have significantly less anxiety symptoms and problem behavior after treatment compared to children receiving TAU. However, recent findings by James et al. (2015) have called this hypothesis into question, showing no superior effect of CBT compared to TAU. We addressed this revised hypothesis and the results of our RCT in *Chapter 5*.

Improving evidence-based treatment

Lastly, clinicians are often confronted with children who do not benefit from the provided evidence-based treatment. There is a great deal of variability in treatment outcomes among individual children (Kazdin, 2007). Approximately 40 percent of children receiving CBT for anxiety disorders still meet the criteria for an anxiety disorder after treatment (James et al., 2015). Although there is evidence that combining CBT with medication will lead to a lower number of children who not

respond to treatment (Walkup et al., 2008), most clinicians and/or parents are reluctant to provide medication to young children. Clinicians are required to personalize treatment in an attempt to effectively treat non-responders. Studies that investigate potential treatment predictors and moderators can specify for whom, and under what conditions, treatment works best. Predictors can be baseline characteristics that have a main effect on treatment outcome regardless of the treatment, while moderators have an interaction effect with the treatment (Kraemer, Wilson, Fairburn, & Agras, 2002). This information can help clinicians make informed alterations to the treatment and personalize the treatment to the needs of a specific child.

Unfortunately, few childhood anxiety studies have conducted these types of detailed analyses, with the noteworthy exception of the Child/Adolescent Anxiety Multimodal Study (CAMS). The CAMS trial examined a large number of predictors and moderators, such as child, family, and therapeutic characteristics (Compton et al., 2014; Cummings et al., 2013). Results indicated that only symptom severity of the child and caregiver strain predicted treatment outcome. As discussed previously in Part II of this general introduction, there is a great deal of parental influence in the development, maintenance, and transmission of internalizing disorders in children (Creswell et al., 2011; McLeod et al., 2007a). Thus, it is somewhat surprising that no other family characteristics in the CAMS trail predicted treatment outcome. It may be that general family characteristics do not predict treatment response, but more specific parenting practices or dimensions do. Specific parenting behaviors, such as less maternal warmth and more control, have been associated with less favorable treatment outcome in anxious children (Creswell, Willetts, Murray, Singhal, & Cooper, 2008; Festen et al., 2013). The secondary aim of the RCT that we conducted on anxious children was to examine potential treatment predictors (*Chapter 5*). We examined whether specific anxiety-enhancing parenting behaviors (i.e., high warm and low rejecting and controlling behaviors) predicted treatment response.

The second potential treatment predictor that we examined in our RCT was the relationship between the therapist and the child, also referred to as the therapeutic alliance (*Chapter 5*). Therapeutic alliance is often defined as the affective bond between therapist and client and the agreement on goals and tasks between therapist and client (Elvins & Green, 2008). In the CAMS trial, the relationship between therapist and child has also been examined (Cummings et al., 2013). A strong bond according to the child predicted better outcomes for anxious children receiving CBT. However, the few other studies that have investigated the therapeutic alliance in efficacious treatments for childhood anxiety disorders have demonstrated inconsistent findings (e.g., Marker, Comer, Abramova, & Kendall, 2013). This is probably the result of methodological differences, such as the timing of assessment, given that early assessment has been differentially associated with treatment progress compared to

later assessment (Chiu, McLeod, Har & Wood, 2009). It has been noted that when children improve on symptom level, this can affect the therapeutic alliance over the course of treatment (Kazdin, 2007). In our RCT, we examined the therapeutic alliance according to the child after the first treatment session, to indicate early in treatment whether therapeutic alliance predicted treatment response (*Chapter 5*).

OVERVIEW OF THE DISSERTATION

The overall aim of the current dissertation was to address clinical challenges in the assessment and treatment of childhood internalizing disorders. This dissertation combined several research questions targeting three key issues and thereby contained three different parts.

Part I: Informant discrepancies

In the first part, the focus was on the discrepancies that arise between parents and children regarding the children's internalizing symptoms. In *Chapter 2*, the discrepancies between mother and child were examined in a multi-informant and multi-assessment study for clinically referred anxious children. We examined whether informant discrepancies between mother and child varied among different subtypes of anxiety disorders. Furthermore, we explored whether observations of the children's anxious behavior were stronger related to subtypes of anxiety disorders that are characterized by more obvious symptoms compared to those that are characterized by less noticeable symptoms.

Part II: Parental influences

In the second part, the influence of parents in the development, maintenance, and transmission of internalizing disorders in children was being addressed. In *Chapter 3*, we examined the mediating role of parenting behaviors (i.e., maternal warmth and psychological control) in the relation between maternal depression and children's internalizing and externalizing problem behavior. This was tested in a multi-informant cross-sectional study with mother-child dyads in which the child was referred for treatment.

Part III: Applying and improving evidence-based practice

In the third part, the focus was on the need to test empirically supported treatments in everyday clinical practice. Furthermore, it was argued that identifying treatment predictors may improve treatment response. In *Chapter 4*, the study protocol for the randomized controlled effectiveness trial comparing manualized CBT with treatment-as-usual (TAU) in Dutch mental health centers for clinically referred anxious children was presented. In *Chapter 5*, we presented the results of this study. We examined whether children receiving manualized CBT had significantly less anxiety symptoms and problem behavior after the treatment compared to children receiving TAU. Furthermore, we examined whether specific anxiety-enhancing parenting behaviors (i.e., high warm and low rejecting and controlling behaviors) and therapeutic alliance predicted treatment response.

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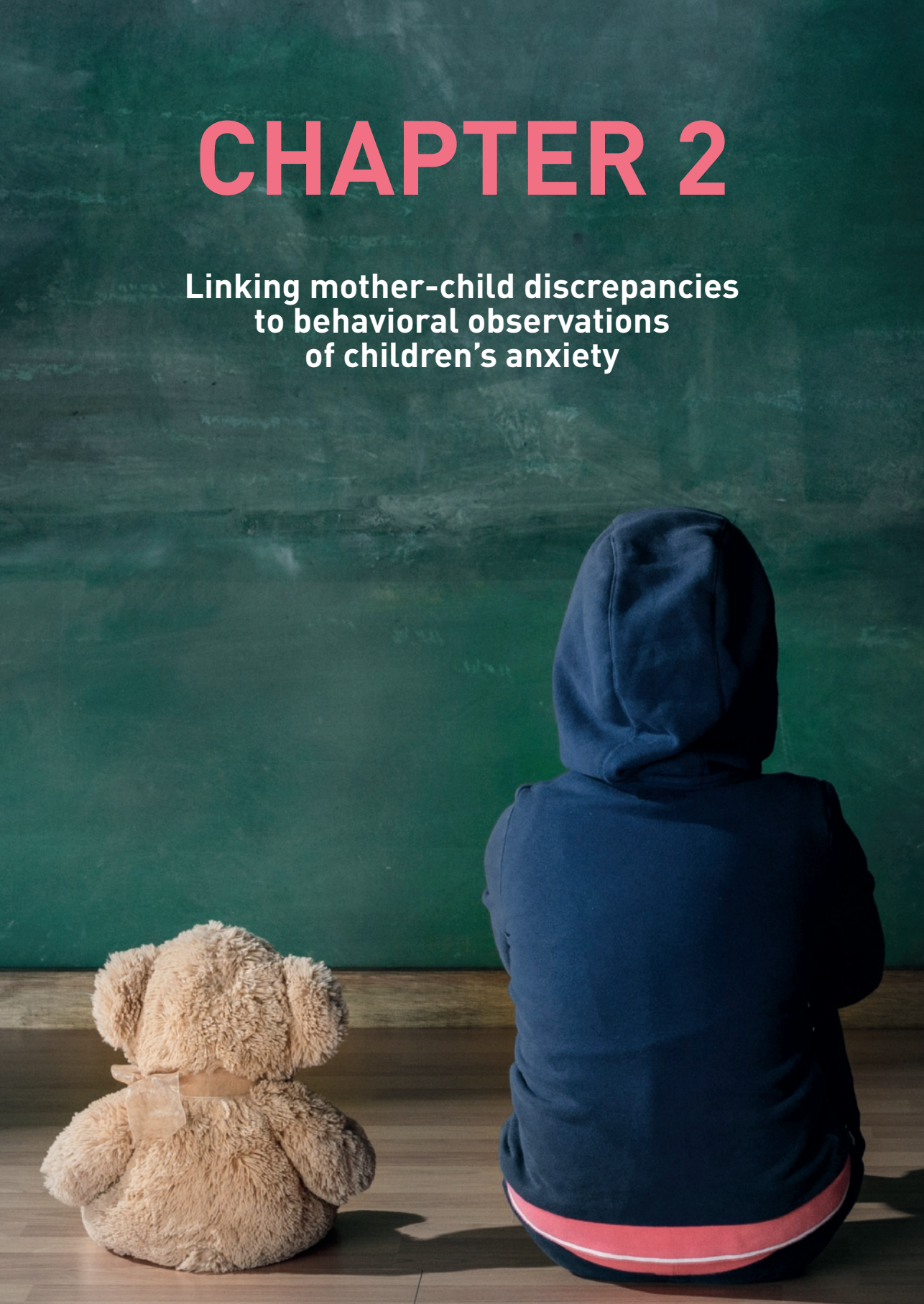
CHAPTER 2

Linking mother-child discrepancies to behavioral observations of children's anxiety



ABSTRACT

Background. Informant discrepancies between mother and child have challenged the assessment, classification, and treatment of childhood anxiety. Despite numerous studies on this matter, the implications and consequences for research and clinical practice remain unclear.

Objective. The present study aimed to obtain meaningful clinical information about informant discrepancies by examining mother-child agreement for anxiety subtypes, and by exploring mother-child discrepancies in relation to independent observer ratings of behavioral anxiety.

Method. The Screen for Child Anxiety Related Emotional Disorders (SCARED) was administered to 79 mothers and clinically referred anxious children aged 7-13 years. Mother-child dyads were observed during an anxiety-provoking task and independent observers rated children's observed anxiety.

Results. The findings indicated a high level of mother-child disagreement on reports of anxiety. There was variability in levels of agreement between subtypes of anxiety, with significantly stronger mother-child agreement for separation anxiety compared to other forms of anxiety. Observed proximity between the mother and child was positively associated with child-reported separation anxiety and children's observed anxious voice was negatively associated with child-reported panic disorder.

Conclusions. The results highlight the need to incorporate a multi-informant assessment of childhood anxiety in clinical practice and research, in particular for subtypes of anxiety problems that are characterized by less observable and more internally experienced components.

INTRODUCTION

Multi-method as well as multi-informant assessments of anxiety that include the child, mother, and preferably the father and/or teacher of the child, are considered best practice for both research and clinical contexts (Silverman & Ollendick, 2008). However, substantial discrepancies between parent and child reports of children's anxiety challenge clinical decision-making. The lack of agreement between children and parents has received considerable attention in the literature. In particular, the correspondence between ratings of different informants has been estimated as low-to-moderate for internalizing (r = .25) and externalizing (r = .30) problems (De Los Reyes et al., 2015). High discrepancies have been observed particularly for anxiety, regardless of whether assessments were collected through rating scales (Wren, Bridge, & Birmaher, 2004), behavioral observations (Ollendick & Hersen, 1993), or diagnostic interviews (Cosi, Canals, Hernández-Martinez, & Vigil-Colet, 2010).

In a comprehensive review, De Los Reyes and Kazdin (2005) summarized findings from studies evaluating child characteristics (e.g., age, gender, ethnicity), parent characteristics (e.g., psychopathology, stress), and family characteristics (e.g., marital status) in relation to informant discrepancies and concluded that findings were largely inconsistent. According to De Los Reyes and Kazdin, limitations of these studies included inconsistent measurement of informant discrepancies and the lack of a theoretical framework. Difference score models have been most often used to examine discrepancies, but they have been criticized on statistical grounds (Edwards, 2002). Although it has been demonstrated that difference score models provide distinct but equivalent information to regression models (Laird & Weems, 2011), polynomial regression analyses with interaction terms have been recommended for future studies on informant discrepancies (Laird & De Los Reyes, 2013). Furthermore, De Los Reyes and Kazdin advanced a theoretical framework, the Attribution Bias Context (ABC) Model, and proposed that discrepancies occur due to the unique perspective of each informant and the attributions they make about the problems of the child.

Despite this conceptual model that explains why discrepancies exist and the extensive research conducted on this topic, interpretation of informant discrepancies remains challenging. Clinicians who are confronted with inconsistent parent-child reports are inclined to base their diagnosis on the information provided by the parent (Dirks, De Los Reyes, Briggs-Gowan, Cella, & Wakschlag, 2012). A child is more likely to be considered an unreliable informant when their parents report a greater number of problems compared to the child (De Los Reyes at al., 2011). In contrast, when children report more problems than their parents, parents are not likely to be considered unreliable. Children are often considered less reliable due to their limited cognitive and social-emotional development (Zeman, Klimes-Dougan, Cassano, &

Adrian, 2007) and their tendency to respond in a socially desirable manner (Comer & Kendall, 2004). However, no empirical evidence exists showing parents to be more accurate reporters.

Recently, a new perspective on informant discrepancies, the Operations Triad Model (OTM), has been proposed to improve empirical research on informant discrepancies to arrive at more meaningful conclusions and potential guidelines (De Los Reyes, Thomas, Goodman, & Kundey, 2013). According to the model, *Converging Operations* are different ways of observing or examining the same behavior that point to the same conclusion. *Diverging Operations*, in contrast, suggest that discrepancies among informants are due to different people observing the same behavior in different ways and these differences reflect meaningful variation. While previous literature relied mostly on Converging Operations, researchers who anticipate diverging findings are encouraged to form meaningful hypotheses regarding these discrepancies. Most evidence for the OTM comes from literature on externalizing problems and further studies on internalizing problems have been called for (De Los Reyes et al., 2015). Extracting meaningful information from converging and diverging reports may be particularly essential for the study of, and clinical practice with, childhood anxiety. Compared to more directly observable problems such as overt aggression and hyperactivity (Achenbach et al., 1987), informants are more likely to disagree when problems are less overt, as is the case with anxiety. Thus, the primary aim of the current study was to obtain meaningful information about informant discrepancies regarding childhood anxiety that could potentially provide research and clinical practice with helpful guidelines.

Literature on parent-child discrepancies regarding childhood anxiety indicates that in general, children report higher levels of intensity, frequency, and severity of anxiety symptoms compared to parents (Cosi et al., 2010), although there are some exceptions found in clinical samples (Krain & Kendall, 2000). Scholars have hypothesized that in clinical samples, parents tend to report more symptoms due to biases related to seeking treatment. In clinical samples, parents are particularly more likely to report symptoms of generalized anxiety disorder and social anxiety disorder whereas children are more likely to report symptoms of separation anxiety disorder (Choudhury, Pimentel, & Kendall, 2003; Reuterskiöld, Öst, & Ollendick, 2008). Furthermore, parents and children are more likely to agree on diagnostic symptoms that are concrete and observable, such as behavioral avoidance compared to worry, and on symptoms that occur in the home environment compared to school settings (Comer & Kendall, 2004). Thus, one might expect less discrepant reports on subtypes of anxiety disorders that are characterized by more observable components, such as separation anxiety and social anxiety, and more discrepant reports on subtypes of anxiety disorders that are characterized by less observable symptoms, such as

generalized anxiety and panic disorder. However, empirical research regarding the symptoms of which subtype of anxiety disorder is associated with better or worse parent-child agreement is scarce and the findings are inconclusive.

Some studies have found the highest agreement for separation anxiety disorder (Becker, Jensen-Doss, Kendall, Birmaher, & Ginsburg, 2016; Brown-Jacobsen, Wallace, & Whiteside, 2011), whereas others have found the highest agreement for specific phobia (Pereira et al., 2015; Reuterskiöld, et al., 2008) or for generalized anxiety disorder (Stevanovic, Jancic, Topalovic, & Tadic, 2012). Moreover, some studies have found the lowest agreement for generalized anxiety disorder (Brown-Jacobsen et al., 2011; Weems, Feaster, Horigian, & Robbins, 2011), while others have found the lowest agreement for social anxiety disorder (Reuterskiöld et al., 2008; Stevanovic, et al., 2012). Interpretation of these findings is complex due to a number of factors. The parent-child agreement for the various subtypes of anxiety disorders ranged significantly (i.e., Kappa coefficients ranged from poor to excellent), the various samples that have been studied are not comparable (i.e., ranging from clinically referred children with a specific phobia or substance abuse, to children diagnosed with epilepsy, and children recruited from the community), the age groups varied from middle childhood to adolescence, the assessment methods varied from diagnostic interviews to screening questionnaires, and the data analyses ranged from difference score models to regression models. As a result of these variations in research designs and methods, it is impossible to reach a reasonable conclusion about these anxiety measurement discrepancies.

The purpose of the current study was to extend the literature on parent-child discrepancies regarding childhood anxiety in two key ways. First, the present study examined parent-child discrepancies at anxiety subtype level in the context of children's mental health agencies with clinically referred children diagnosed with an anxiety disorder. We were particularly keen on using a clinically referred sample, with measures of anxiety subtypes, in the context of real-world mental health agencies (as opposed to academic contexts) because we aimed to make the discrepancy results directly relevant to clinicians and their everyday practice. For example, when low parent-child agreement for a particular subtype of anxiety disorder is expected, clinicians can decide prior to the examination to include other informants, such as a teacher, or to include other measures, such as behavioral observation of the child.

Second, the current study examined parent-child discrepancies at an anxiety subtype level in relation to independent observer ratings of behavioral anxiety. Prior literature suggests that parent-child agreement at the level of subtypes of anxiety might be explained by the severity of symptoms and whether they are noticeable to the informant. Using behavioral observations of anxiety, we could test whether differences in agreement at the subtype level can be explained by the extent to which symptoms

can be observed. That is, the present study examined whether observed anxiety was more strongly related to subtypes of anxiety problems that are characterized by more observable symptoms (i.e., separation anxiety) and less strongly related to subtypes of anxiety problems that are characterized by less observable symptoms (i.e., generalized anxiety).

Although the importance of studying parent-child disagreements in relation to behavioral observations of anxiety has been recommended numerous times in the past (e.g., Muris, 2007; Weems et al., 2011), few such studies exist. Exceptions are studies that have examined the expectations of children and parents about children's anxiety compared with behavioral observations. For example, prior work indicates that children are better at predicting their anxious response to a fearful situation than parents (Cobham & Rapee, 1999; DiBartolo & Grills, 2006). Furthermore, there are studies that have examined reports of children and parents in relation to physiological measurement of fear. For example, Weems, Zakem, Costa, Cannon and Watts (2005) found that only child reports of anxiety were related to the children's heart rate response to a scary stimulus. None of these studies took anxiety subtypes into consideration.

The current study examined subtypes of anxiety in middle childhood. Disagreement in this age range in subtypes are particularly important to study because agreement between parents and children is lower in middle childhood compared to adolescence and clinicians are more inclined to prioritize the information of the parent over the child during middle childhood compared to adolescence (Driks et al., 2012; Grills & Ollendick, 2003). In general, rating scales are administered to children from the age of seven, when children are able to read and believed to be able to adequately reflect on their emotional states (Muris, Bodden, Hale, Birmaher, & Mayer, 2007). Behavioral observations are most often used to assess anxiety in studies with primarily young, preschool children from whom self-reports are more difficult to obtain (e.g., Mian, Carter, Pine, Wakschlag, & Briggs-Gowan, 2015). Thus, behavioral observations can provide useful clinical information in middle childhood, such as how far anxious children dare to go in exposure tasks, but are rarely used in this age range (Silverman & Ollendick, 2005).

Design and Hypotheses

The current study aimed to (a) obtain meaningful clinical information from informant discrepancies regarding childhood anxiety by examining parent-child discrepancies at the level of anxiety subtypes; (b) examine parent-child discrepancies in relation to independent observer ratings of behavioral anxiety; and (c) do so in the context of "real world" clinical mental health agencies. We collected data in the context of several community mental health agencies with clinically referred children diagnosed with

an anxiety disorder. Anxiety rating scales were administered to children and mothers and mother-child dyads were observed by independent raters during an anxiety-provoking situation.

Several hypotheses were put forward. First, we expected considerable discrepancy between reports from mothers and children about the child's anxiety and we expected higher levels of anxiety reported by mothers than by children, given past research with clinical samples. Second, we expected that the level of agreement between mothers and children would vary between anxiety subtypes with higher levels of agreement for subtypes of anxiety problems that are characterized by more observable symptoms (i.e., separation anxiety and social anxiety) and lower levels of agreement on subtypes of anxiety problems that are characterized by less observable symptoms (i.e., generalized anxiety and panic disorder). Third, we hypothesized that observed (behavioral) anxiety would be more strongly related to subtypes of anxiety problems that are characterized by more observable symptoms and less strongly related to subtypes of anxiety problems that are characterized by less observable symptoms, given that independent observers would detect the more noticeable symptoms of anxiety. Last, we explored how agreement and disagreement between mother and child regarding the child's anxiety symptoms was related to observed anxiety. Although these latter analyses were considered exploratory, we expected that the situation in which mothers reported high levels of anxiety symptoms (especially for anxiety problems with more observable symptoms) and children reported low levels of anxiety symptoms would be more strongly correlated with observed anxiety.

MATERIAL AND METHODS

Participants

This study was part of a larger effectiveness trial examining CBT in anxious children (Jansen et al., 2012). Overall, 79 dyads were recruited from three mental health agencies for children in the Netherlands. At intake, mother and child were asked to complete the Screen for Child Anxiety Related Emotional Disorders (SCARED; Birmaher et al., 1999) to assess the child's level of anxiety. If the child's or mother's total SCARED score or one of the following subscales: generalized anxiety, social anxiety, separation anxiety, or panic disorder fell in the 'high' or 'at risk' category, eligibility for participation was further examined by experienced agency clinicians. Inclusion criteria were a DSM-IV anxiety disorder and exclusion criteria were a primary diagnosis of posttraumatic stress disorder, autism spectrum disorder, specific phobia, obsessive-compulsive disorder, an IQ below 80, and the need for immediate intervention to prevent the child or the family from harm (e.g., suicidal

intentions). Children meeting the exclusion criteria required a treatment approach that was not offered in the effectiveness trial. The children ranged in age from 7 to 13 years (M = 10.10, SD = 1.32), and 66% (n = 52) were girls. Most children (83%, n = 66) resided in intact families, 10% (n = 8) lived in single-parent (exclusively maternal) households, and 7% (n = 6) in blended families. Most children were of Dutch origin (98%, n = 77), and 2% (n = 2) had another nationality (e.g., Moroccan, Ethiopian). The mothers ranged in age from 35 to 54 years (M = 43.43, SD = 4.84).

Procedure

The study was approved by the Ethic Committee of Radboud University's faculty of Social Sciences. Families meeting inclusion criteria and agreeing participation, signed informed consent. They were reassured that their refusal to participate would not affect their treatment. Prior to treatment, a research assistant visited mother and child at home. Previous studies assessing observed anxiety in middle childhood used anxiety-provoking tasks, such as reading aloud, conversing with a peer, talking in front of a camera, and looking at fearful images (Beidel, Turner, & Morris, 2000; Kendall, 1994; Kendall et al., 1997; Turner & Romanczyk, 2012). These tasks are specifically designed to elicit fears related to social phobia or specific phobia, neglecting the heterogeneity of anxiety disorders in middle childhood. In the present study, we included children with different subtypes of childhood anxiety disorders (i.e., social anxiety, generalized anxiety, separation anxiety, and panic disorder). Therefore, we constructed a more general anxiety-provoking task suitable for children with various subtypes of anxiety. Separately, child and mother completed a questionnaire describing 18 most common anxiety-provoking situations (e.g., being home alone, giving a speech). Each item was rated on a 3-point rating scale assessing the degree to which the child would have felt anxious about the event in the next week. The research assistant chose the item that both mother and child rated the highest as the topic of a 5-minute discussion. When mother and child rated different events as the highest, the research assistant chose the item that mother and child both agreed on. After providing the instructions of having a discussion regarding this topic in front of the camera, the research assistant left the room. The anxiety-provoking task was recorded on a digital video camera. Only the data from pre-treatment assessments were used in the current study.

Measures

Screen for Child Anxiety Related Emotional Disorders (SCARED)

Children's anxiety symptoms were measured using the SCARED (Birmaher et al., 1999; Muris et al., 2007). The SCARED has a child self-report (C) and parent-report (P) version, which both consist of 69 identical items. Mother and child were asked to

rate each item on a 3-point scale ranging from 0 (never or almost never) to 2 (often). The psychometric properties of the SCARED have been well established (Muris et al., 2007). The questionnaire generates a Total score and scores on Panic disorder, Generalized anxiety disorder, Separation anxiety disorder, Social phobia, Obsessive-compulsive disorder, Posttraumatic stress disorder, and Specific phobia (animal, medical, situational) subscales. Norm scores are available only for child self-report, for boys and girls separately (see Muris et al., 2007). Each scale provides a low, normal, high, or at risk score. In the current study, the reliability of the SCARED was excellent for child self-report (Cronbach's α = .91) and good for mother report (Cronbach's α = .87).

Behavioral observations

Children's observed anxiety was measured using a modified version of Kendall and colleagues' coding system (1994; 1997). In Kendall's coding system, independent observers rated children's anxiety with seven observational codes; gratuitous body movements, gratuitous verbalizations, avoiding task, absence of eye contact, fingers in mouth, anxious voice, and body rigidity. These observational codes were based on the Preschool Observation Scale of Anxiety (POSA; Glennon & Weisz, 1978) and were modified for use with middle-aged children. The current study included six of the seven observational codes from Kendall and colleagues. The observational code Gratuitous verbalizations (e.g., stating to want to leave, stating a dislike for the task, physical complaint) overlapped with the observational code Avoiding task. Therefore, both observational codes were combined into one code named Avoiding task. In addition, Fearful facial expression was included in our coding system as an observational code while Kendall and colleagues included it as an additional rating scale. The Physical Cues of the Specific Affect (SPAFF) coding system were incorporated for Fearful facial expression (Coan & Gottman, 2007; Gottman, McCoy, Coan, & Collier, 1995). With these observational codes we planned to observe general signs of anxiety, as well as signs of panic disorder symptoms. However, signs of social anxiety symptoms and separation anxiety symptoms were not well reflected in these seven observational codes. Therefore, we added two observational codes; Shame and Proximity to mother. Shame was considered distinctive for socially anxious middle-aged children (DeKleyen, & Greenberg, 2008), whereas proximity to mother was considered distinctive for separation anxious middle-aged children (Muris, Meesters, Bouwman, & Notermans, 2015).

Thus, the current coding system contained nine observational codes: *Gratuitous body movements* (e.g., shaking hands or legs, rocking body, fiddling); *Avoiding task* (e.g., not talking, changing subject, leaving the room); *Absence of eye contact* (e.g., not looking at mother during task); *Fingers in mouth* (e.g., touching lips, biting

fingernails); *Anxious voice* (e.g., stuttering, whispering, giggling); *Body rigidity* (e.g., clenched fists, folded arms, unusually stiffness of body parts); *Fearful facial expression* (e.g., raising eyebrows, crying); *Shame* (e.g., stating to experience shame, blushing, hiding), and *Proximity to mother* (e.g., sitting in mother's lap, holding hands). Each observational code was rated on a 5-point scale ranging from 1 (not at all) to 5 (very much) by research assistants. An experienced coding supervisor trained three research assistants with a bachelor's degree in educational sciences over the course of four weeks until reaching an intraclass correlation coefficients (ICC) of .70. During the training, the coding manual and example files were reviewed, practice files were assigned, and calibration meetings were organized. Following the training, the research assistants coded the videotaped anxiety-provoking task and rated each observational code once at the end of the 5-minute discussion. Weekly follow-up meetings were organized to minimize coder drift, and 25% of the videos were double coded.

Statistical analyses

First, we computed the correlations among SCARED-C, SCARED-P, and behavioral observations. Fisher's *r* to *z* transformation was used to examine differences in correlations between subscales. Then, we analyzed patterns of agreement and disagreement between SCARED-C and P. Following the recommendations of Edwards (2002) and Shanock, Baran, Gentry, Pattison, and Heggestad (2010), a score was considered discrepant when the standardized score of the SCARED-C was half a standard deviation above or below the standardized score of the SCARED-P. A paired *t*-test was used to compare means between SCARED-C and P. Next, to analyze whether SCARED-C and P were related to behavioral observations, a regression model with the main effects of SCARED-C and P as predictors was tested. Last, polynomial regression with response surface modeling was used to assess whether agreement and discrepancy between SCARED-C and P were related to behavioral observations. Polynomial regression combined with response surface modeling was used to estimate the effects of *agreement* between two predictors and the *size* and *direction of disagreement* between two predictors and outcome. We followed the recommended procedures from previous papers (Edwards, 2002; Laird & De Los Reyes, 2013; Shanock et al., 2010). First, we analyzed the slope and curvature along the *line of perfect agreement*. The slope of this line captures the effect of agreement between SCARED-C and P on behavioral observations. The curvature of this line indicates whether the relationship is linear or nonlinear. Second, we assessed the *line of incongruence* when SCARED-C is not equal to SCARED-P. The slope of the line of incongruence presents the direction of the difference between SCARED-C and P in behavioral observations (i.e., the difference on behavioral observations when

SCARED-C is higher or lower than SCARED-P) while the curvature of this line shows the influence of the degree of discrepancy between SCARED-C and P on behavioral observations. Since gender differences were found in previous studies, including ones that used the SCARED (Muris et al., 2007), the analyses were also carried out for boys and girls separately.

Table 1 Descriptive statistics of SCARED

	Mother report *M (SD)*	Child report *M (SD)*	Percentage clinical range *
Total anxiety	43.73 (15.77)	54.01 (18.47)	27%
Boys	40.30 (14.41)	49.96 (18.93)	33%
Girls	43.73 (16.28)	56.12 (18.05)	23%
Separation anxiety	8.24 (3.97)	8.61 (4.34)	23%
Boys	7.41 (4.21)	7.33 (4.17)	26%
Girls	8.67 (3.81)	9.27 (4.32)	21%
Social anxiety	7.87 (3.77)	8.65 (3.42)	46%
Boys	7.44 (4.10)	8.22 (3.69)	56%
Girls	8.10 (3.61)	8.87 (3.28)	42%
Panic disorder	4.57 (3.55)	7.75 (5.11)	29%
Boys	3.15 (2.51)	6.89 (5.41)	30%
Girls	5.31 (3.80)	8.19 (4.94)	29%
Generalized anxiety	8.38 (4.14)	8.16 (3.81)	38%
Boys	8.26 (4.39)	7.89 (3.95)	41%
Girls	8.44 (4.04)	8.31 (3.77)	37%

Note. SCARED = Screen for Child Anxiety Related Emotional Disorders.
* For child report only, there are no norm scores available for the parent version of the SCARED.

RESULTS

Descriptive Statistics

The means and percentages of mother and child report of the SCARED are presented in Figure 1 and Table 1. The children who scored in the clinical range on the SCARED-C can be found in Table 1.

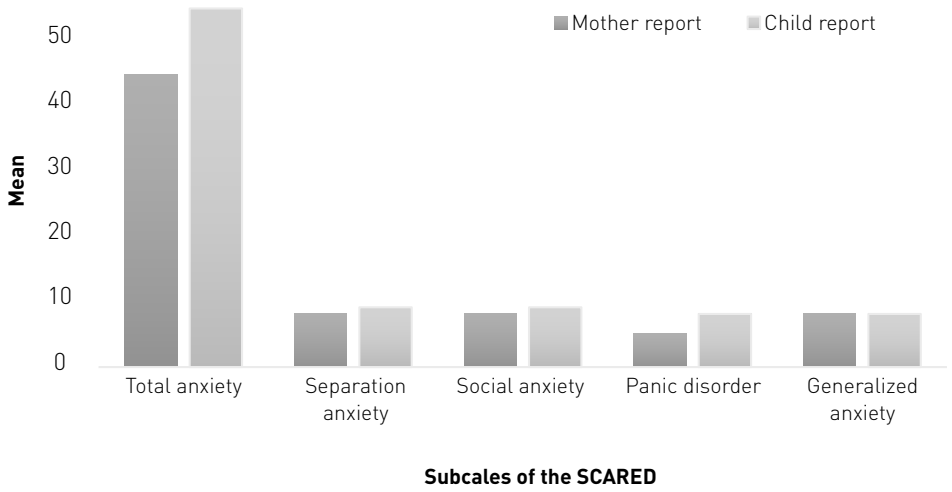


Figure 1 Mean anxiety subscale rating for mother and child report of the SCARED
Note. SCARED = Screen for Child Anxiety Related Emotional Disorders.

Table 2 lists means and interrater reliability statistics for all observational codes. The means show that Gratuitous body movements, Proximity to mother, and Absence of eye contact were often observed among the children while Avoiding task, Fingers in mouth, and Anxious voice were observed occasionally. Fearful facial expression, Shame, and Body rigidity were rarely observed during the anxiety-provoking task. Almost all children (96%) had a score of 1 on Fearful facial expression, indicating that Fearful facial expression was not observed during the anxiety-provoking task. Low variance was also found for Shame (96% had a score of 1) and Body rigidity (87% had a score of 1). Most codes showed moderate to good intraclass correlation coefficients (ICC). For Fearful facial expression, no ICC could be computed due to the absence of variance among the observers. For this code, we calculated the percentage of agreement, which was 95%.

Table 2 Descriptive statistics of all categories of observational codes

	M (SD)	Interrater Agreement (ICC)
Gratuitous body movements	3.22 (1.07)	.74
Avoiding task	1.44 (0.81)	.78
Fingers in mouth	1.82 (0.93)	.70
Anxious voice	1.94 (0.99)	.84
Body rigidity	1.18 (0.50)	.54
Proximity to mother	3.30 (0.65)	.72
Fearful facial expression	1.04 (0.19)	-*
Absence of eye contact	2.95 (0.85)	.66
Shame	1.04 (0.19)	.73

Note. * No ICC could be computed since there was no variance among observers.

Since the Fearful facial expression, Shame, and Body rigidity were almost non-existent in the sample, a composite score that was calculated as the mean score of the remaining six codes was generated. The reliability of this scale was very poor, with Cronbach's $\alpha = .18$. Exclusion of observational codes had no significant effect on the reliability of this scale, indicating that this composite score of observed anxious behavior was not fit for use. Additionally, correlations among the observational codes (Table 3) showed that only Proximity and Absence of eye contact were significantly interrelated. None of the other observational codes were interrelated. Further analyses were therefore conducted with the six observational codes separately (i.e., Gratuitous body movements, Avoiding task, Fingers in mouth, Anxious voice, Proximity to mother, and Absence of eye contact).

Mother-child discrepancy

The correlations between SCARED-C and P are presented in Table 3. Consistent with previous research, high levels of disagreement between SCARED-C and SCARED-P were found. The correlations on Total scale and the subscales were all in the low to moderate range. The strongest correlations were found between child and mother reports of separation anxiety and social anxiety (*r*'s being .55 and .40, respectively) while the lowest correlations were observed for the Total scale ($r = .26$). Fisher's *r* to *z* transformations indicated that agreement on Separation anxiety subscale ($r = .55$) was higher than agreement on the Total anxiety scale ($r = .26$; $z = 2.17$, $p = .03$). There was no significant difference between the other subscales. Contrary to our expectations for this clinical sample, children reported on average more symptoms compared to mothers for the Total anxiety scale, $t(78) = 4.37$, $p < .001$, and the subscale Panic

Table 3 Correlations of the observations codes and the SCARED

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Behavioral observations																
1. Gratuitous body movements	-															
2. Avoidance of subject	.11	-														
3. Fingers in mouth	-.08	-.05	-													
4. Anxious voice	.04	.05	-.08	-												
5. Proximity to mother	-.12	.20	.30	-.29	-											
6. Absence of eye contact	.04	.07	.10	.13	.26*	-										
SCARED-C																
7. Total score	-.02	-.06	.16	-.18	.11	-.02	-									
8. Separation anxiety	.05	-.01	.18	-.14	.26*	-.01	.67**	-								
9. Social anxiety	-.16	-.10	.08	-.09	-.01	-.15	.44**	.11	-							
10. Panic disorder	-.01	-.10	.19	-.29**	.03	.02	.76**	-.11	.21	-						
11. Generalized anxiety	.05	-.07	-.02	-.04	.03	-.05	.61**	.33**	.17	.36**	-					
SCARED-P																
12. Total score	.12	-.06	.07	.04	-.06	-.04	.26*	.28*	-.04	.05	.24*	-				
13. Separation anxiety	.16	.04	.13	.12	.06	-.03	.11	.55**	-.18	-.11	.13	.61**	-			
14. Social anxiety	-.04	-.04	.18	-.01	-.08	-.07	-.01	-.23*	.40**	.04	-.12	.22*	-.15	-		
15. Panic disorder	.04	-.19	-.03	-.05	-.01	.06	.35**	.28*	-.11	.35**	.23*	.70**	.40**	-.01	-	
16. Generalized anxiety	.20	-.05	.07	.08	-.04	-.01	.09	.10	-.12	-.09	.36**	.71**	.38**	-.01	.37**	-

Notes. * $p < .05$; ** $p < .01$
SCARED-C/P = Screen for Child Anxiety Related Emotional Disorders, Child/Parent version

disorder, $t(78) = 5.51$, $p < .001$. There was no significant difference for the subscales Separation anxiety, Social anxiety, and Generalized anxiety. Furthermore, we explored the incidence of agreement and disagreement between SCARED-C and P (see Table 4).

Mother-child discrepancy and behavioral observations

The correlations of the observational codes with the SCARED-C and P are presented in Table 4. A significant positive correlation was found between Proximity to mother and the subscale Separation anxiety of the SCARED-C and a significant negative correlation was presented between Anxious voice and the subscale Panic disorder of the SCARED-C. No other significant correlations were found. Furthermore, regression analyses showed no significant relations between the observational codes and the discrepancies between SCARED-C and P (all F's < 1.83, p's > .05). Gender differences were present. For girls, no significant relations were found between behavioral observations and the discrepancy between SCARED-C and P (all F's < 1.43, p's > .05). For boys, a significant relation was found between Anxious voice and the discrepancy between Social anxiety reported by boys and mothers (F (5, 21) = 3.09, p = .03; adjusted r^2 = .29) and between Avoidance and the discrepancy between Panic disorder reported by boys and mothers (F (5, 21) = 3.13, p = .03; adjusted r^2 = .29). None of the other behavioral observations were related to the discrepancy between boys' report (SCARED-C) and mother report (SCARED-P) (all F's < 1.97, p's > .05). For the two significant relations, further analyses were conducted.

The slope of the line of perfect agreement for Social anxiety and Anxious voice, as reported by boys and mothers, was negative and significant (B = -.17, $p < .01$). Anxious voice was high when mothers and boys agreed that Social anxiety was low. The curve of the line of perfect agreement was positive and significant (B = .03, p = .05), meaning that the relation between Anxious voice and Social anxiety was non-linear. The relation between Anxious voice and Social anxiety was stronger when both boys and mothers scored low rather than high on Social anxiety. Subsequently, the line of incongruence was examined, but both the slope (B = -.14) and the curvature (B = .00) were non-significant. The size and direction of the discrepancy between Social anxiety, as rated by mother and boy, were unrelated to Anxious voice. For the relation between Avoidance and mothers' and boys' agreement on Panic disorder; the slope (B = .62), and the curvature (B = .04) of the line of perfect agreement for Panic disorder of the SCARED-C and P and Avoidance were both non-significant. The line of incongruence showed a significant negative slope (B = -.99, p = .03) and a non-significant curvature (B = .07). This shows that Avoidance is higher when mothers' reports of Panic disorder are higher compared to those of boys. The size of the discrepancy between mothers and boys on Panic disorder was not related to Avoidance.

Table 4 Agreement and disagreement between SCARED-C and SCARED-P

	Agreement	Disagreement	SCARED-C higher	SCARED-P higher
Total anxiety	33%	67%	30%	35%
Boys	30%	70%	30%	41%
Girls	37%	63%	31%	33%
Separation anxiety	39%	61%	30%	30%
Boys	40%	59%	30%	30%
Girls	38%	62%	31%	31%
Social anxiety	43%	57%	27%	30%
Boys	44%	56%	26%	30%
Girls	42%	58%	27%	31%
Panic disorder	28%	72%	30%	42%
Boys	26%	74%	37%	37%
Girls	29%	71%	27%	44%
Generalized anxiety	37%	63%	32%	32%
Boys	41%	59%	26%	35%
Girls	35%	65%	35%	31%

Note. SCARED-C/P = Screen for Child Anxiety Related Emotional Disorders, Child/Parent version

DISCUSSION

We aimed to examine agreement and disagreement between mother and child reports of anxiety among a sample of clinically referred anxious children. In line with our hypotheses and previous studies (e.g., Cosi et al., 2010), a high level of mother-child disagreement was shown on the reports of anxiety with correlations ranging from low to moderate. Also as expected, the level of agreement between children and mothers varied across anxiety subtypes, with the strongest correlations observed for separation anxiety and social anxiety (*r*'s being .55 and .40, respectively) and the lowest correlation for total anxiety ($r = .26$). Moreover, mothers and children showed significantly greater agreement regarding the levels of separation anxiety compared to levels of total anxiety. One possible reason for the higher levels of disagreement for anxiety overall is that most anxiety symptoms are internal and not observable by others. Mothers may be unaware of children's worrying or internal distress. This is in line with previous studies that have found higher rates of agreement for anxiety

symptoms that are more observable, such as for specific phobia, compared to less observable anxiety symptoms, such as those of generalized anxiety that often involve worrying and other difficult to observe states (Pareira et al., 2015). Higher levels of agreement about levels of separation anxiety may also reflect the fact that these anxiety symptoms are primarily displayed in relation to the primary caregiver and in the home environment. Therefore, mothers may be especially likely to notice - and perhaps be distressed herself by - them. Further research could explore whether this higher agreement about separation anxiety is specifically found for mother-child agreement, or whether it is also shown for father-child and teacher-child agreement.

Contrary to our expectations for this clinical sample, we found that on average children reported more symptoms compared to mothers for total anxiety and panic disorder. The average scores on the other subscales (i.e., separation anxiety, social anxiety, and generalized anxiety) did not significantly differ between mother and child. It is possible that our sample might have had somewhat different characteristics compared with samples from other clinical studies. Children in the current sample were assessed for eligibility based on the anxiety symptoms reported by either the mother *or* the child and regardless of the problem they were referred to the agency for. In most non-clinical studies, children have been shown to report higher intensity, frequency, and severity of anxiety symptoms compared to their mothers, consistent with our sample (Krain & Kendall, 2000). Because it is the parent who most typically seeks help for their child's anxiety, this pattern may be reversed among other clinical samples. Hence, our method of including children according to reports from either parent *or* child may well have resulted in the observed pattern that children reported overall more symptoms than their mothers. Moreover, we explored the incidence of agreement and disagreement between mothers and children and found that the number of children who reported *more* symptoms compared to their mothers was roughly equal to the number of children who reported *fewer* symptoms compared to their mothers. It is recommended that further research not only explores differences in average scores, but also in the size and direction of the discrepancies and between separate subgroups of parent-child dyads.

Next, we examined how an observational measure of anxiety was related to the various subscales of mother and child report. We hypothesized that observed anxiety would be more strongly related to subtypes of anxiety problems that are characterized by more noticeable symptoms and less strongly related to subtypes of anxiety problems that are characterized by more internally experienced symptoms. In line with expectations, we found that observed proximity to mother was positively correlated with separation anxiety. Interestingly, this relation was only observed on children's reports. Children who indicated experiencing high levels of fear of separating from one of the parents were inclined to stay close to their mothers in the

anxiety-provoking situation. Hence, children were accurate reporters of this need for parental proximity. There is evidence that children are better at predicting their own anxiety in stressful situations (DiBartolo & Grills, 2006).

Furthermore, findings illustrated that children who had *low* levels of an observed anxious voice rated their own levels of panic disorder symptoms as *high*. Although this relation seems to be contradictory, it might be that children who score high on symptoms of panic disorder have become skilled in masking their anxious behaviors. The SCARED-C items that reflect symptoms of a panic disorder are mostly somatic symptoms (e.g., when I get frightened, my heart beats fast). It might be that children scoring high on these items are not by definition children with high levels of panic disorder, but rather experience anxiety accompanied by a high level of somatic complaints. These somatic symptoms are mostly internal and difficult to observe. Although both findings supported our hypothesis, no other relations between observed anxiety and children's reports were found. Furthermore, and unexpectedly, there was a lack of relations between observed anxiety and maternal reports.

Our lack of significant associations might be due to limited reliability and validity of our observational measure of anxiety. The coding system in the present study was based on prior work by Kendall and colleagues (1994; 1997) who adapted the POSA (Glennon & Weisz, 1978) for use in middle childhood. We further adapted and extended Kendall's coding system. Although all observational codes in the current study were reliable, together they did not form one reliable construct of observed anxiety. Previous studies in middle childhood experienced similar problems, as each study excluded different observational codes to assemble one reliable construct of observed anxiety (Kendall, 1994; Kendall et al., 1997; Turner & Romanczyk, 2012). Anxiety is an internalizing problem that involves mostly anxious thoughts and feelings, which are difficult to detect from an observer's point of view. Certainly, for children in middle childhood who are in the process of developing more complex emotions, self-awareness, and the ability to regulate and hide their emotions (Damon, Lerner, & Eisenberg, 2006), anxiety becomes more difficult to observe. These children are starting to become aware of the social undesirability of showing anxiety and are more capable of masking their own anxiety than younger children.

In addition, not all situations will elicit the same amount of fear and distress in all children. In addition to our own current results, other researchers have pointed to the fact that anxiety evokes different types of coping strategies and different levels of capacities to mask anxious behaviors so that no single task can capture anxious behaviors reliably (Thorne, Andrews & Nordstokke, 2013). However, the current study used a single anxiety-provoking task (videoed discussion) to capture all subtypes of anxiety disorders instead of focusing on one specific anxiety disorder, such as social or specific phobia (Beidel et al., 2000; Kendall, 1994; Kendall et al., 1997; Turner &

Romanczyk, 2012). In retrospect, the discussion between mother and child about a feared event did not elicit high enough levels of distress in most of the mother-child dyads to manifest overtly. Future studies should consider the use of a more specific and intensive anxiety-provoking task. Specific anxiety-provoking tasks or exposure tasks are necessary to elicit high enough levels of distress in children with a specific anxiety disorder.

Another reason for the limited agreement between observed anxiety and the rating scales might be the inherent discrepancy between what is being measured with a behavioral measure and a rating scale. Anxiety rating scales generally assess the child's cognitions and feelings about their own anxiety and distress across a range of time. Thus, they measure trait anxiety, as a stable, summary-level, index of anxiety that is considered more persistent across situations and through development. On the other hand, when children are observed during an anxiety-provoking situation, real time, state anxiety (the experience of anxiety in the here and now) is being measured. Although these two indices of anxiety are correlated, they are also distinct. For example, behavioral observations of anxiety are more common among studies with preschool children and these studies tend to find only small to moderate correlations with parental reports (e.g., Stifter et al., 2008). Furthermore, the level of agreement between behavioral observations of anxiety and parental reports with preschool children vary depending on the level of threat within the anxiety-provoking situation (Kiel & Hummel, 2017) and depending on the positivity of the observational codes (Stifter et al., 2008). Thus, our own study as well as these previous ones seems to suggest that there is distinct information about anxiety, its real-time expression (under lab conditions) and questionnaires that are important to note and be mindful of when designing clinical research and for clinical practice purposes. Lastly, the variance in observed anxiety might have been low due to the homogenous sample of highly anxious children.

Although we had our concerns regarding the observational measure of anxiety, there were some interesting gender differences that emerged. In general, gender of the child has been inconsistently associated with agreement between mother and child. Some studies found no differences between girls' and boys' reports and those of their mothers (Choudhury et al., 2003), whereas others have found that boys agreed more with their mothers than girls did (Grills & Ollendick, 2003). In the present study, we found similar discrepancies between boys and girls. One curious finding emerged with respect to our exploratory analyses of mother-child discrepancies and observed anxiety. Contrary to expectations, mother-child discrepancies overall were not related to the behavioral observations. For boys, on the other hand, we found that when they agreed with their mother that their social anxiety was *low*, they had *high* levels of anxiety in their voice. Additionally, when mothers reported higher rates of panic

disorder than did their sons, boys showed more avoidance in the anxiety-provoking task. This finding is difficult to interpret because it may be a chance finding or it needs to be qualified with more precise tests of which types of behavioral observations (e.g., anxious voice) are clear indicators for anxiety in children. However, it is clear that future studies regarding agreement and disagreement between parents and children should take gender differences into account.

The current study has an additional important limitation that should be acknowledged. Including children in the clinical agencies was more challenging than we anticipated. Although we extended our study by one full year, we were unable to include the full recommended sample of 120 children (Jansen et al., 2012). Therefore, the analyses were underpowered. Unfortunately, this is a common issue in clinical research and our sample size was comparable or even larger than other similar clinical studies (e.g., Choudhury et al., 2003; Esbjørn et al., 2013). Moreover, we believe that it is important to also publish studies that have failed in their initial aim to observe and code anxiety, with the effort to avoid problems that come with self- and parent-reports. We ourselves would have benefitted tremendously if we had found a prior study in the literature that had highlighted the potential limitations of observational tasks and coding systems and we hope that our observational treatment study with follow up data, could indeed make this contribution to the field. In future studies, it seems clear from these current data that researchers should be cautious with what anxiety-provoking tasks they use as well as the coding system for assessing anxiety in middle childhood. Furthermore, clinical studies with bigger sample sizes are needed.

This study had various limitations that were discussed (especially as they relate to behavioural observations of anxiety) and they certainly temper the implications. The high levels of discrepancy between mother and child reports underscore the importance of applying a multi-informant assessment in clinical practice, as well as research. Although numerous studies over the years have highlighted the importance of multi-informant assessments, there continues to be a long-held preference to prioritize information from the parent over the child (Dirks et al., 2012). Moreover, our findings suggest that discrepancies may vary among various subtypes of childhood anxiety. Researchers and clinicians may expect higher agreement between mothers and children on ratings of separation anxiety and lower agreement on ratings of total anxiety and somatic symptoms. It may be particularly important for anxiety problems that are characterized by more internally manifested factors (e.g., arousal), to incorporate both the child's and parent's perspectives in the assessment of anxiety.

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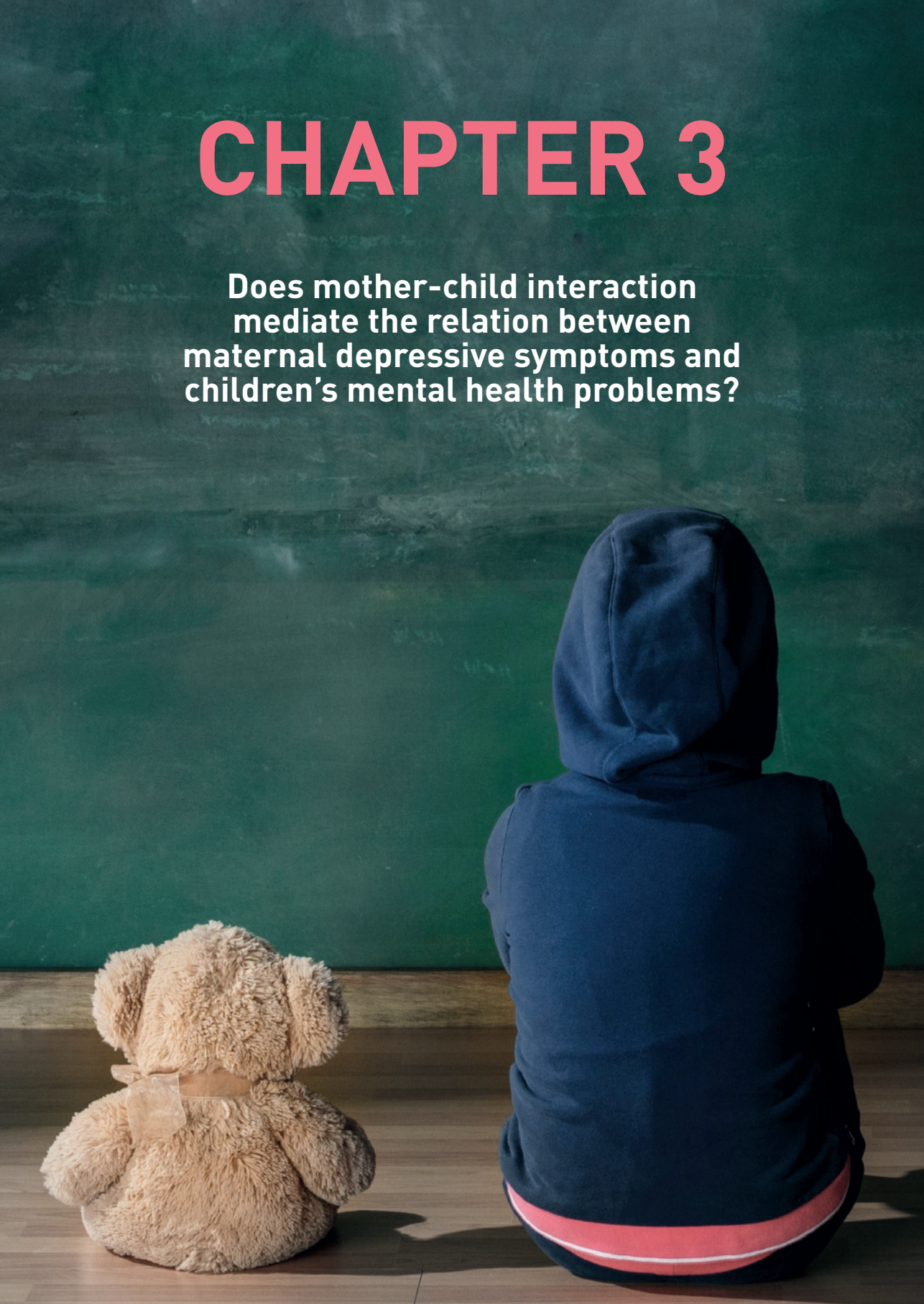
CHAPTER 3

Does mother-child interaction mediate the relation between maternal depressive symptoms and children's mental health problems?



ABSTRACT

The relation between maternal depressive symptoms and children's mental health problems has been well established. However, prior studies have predominantly focused on maternal reports of children's mental health problems and on parenting behavior, as a broad and unilateral concept. This cross-sectional study examined specific observed mother-child interaction behaviors through which maternal depressive symptoms are assumed to affect children's mental health problems. We expected higher rates of maternal depressive symptoms to predict higher rates of children's mental health problems, and we expected this relation to be mediated by low maternal warmth and high maternal psychological control. The sample consisted of 111 mother-child dyads referred for treatment. The mother-child interaction behaviors were coded according to the observed mother-child interaction tasks. Children's mental health problems were assessed using both maternal reports and children's self-reports. As expected, the results showed that maternal depressive symptoms were strongly related to maternal reports of children's internalizing and externalizing mental health problems. Surprisingly, maternal depressive symptoms were unrelated to children's self-reported depressive symptoms. Furthermore, mother-child interactions did not mediate the relation between maternal depressive symptoms and child mental health problems. Maternal depressive symptoms were associated with low maternal warmth, and high psychological control was associated with high levels of mother-reported externalizing mental health problems in children. These results partially replicate previous findings but add to these by using observational methods and multi-informant data. The importance of using a multi-informant and multi-method approach in assessing children's mental health problems in clinical practice and research are discussed.

INTRODUCTION

The lifetime prevalence rate of depression ranges from 8% to 12% (Andrade et al., 2003). According to the World Health Organization (2008), women are not only twice as vulnerable to depression compared to men, but also experience 50% more disease burden compared to men. Additionally, women with children have an increased risk of experiencing more depressive symptoms compared to women without children (Kessler, 2006). These findings are worrisome, since research has shown that children of mothers with depressive symptoms are at a higher risk for poor psychosocial development, such as low self-esteem, negative attribution styles, heightened emotionality, and negative affect. They are also more likely to experience social and achievement problems and to suffer from mental health problems, such as depressive or anxious symptoms and behavioral disorders (Goodman & Tully, 2006; Hammen, Shih, Altman, & Brennan, 2003). While the adverse effects of maternal depressive symptoms on child development are well documented, less is known about the underlying mechanisms that mediate the transmission of risk (Goodman et al., 2011). A well-documented mechanism is mother-child interaction behavior, but up until now, studies have mainly used maternal self-report to assess both mother-child interaction behavior and mental health problems in children, calling into question the extent to which these relations should be attributed to reporter bias in mothers with depressive symptoms (Kraemer et al., 2003). Additionally, studies investigating the mediating effect of observed mother-child interaction behaviors have examined mother-child interaction as a broad concept (e.g., negative vs. positive), and did not focus on specific types of interaction behaviors (Burt et al., 2005).

Goodman and Gotlib (1999) proposed an integrative model of the transmission of risk for children of mothers with depressive symptoms, identifying the following mechanisms: (1) heritability of depression, (2) dysfunctional neuroregulatory mechanisms, (3) exposure to negative maternal cognitions, behaviors, and affect, and (4) the stressful context of the children's lives. Mother-child interaction is part of the third mechanism of this integrative model and entails several components and processes. The first component within this domain states that maternal depressive symptoms are expressed by negative cognitions, behaviors, and affect. Adults with depressive symptoms are more likely to endorse negatively biased self-perceptions and cognitions (Gotlib & Neubauer, 2000). In particular, mothers with depressive symptoms have been found to have a negative perception of their role as a parent (Goodman, Sewell, Cooley, & Leavitt, 1993), to experience more helplessness regarding their children's development, and to view themselves as less capable of influencing their children in a positive manner (Kochanska, Radke-Yarrow, Kuczynski, & Friedman, 1987). Mothers with depressive symptoms were also found to expose

their children to depressive behaviors and affect. They showed increased negativity (e.g., intrusiveness, control, hostility), greater disengagement (e.g., ignoring, withdrawal, silence), and less positivity (e.g., warmth, praise, affection) in interaction with their child compared to non-depressed mothers (Lovejoy, Graczyk, O'Hare, & Neuman, 2000). Furthermore, mothers with depressive symptoms showed more anger, sadness, and irritable affect towards their child (Conn, Campbell, Matias, & Hopkins, 1990).

The second component suggests that because of these negative cognitions, behaviors, and affects, mothers experience difficulties interacting with their children and fail to meet their social and emotional needs. According to the attachment theory, children develop an attachment relationship with their primary caregiver who provides the child with an internal working model that encourages the child to explore the world and to regulate his or her feelings effectively (Bowlby, 1982). Children of mothers with depressive symptoms had higher rates of insecure attachment (Martins & Gaffan, 2000). In turn, higher rates of insecure attachment in the child were associated with higher rates of mental health problems in the child (Brumariu & Kerns, 2010). Parental sensitivity seems to be crucial in forming attachment representations. Insensitivity and unresponsiveness in the mother-child interaction were linked to insecure attachment (Egeland & Farber, 1984). In addition, psychological control can also lead to an insecure attachment. Children who grew up in an inconsistent or psychologically controlling parenting environment were likely to experience feelings of insecurity and dissociation (Soenens, Vansteenkiste, Goossens, Duriez, & Niemiec, 2008), which might lead to insecure working models and eventually to more mental health problems.

The third component describes that this problematic interaction with the mother impairs the development of adequate social skills and cognitive styles in children. Children of mothers with depressive symptoms were rated as less popular by their teachers compared to children of mothers without depressive symptoms (Goodman, Brogan, Lynch, & Fielding, 1993). Furthermore, Sroufe, Egeland, Carlson, and Collins (2005) showed that insecurely attached children displayed more negative affect in interaction with other children, presented less prosocial behavior, and reacted more aggressive compared to securely attached children. The fourth and last component postulates that children express cognitions, behaviors, and affect similar to their mother, which they attain through social learning processes, such as modeling. Children of mothers with depressive symptoms displayed more negative cognitions (i.e., lower self-concepts, more self-criticism, less positive self-descriptive adjectives) and more negative affect and behavior (i.e., less responsiveness, less activity, less content, flatter affect) compared to children of mothers without depressive symptoms (Dawson, Frey, Panagiotides, Osterling, & Hessl, 1997; Garber & Robinsion, 1997).

Goodman and Gotlib (1999) argued that children's deficient social skills and cognitive styles, in addition to their attained negative cognitions, behaviors, and affect, would eventually put them at risk for developing mental health problems. It is therefore crucial to gain a more detailed understanding of the interaction between mother and child regarding the transmission of maternal depressive symptoms to children's mental health problems.

Recent studies have found evidence for a mediating effect of typical mother-child interaction behaviors, such as neglectfulness, positive, and negative affect, positive relations, and disciplinary practices, on the relation between maternal depressive symptoms and children's mental health problems, both internalizing and externalizing (Karazsia & Wildman, 2009; Kiernan & Huerta, 2008; Pugh & Farrell, 2012). Although these mediation studies have made an important contribution to the understanding of the link between maternal depressive symptoms and children's mental health problems, they are subject to limitations. One important limitation is the reliance on maternal report regarding both children's mental health problems and mother-child interaction behavior (Karazsia & Wildman, 2009; Kiernan & Huerta, 2008). This may cause potential reporter bias, since cognitive theories of depression suggest that mothers with higher levels of depressive symptoms seem to perceive various aspects of their life, including their child's mental health, in a more negative way compared to mothers with lower levels of depressive symptoms (Kraemer et al., 2003). To prevent possible reporter bias regarding the nature and quality of mother-child interaction behaviors, observation of mother-child interaction behaviors might be preferred to self-report in studies examining mothers with depressive symptoms. However, observation studies with a specific focus on maternal depressive symptoms and mediating mother-child interactions are scarce. To our knowledge, only one observational study investigated the mediating effect of observed mother-child interaction behavior on the relation between maternal depressive symptoms and children's mental health. Burt et al. (2005) found that negative mother-child interaction partially mediated the association between maternal depressive symptoms and adolescent mental health problems in male adolescents only. The authors focused on global, overarching codes of mother-child interaction behavior (e.g., negative vs positive); therefore, it could not provide information about specific mother-child interaction behaviors that may be most indicative of depressive mothers' parenting and may have direct implications for prevention and intervention efforts.

Empirical literature on specific mother-child interactions identified maternal warmth and maternal control as crucial factors in explaining children's internalizing and externalizing mental health problems (Albrecht, Galambos, & Jansson, 2007; Casas et al., 2006; McNamara, Selig, & Hawley, 2010). Recent meta-analyses confirmed that less maternal warmth and more maternal control were related to

increased children's mental health problems (Kawabata, Alink, Tseng, van IJzendoorn, & Crick, 2011; McLeod, Weisz, & Wood, 2007). However, the construct control has been criticized for the inability to differentiate between behavioral and psychological control (Soenens & Vansteenkiste, 2010). Behavioral control is defined as the ability of the parent to regulate the behavior of the child by using discipline (providing rewards and punishments) and monitoring. Psychological control is the ability of the parent to hinder independence and autonomy of the child by using emotional manipulation (e.g., guilt or shame inducing, love withdrawal), constrain, and invalidation (Ballash, Leyfer, Buckley, & Woodruff-Borden, 2006; Barber, Stolz, & Olsen, 2005). Moderate levels of behavioral control have been related to positive outcomes, whereas psychological control has been associated with children's internalizing and externalizing mental health problems (Barber et al., 2005).

The current study was designed to examine the mediating effect of mother-child interaction on the relation between maternal depressive symptoms and children's mental health problems. We addressed several gaps in the prior empirical literature. First, to bypass any possible reporter bias, we used observations of the mother-child interactions instead of maternal report, and we included both mother-report as well as children's self-reports of children's mental health problems. Second, to extend past observational research that focused on broad, global categories of positive and negative interaction patterns as a mediator, we focused on maternal warmth and maternal psychological control, two more specific mother-child interactions that are known to be related to both maternal depression as well as child mental health. The main objective of the present study was to examine observed maternal warmth and maternal psychological control as mediators in the relationship between maternal depressive symptoms and children's mental health problems, as reported by both mothers and children themselves. We expected that higher rates of maternal depressive symptoms would predict higher rates of mother-reported internalizing problems and externalizing problems of children as well as higher rates of child self-reported depressive symptoms. Furthermore, we hypothesized that low maternal warmth and high maternal psychological control will mediate these relations.

METHOD

Participants

This study was part of a larger treatment study on aggressive children that aimed to determine the processes of change related to treatment success (Granic, O'Hara, Pepler, & Lewis, 2007). The parents of all children with aggressive behavior that were referred to one of two participating Canadian mental health agencies by a mental

health professional, teacher, or parents themselves were informed about the study and asked to participate. They were reassured that declining to participate would not affect their further treatment. If they participated in the research, they were offered CAD$10.00. The inclusion criteria of the large treatment study on aggressive children were a clinical or borderline-clinical score (T ≥ 65) on the externalizing subscale of the parent-report form of the Child Behavior Checklist (CBCL; Achenbach, 1991) and sufficient knowledge of the English language to complete the questionnaires without an interpreter. The child also had to live with the mother (biological, step-, or adoptive). Children were excluded if they were diagnosed with a pervasive developmental disorder or if they had an IQ below 70. Information about other clinical diagnoses was not available. Only the data from pre-treatment assessments were used in the current study and only mother-child dyads that had complete data on all of the study variables at pre-treatment were included. Initially, 199 children between 8 to 12 years of age and their mothers consented to participate. Of the original sample that consented to participate, 88 dyads (44%) had to be excluded due to missing data (refusing to be videotaped, not showing up at the research appointment, or not filling in some of the questionnaires). Unfortunately, families with aggressive children who visit outpatient clinics for treatment generally have high dropout rate (e.g., Prinz & Miller, 1994). The final sample for the present study consisted of 111 dyads. The children ranged in age from 8 to 12 years (M = 9.38, SD = 1.15) and 88% were boys. Most children (37%) resided in intact families, 33% lived in single-parent (exclusively maternal) households, 18% in blended families (e.g., living with biological mother and stepfather), 7% lived with adoptive parents, and 5% in other family compositions (e.g., mother and child living with grandparents). Children were mostly Caucasian (82%), followed by African-American or Caribbean (12%), Latin-American (2%), and other ethnical backgrounds (e.g., Asian) (5%).

The mothers ranged in age from 26 to 56 years (M = 39.15, SD = 6.47). Most mothers (46%) was married, 19% were single (never married), 18% were divorced or separated, 14% lived in a common law relationship, and 3% reported another relationship status (e.g., widowed). Maternal education level was relatively high, with 8% having a post graduate or professional degree. Furthermore, 49% graduated from community college or university, 29% graduated from high school, 9% attended high school but did not graduate, and 5% finished grade 8 or less or had other forms of education. Family income was relatively high as well, 46% made over $60,000, 19% made $40,000 to $59,000, 18% made between $20,000 and $39,000, and 18% made under $20,000 per year.

The attrition analyses showed no differences between the total (N = 199) and final (N = 111) sample in maternal depressive symptoms $t(190) = 1.64$, *ns;* internalizing problems $t(195) = 0.79$, *ns*; externalizing problems $t(195) = 0.54$, *ns*; maternal warmth

t(193) = -0.65, *ns*; maternal psychological control *t*(153) = -1.75, *ns*; maternal age *t*(175) = -1.12, *ns*; maternal education *t*(193) = 1.37, *ns*; and family income *t*(187) = -1.52, *ns*. Furthermore, no differences emerged between the two samples on maternal relationship status χ^2 (6, *N* = 198) = 3.18, *ns*; residence of the child χ^2 (6, *N* = 199) = 7.94, *ns*; and ethnicity of the child χ^2 (5, *N* = 197) = 3.18, *ns*. The final sample differed from the original sample only in gender of the child χ^2 (1, *N* = 199) = 7.85, $p < .01$. The percentage of boys in the final sample (88%) was higher compared to the original sample (81%).

Procedure

The data collection took place before the start of the treatment and included a home visit by a research assistant where families completed questionnaires. First, mothers and children were asked to complete the consent forms and a modified version of the Issues Checklist (Robin & Weisz, 1980), which lists a number of potential sources of conflict between parents and children (e.g., bed time, lying, swearing). Next, mother and child were placed together (e.g., at a kitchen table, on a couch) and asked to engage in three separate discussions. The first and third discussion lasted four minutes and contained a positive, hypothetical topic, such as winning the lottery or planning a trip together. These topics were randomly assigned and counterbalanced across participants. The second discussion on a conflict topic chosen from the previously completed Issues Checklist lasted six minutes. Based on the procedure of Forgatch, Fetrow, and Lathrop (1985), this entailed asking mother and child separately to report whether they had argued about each issue in the past two weeks, to report the frequency and intensity of these discussions (on a 5-point scale from calm to angry), and to report whether the issue had been resolved. The hottest unresolved topic (as indicated by both mother and child) was chosen for the conflict discussion (e.g., going to bed on time, fighting with sibling). The research assistant gave instructions before each of the three discussions and then left the room. The interactions were recorded on a digital video camera. After the discussion tasks, mothers completed the measures of the child's mental health problems and of their own depressive symptomatology. Children completed a questionnaire about their own depressive symptoms.

Measures

Beck Depression Inventory (BDI-II)

Maternal depressive symptoms were measured using the Beck Depression Inventory Second Edition (BDI-II; Beck, Steer & Brown, 1996). The BDI-II measures depressive symptomatology in 21 items and shows high validity in differentiating depressed from non-depressed individuals (Richter, Werner, Heerlein, Kraus, & Sauer, 1998). Items

are rated on a 4-point scale ranging from 0 to 3 in terms of intensity of symptoms (e.g., change in appetite) and attitudes (e.g., pessimism) during the past two weeks. Scores of 0 - 9 on the BDI-II indicate the non-clinical range (no signs of depression) and scores of 10 and above indicate the clinical range (mild to severe signs of depression). Reliability of the BDI-II scale was excellent (Cronbach's α = .92).

Child Behavior Checklist (CBCL)

Children's mental health problems were measured using the Child Behavior Checklist (CBCL; Achenbach, 1991). The CBCL is a widely used parent-report questionnaire that has two broadband factors, internalizing (anxious, depressed and withdrawn behavior) and externalizing mental health problems (aggressive and hyperactive behavior). Mothers were asked to rate each of the 113 items on a 3-point scale ranging from 0 (does not apply to the child) to 2 (clearly or often). T-scores of 64 or less represent normal range, T-scores of 65 - 69 indicate borderline-clinical range, and T-scores of 70 or higher represent the clinical range. The psychometric properties of the CBCL have been well established (Ivanova et al., 2007).

Short Mood and Feeling Questionnaire (SMFQ)

Children's self-reported depressive symptoms were assessed using the Short Mood and Feeling Questionnaire (SMFQ; Angold et al., 1995). The SMFQ is a self-report questionnaire that measures symptoms of depressive disorders in children and adolescents. Children are asked to rate each of the 13 items on a 3-point scale ranging from 0 to 2 in terms of intensity of depressive symptoms during the past two weeks (e.g., "I felt miserable or unhappy", "I did everything wrong"). A score of 8 or higher suggests the clinical range (Angold et al., 1995). Various studies have demonstrated satisfactory psychometric properties of the SMFQ. The SMFQ showed good reliability (Angold et al., 1995), convergent validity (Wood et al., 1995), construct validity (Sharp, Goodyer, & Croudace, 2006), and criterion validity (Angold et al., 1995). In the current study, the SMFQ showed good reliability (Cronbach's α = .87).

Coding

The video recordings of the conflict discussion task were used to assess maternal warmth and maternal psychological control. The coding system was based on prior work of several researchers (Ballash et al., 2006; Barber, 1996; Eyberg, Nelson, Duke, & Boggs, 2005; Greco & Morris, 2002; McLeod et al., 2007; Siqueland, Kendall, & Steinberg, 1996; Soenens & Vansteenkiste, 2010). The coding system contained 27 items on a 9-point scale ranging from 1 (not at all) to 9 (very much), indicating the extent to which the behavior was present during the discussion task. We decided to delete 4 items that did not measure maternal warmth or psychological control and 7

items that were almost non-existent in the sample [> 90% had a score of 1 ('not at all') on the item]. Due to the small sample size, a proper confirmatory factor analysis could not be conducted. However, the results of an initial CFA, which utilized a WLSMV-estimator (i.e., Weighted Least Square estimator with a Mean- and Variance- adjusted chi-square test statistic) because of the categorical coding categories, showed some support for these two factors through the satisfactory to good factor loadings (>.30; as stated by Tabachnick & Fidell, 2007) for all but two items ('constraining' and 'shame inducing'). These two items were not excluded since both constraining (Ballash et al., 2006; Barber, 1996) and shame inducing (Barber, 1996; Aunola & Nurmi, 2004) have been described as essential to psychological control. We decided to stay as close as possible to the theoretical constructs that have been determined in previous studies (Barber, 1996; Kunz & Grych, 2013). A detailed description of the 16 items measuring maternal warmth and psychological control can be found in the Appendix.

Four female research assistants with undergraduate degrees in psychology and previous experience with Specific Affect (SPAFF) coding coded the data. In addition, they underwent a 4-week global coding system conducted by an experienced coding supervisor. The coding manual and example files were reviewed during the first two weeks of training. During the final two weeks of training, practice files were assigned and calibration meetings were set up. After the training, the research assistants coded the videotapes of this study and rated each item once at the end of the discussions task. Weekly follow-up meetings were set up to minimize coder bias. Twenty percent of the videos were double coded by two research assistants and showed good interrater reliability (ICC = .89).

Maternal warmth included the following items: (a) engagement (e.g., asking questions, reminiscing); (b) joint attention (e.g., non-verbal or verbal involvement); (c) balance (e.g., turn-taking); (d) laughter (e.g., joyous laughter); (e) support (e.g., loving statements, concerned questions, reassurance); and (f) validation (e.g., acceptance, paraphrasing). The mean score on all items was used to generate a global score for maternal warmth, with higher scores indicating higher levels of maternal warmth. The reliability for maternal warmth was good (Cronbach's α = .76).

Maternal psychological control included the following items: (a) suggestive questioning (e.g., statement questions); (b) superiority (e.g., pedantic behavior, impose opinion); (c) constraining (e.g., interruption, continuous questioning); (d) invalidation (e.g., denies or argues with statements); (e) criticism (e.g., rejection, attack); (f) intrusiveness (e.g., pervasive talking); (g) shame inducing (e.g., feeling ashamed); (h) guilt inducing (e.g., feeling guilty); (i) provocation (e.g., continuous disagreement, compete); and (j) physics (e.g. physical signs of invalidation). The mean score for all items was used to generate a global score on maternal psychological control, with

higher scores indicating higher levels of psychological control. The reliability for maternal psychological control was low (Cronbach's α = .59).

Statistical analyses

First, the means, standard deviations, and correlations among all variables were computed. The association between maternal depressive symptoms, observed mother-child interaction behaviors, and children's mental health problems was examined using linear regression models with manifest variables in Mplus 6.12 (Muthén & Muthén, 1998-2010). The correlation between the observed mother-child interaction behaviors and the interrelations among the three children's outcome measures were also considered. Furthermore, we used gender of the child, age of the child, and maternal education level as control variables.

Mediation effects were tested in Mplus using the bootstrap method, following the recommendations of Preacher and Hayes (2004). Bootstrapping has the advantage that it does not rely on the assumption that variables are normally distributed, and it can be applied to smaller sample sizes. Furthermore, it does not require meeting the assumptions of significant relations between the independent and outcome variables, which can be the case with small sample sizes due to a lack of statistical power to detect potential present relations (Type II error). Model parameters were estimated with the default estimator of maximum likelihood (ML). Since the model was saturated, goodness-of-fit statistics could not be reported. Instead, the 95% percentile-based bias corrected and accelerated (BCa) bootstrap confidence intervals were used as a test of significance of the direct and indirect paths. Indirect effects were considered significant when the confidence interval did not include zero. Parameter estimates of the indirect effect were based on 5,000 bootstrap samples.

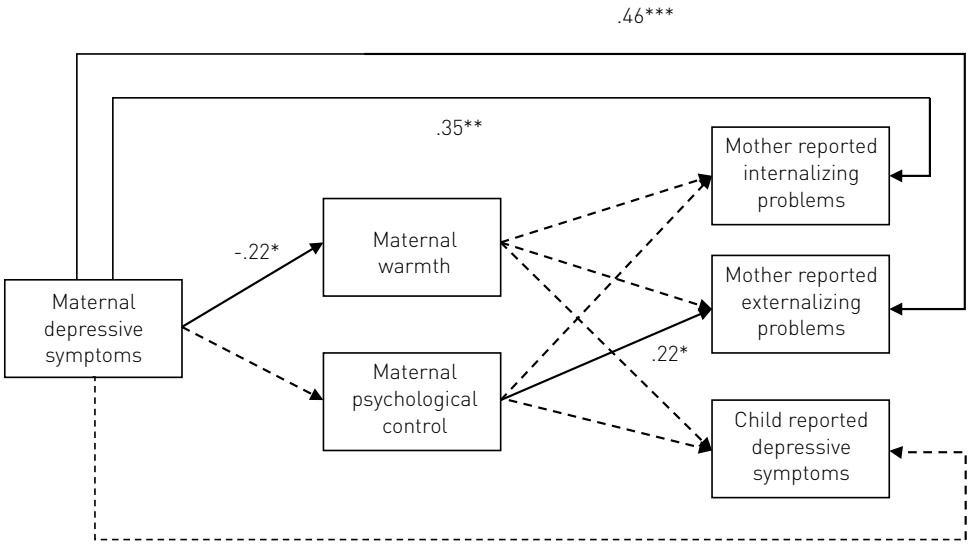


Figure 1 Model of direct paths of maternal mother-child interaction behavior with maternal depressive symptoms and children's mental health problems
Note. Black lines indicate significant paths and dashed lines indicate non significant paths.
* $p < .05$, ** $p < .01$, *** $p < .001$

RESULTS

Table 1 presents descriptive statistics and correlations for all study variables. Mean scores on maternal depressive symptoms indicated that the mothers in the sample could be described as mildly depressed. The percentage of mothers that had a score in the clinical range (a score of 10 or higher on BDI) was 59%. The scores of children's internalizing problems on the CBCL ranged from normal to clinical, with a mean score in the normal range. Overall, 32% of children had a total internalizing score in the clinical range on the CBCL, with 16% reporting Somatic Problems, 18% Anxiety Problems, and 35% Affective Problems. The mean scores of children's externalizing problems on the CBCL exceeded the clinical cut-off (a T-score of 70 or higher). Furthermore, 71% of children had a total externalizing score in the clinical range on the CBCL, ranging from 38 % on ADHD to 68% on Oppositional Defiant Problems and Conduct Problems. The mean score of children's self-reported depressive symptoms were within the normal range, just below the clinical cut-off (a score of 8 or higher on the SMFQ), with 42% of children having a score in the clinical range.

Maternal depressive symptoms correlated positively with mother-reported internalizing and externalizing mental health problems of children, but not with

children's self-reported depressive symptoms. Maternal depressive symptoms correlated negatively with maternal warmth but not with psychological control. The observed mother-child interactions did not correlate with mental health problems of the child (neither maternal nor child reports). Moreover, children's self-reported depressive symptoms did not correlate with maternal reported internalizing or externalizing mental health problems.

Figure 1 presents the results of the significant paths of the model while controlling for age and gender of the child and education of the mother. Figure 1 presents the standardized estimates for the significant paths. First, the associations between the independent variable and outcomes were assessed. Next, the direct paths between the independent variables and the mediators were examined. Maternal depressive symptoms were negatively associated with observed maternal warmth (β = -.22, p = .02). Unexpectedly, maternal depressive symptoms were not associated with observed maternal psychological control. Regarding the hypothesized direct relations between the mediators and children's mental health outcomes, as reported by mother and child, we found that observed maternal psychological control was positively related to maternal reports of children's externalizing problems (β = 0.22, p = .01). Observed maternal psychological control was not associated with children's internalizing problems based on the mother or children's depressive symptoms, as reported by the child. Unexpectedly, observed maternal warmth was not linked to any of the mental health problems of the child (neither maternal nor child reports). Table 2 shows the standardized path coefficients of the mediation analyses with bootstrapping. The analyses showed that observed maternal warmth and observed maternal psychological control did not mediate any of the relations between maternal depressive symptoms and children's mental health problems. Models were also run for boys only, which yielded similar results.

Table 1 Descriptive statistics and correlations of all study variables

Variable	*M (SD)*	Percentage clinical range	1	2	3	4	5	6
1.Maternal depressive symptoms	12.67 (9.64)	59 %	-					
Mother-child interaction behavior								
2. Maternal warmth	4.26 (1.06)		-.23*	-				
3. Maternal psychological control	2.29 (0.62)		-.08	-.28**				
Children's mental health problems								
4. Internalizing problems (M)	63.82 (9.39)	32 %	.38***	-.13	.08	-		
5. Externalizing problems (M)	72.01 (5.81)	71 %	.37***	-.09	.18	.60***	-	
6. Depressive symptoms (C)	7.76 (5.75)	42 %	-.03	-.06	.09	.13	.11	-

Note. * $p < .05$; ** $p < .01$; *** $p < .001$
For informant: M = reported by mother, C = reported by the child.

Table 2 Standardized path coefficients of mediation analyses

	ß	SE	95% CI [a]
Maternal depressive symptoms to internalizing problems (M)			
Via maternal warmth	0.03	0.02	-0.03, 0.03
Via maternal psychological control	-0.01	0.01	-0.03, 0.01
Maternal depressive symptoms to externalizing problems (M)			
Via maternal warmth	-0.02	0.02	-0.05, 0.02
Via maternal psychological control	-0.02	0.02	-0.06, 0.02
Maternal depressive symptoms to depressive symptoms (C)			
Via maternal warmth	0.01	0.02	-0.03, 0.04
Via maternal psychological control	-0.01	0.02	-0.04, 0.02

[a] Bias corrected and accelerated (BCa) bootstrap confidence intervals.
For informant: M = reported by mother, C = reported by the child.

DISCUSSION

The first objective was to examine whether maternal depressive symptoms were positively related to children's mental health problems. Consistent with our premise and previous studies (e.g., Turney, 2011), we found mothers with higher levels of depressive symptoms reporting more internalizing and externalizing mental health problems in their children. Contrary to our expectations, children of mothers with higher levels of depressive symptoms did not report more depressive symptoms. Thus, from the mother's perspective, we found a relation between maternal depression and child psychopathology, but this relation was not present when using child report. It has been suggested that maternal depressive symptoms have a great influence on informant discrepancies in reporting children's mental health problems (Fergusson, Lynskey, & Horwood, 1993; Kraemer et al., 2003). In general, two theories dominate the field of research on the effect of maternal depressive symptoms on maternal reports of children's mental health. While the depression distortion bias hypothesis argues that depressed mothers over-report problems in their children due to their 'depressive schema' (Richters, 1992), the competing accuracy theory claims that depressed mothers are accurate reporters due to their heightened awareness of potential problems in their children (Fergusson et al., 1993). The results of this study appear to provide more evidence for the 'distortion bias' hypothesis, suggesting that depressive cognitions and perspectives of the mother have a greater (negative) effect on their reports of their child's mental health compared to the child's experiences of their own mental well-being. Another possibility is that children with externalizing problems have more difficulties recognizing, reporting, or admitting depressive symptoms.

Boys are more likely to express emotional problems in 'acting out behavior', whereas girls are more likely to express emotional problems through internalizing symptoms (Chaplin & Aldao, 2013). Observers, but also boys themselves who may overly attend to angry feelings instead of sad ones, may not interpret acting out behavior as a symptom of depressive symptoms. Although there is no 'gold standard' to determine which informant is more accurate, our findings emphasize the importance of assessing problems from multiple informants' perspectives and suggest that future studies might need to consider other more objective measurements of children's mental health problems, such as clinical observations.

Our second purpose was to study the mediating effect of the observed mother-child interaction behaviors on the relation between maternal depressive symptoms and children's mental health problems. Contrary to our expectations, we found no mediating effect of maternal warmth and psychological control on the relation between maternal depressive symptoms and children's mental health problems. Several explanations can account for this finding. First, it is possible that the mediating effect of mother child interactions on the relation between maternal depressive symptoms and children's mental health problems is age specific. In younger children, interactions, such as maternal sensitivity and responsiveness, might exert a stronger mediating effect because these behaviors are shown to be essential in forming secure attachment and internal working models (Egeland & Farber, 1984). Later during adolescence, mother child interactions undergo major transitions (Granic, Hollenstein, Dishion, & Patterson, 2003), which might intensify the effect of these interactions (Pugh & Farrell, 2012). The current study investigated a middle childhood sample (age 8-12 years), a rather stable developmental period compared to toddlerhood and adolescence. It might be that interactional behaviors have greater predictive power during developmental periods when interactions are still in their formation phase (toddlerhood) or are in a phase of critical alterations (adolescence), but they are of less relevance during more consolidated developmental periods. Extensive longitudinal studies would be needed in order to investigate these hypotheses.

Second, an explanation of this null finding might be found in the specific nature of our sample. Previous studies that reported a mediating effect were all conducted with community samples (Burt et al., 2005; Karazsia & Wildman, 2009; Kiernan & Huerta, 2008; Pugh & Farrell, 2012). Our study investigated a sample of clinically aggressive children *and* mothers scoring high on depression symptoms (59% scored in the clinical range and the mean score of the mothers was within the mildly depressed range). This might imply that our findings are specific to mothers with high levels of depressive symptoms and clinically aggressive children. It is known that aggressive children elicit certain maternal interactions and that children's aggression

contributes to maternal depressive symptoms. Multiple longitudinal studies have demonstrated a bidirectional relation between maternal depressive symptoms and children's aggression (e.g., Raposa, Hammen, & Brennan, 2011). The coercion theory (Patterson, 2002) postulates that aggressive children and their parents mutually reinforce each other's (negative) behavior. When the child behaves aggressively, the parent demands obedience. The child returns with an escalation of aversive behavior, and the parent with an escalated attempt of discipline. Eventually the parent gives in, which reinforces the child's aggressive behavior and at the same time, leads to maternal feelings of hopelessness regarding her ability to discipline the child (Fite, Colder, Lochman, & Wells, 2006). This might lead to elevated levels of stress (Raposa et al., 2011) and increased depressive symptoms.

Third, the current study focused on two specific aspects of mother-child interactions, maternal warmth and psychological control, using a global observation system. Thus, the conclusion that mother-child interactions *in general* do not mediate the relation between maternal depressive symptoms and mental health problems in children is not warranted. It is possible that a) other relevant constructs, such as behavioral control (e.g., depressive mothers being more permissive, *see* Topham et al., 2010) and self-regulation (e.g., children with warm mothers show better regulation skills compared to rejecting and controlling mothers, *see* Baker & Hoerger, 2012), or b) more structural aspects of the interaction (e.g., rigidity in parent-child interaction, *see* Granic et al., 2003) mediate this relation. Further research would be needed to investigate these hypotheses.

With regard to our direct path analyses, we found that mothers with more depressive symptoms showed less warmth in interaction with their children, which was consistent with our expectations and prior observational research (e.g., Feldman, 2010; *meta-analysis of* Lovejoy et al., 2000). Furthermore, we found that mothers who exerted greater psychological control while interacting with their child reported more externalizing mental health problems in their child. This is in contrast with numerous studies on adolescents, which have found a relation between psychological control and *internalizing* mental health problems (Barber, et al., 2005; Soenens, Luyckx, Vansteenkiste, Duriez, & Goossens, 2008). Childhood studies on psychological control and children's mental health problems are relatively scarce; however, their results suggest that maternal psychological control is linked to relational and physical aggression (Casas et al., 2006) and to externalizing mental health problems (Verhoeven, Junger, van Aken, Dekovic, & van Aken, 2010). Again, this implies, as noted earlier, that the investigated associations might be age specific, that the relation between maternal psychological control and children's mental health problems depends on the age of the child, and that our results are specific to middle school children.

The presented results and theoretical explanations of our study should be placed within a context of several methodological limitations that warrant cautiousness in generalizing these findings. First, the data in this study were cross-sectional, which prevented us from examining true mediation effects. Mediation analyses require temporal sequencing from maternal depression to children's mental health problems through mother-child interaction behavior (MacKinnon, Fairchild, & Fritz, 2007). Since all measurements have been conducted at the same point in time, this violates the temporal precedence. Longitudinal or intervention designs need to be considered in future studies on mother-child interaction behavior. Second, the reliability of observed maternal psychological control was poor (α = .59), so this construct should be interpreted with caution. However, Cronbach's α has recently been disputed because the assumptions (e.g., unidimensionality and uncorrelated errors) underlying this measure are often not met. It is mostly used as an indicator of internal consistency while in fact it is based on the degree of interrelatedness of items and has little to do with the actual internal structure of a test (Sijtsma, 2009). This means that although it is common to report alpha measures, low alpha values do not imply that the construct is not adequate.

Third, while the reported direct effects between maternal depressive symptoms and mother-child interaction behavior were significant and provide further evidence for the complex dynamics underlying the mechanism in the transmission of risk from maternal depressive symptoms to children's mental health problems, many of the effects were small, which might be due to the presence of other contributing factors. Moreover, the sample size was rather small to conduct the mediation analyses. In fact, a post-hoc power analyses, based on effect sizes from previous studies (Lovejoy et al., 2000; McLeod et al., 2007), revealed that we had reasonable power to detect an effect of maternal psychological control but that the study was underpowered to detect an effect of maternal warmth (Fritz & MacKinnon, 2007). Thus, the results need to be interpreted with caution and more research with bigger sample sizes are needed. If several different mother-child interaction factors are investigated simultaneously it is important to base the power calculation on the smallest effect to guarantee sufficient power for all paths in the model.

Furthermore, we did not include children's self-reported externalizing problems in the study, since parents are assumed to report externalizing problems more accurately compared to children (Kerr, Lunkenheimer, & Olson, 2007). Consequently, we could not determine whether our findings regarding externalizing problems are due to the typical informant disagreement between mother and child (De Los Reyes, 2011). Finally, this study focused solely on the role of the mother. Recently, the role of the father in the transmission of risk has received increased attention. For example, Kane and Garber (2009) found that father-child conflict mediated the relations

between paternal depressive symptoms and children's externalizing problems, even above the effect of maternal depressive symptoms. Clearly, future research based on the influence of both parents and/or other involved caregivers is needed.

Despite the limitations, this study is the first to integrate observations of mother-child interactions with both maternal and child reports to study their effects on children's mental health problems. It showed an absence of mediating effects of observed mother-child interactions, regardless of the strong direct path between maternal depressive symptoms and mother-reported children's mental health problems. Furthermore, our study showed no relation between maternal depressive symptoms and child self-reported depressive symptoms. These results underline the complexity of the process of risk transmission from depressive symptoms in mothers to mental health problems in their children and emphasize the need to use a multi-informant and multi-method approach to assess children's mental health problems for both research and clinical purposes.

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APPENDIX

Description of the items measuring maternal warmth and maternal psychological control.

Warmth

Engagement	Mom seems to be 'in tune' with her child. She is interested and support his or her ideas, e.g., asking questions, active listening, shared humor, inside jokes, reminiscing.
Joint attention	There is a shared focus of attention between mother and her child. Mom shows verbal and/or non-verbal activity indicating involvement (e.g., making eye contact, slight nodding).
Balance	There is a balanced conversational style of interaction between mother and her child. There is relevant turn-taking where the comments or questions of one follow from the utterances of the partner and the participation of the discussion is equal.
Laughter	Mom shows joyous laughter. This does not enhance nervous laughter (a forced laughter that often does not 'fit in' with the context of the conversation, there was nothing funny).
Support	Mom shows direct expressions of caring or comfort (e.g., loving/caring statements, concerned questions/statements, joy, compliments, general support, empathy, reassurance/comfort, physical touch). Her voice is neutral or 'up'.
Validation	Mom shows respect in her communication. She is accepting and open to suggestions, even if the child's feelings or ideas are at odds with her own (e.g., active listening, understanding/acceptance, paraphrasing, apology, finishing sentences).

Psychological control

Suggestive Questioning	Mom asks a questions, which is actually a statement, e.g., Questions starting with "Wouldn't you../Couldn't you../Shouldn't you..".
Superiority	Mom talks to the child in a pedantic manner, e.g., she uses the statements "it's the way it is" of "everybody does.." in order to ground her opinion.
Constraining	Mom interrupts the child or mom does not allow the child to express his or her opinion, e.g., mom asks a question, but does not allow the child to answer by continuing to talk or answer the question for the child.
Invalidation	Mom validates the behavior or opinion of the child as wrong, e.g., she denies or argues with statements of the child.
Criticism	Mom comments the behavior or expressions of the child, e.g., she rejects the opinion of the child or personally attacks the child.
Intrusiveness	Mom comes physically close to the child and/or talks in a pervasive manner, e.g., she holds the head of the child in order to let the child make eye contact.
Shame Inducing	Mom lets the child feels ashamed of his or her behavior, expression/opinion, and/or general circumstances. This often concerns something that has happened in the past.
Guilt Inducing	Mom lets the child feels guilty of his or her behavior, expression/opinion, and/or general circumstances. The emphasize lies on the responsibility of the child for the behavior, expression/opinion, and/or general circumstances.
Provocation	Mom disagrees continually with the child, independent of the context. Mom reacts negatively on everything the child says, e.g., asking ironic questions or mom competes with the child.
Physics	Mom shows physical signs of invalidation, such as rolling with her eyes.

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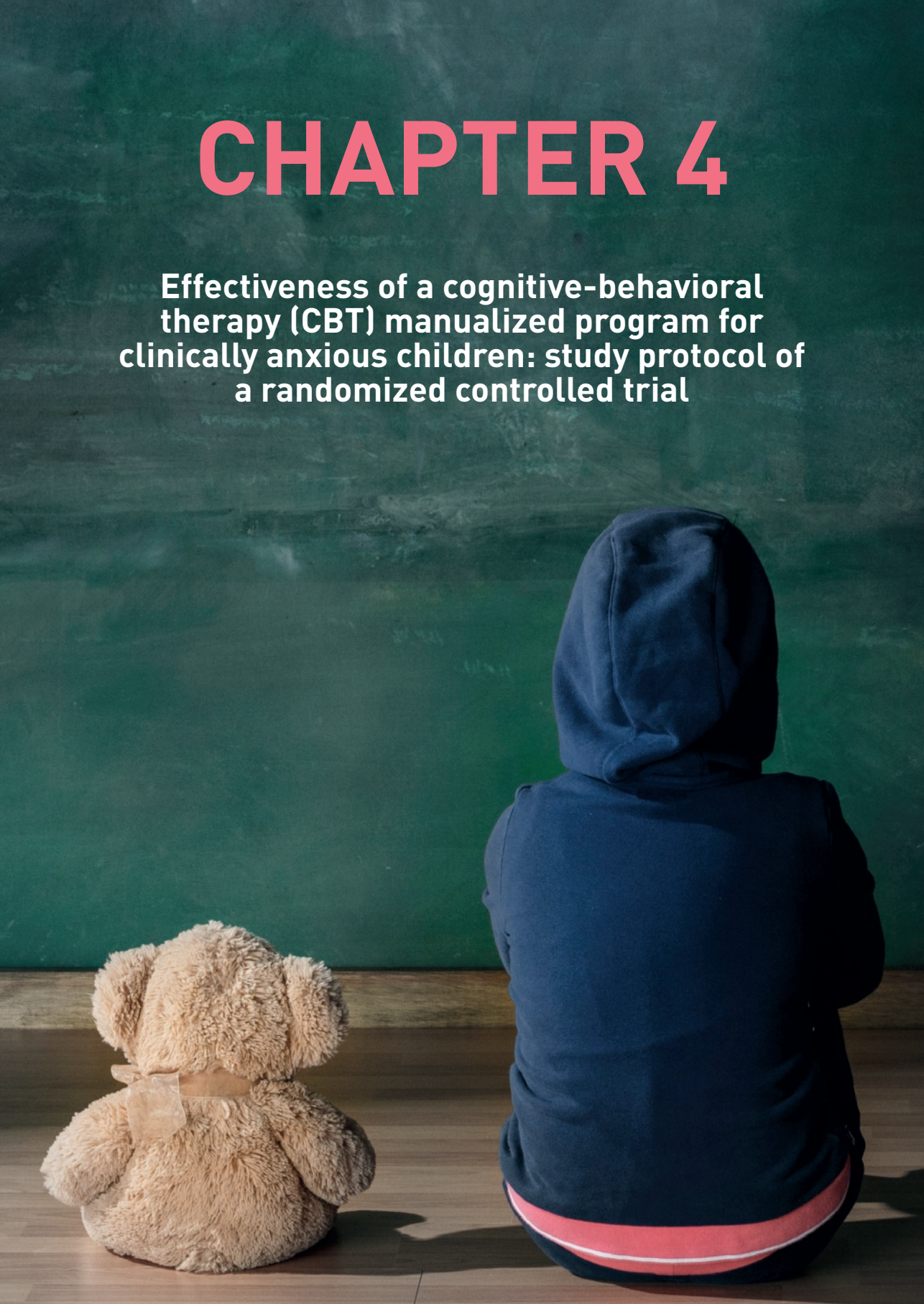
CHAPTER 4

Effectiveness of a cognitive-behavioral therapy (CBT) manualized program for clinically anxious children: study protocol of a randomized controlled trial



ABSTRACT

Background. In the Netherlands, the prevalence of anxiety disorders is 20%; and children with anxiety are at increased risk for psychopathology throughout adulthood. Recently, a revised version of a cognitive behavioral therapy manualized program called Thinking + Doing = Daring' (TDD) was developed for children between 8 and 12 years old with an anxiety disorder. The main aim of this project is to conduct a Randomized Controlled Trial (RCT) to evaluate the effectiveness of TDD.

Methods/Design. The CBT program will be tested with a RCT with 120 clinically anxious children (8–12 years old) referred to one of three mental health care agencies. Children will be randomly assigned to the experimental ($N = 60$, TDD) or to the control condition ($N = 60$, treatment as usual). The primary outcome measure will be the child's anxiety symptoms level. Secondary outcome measures will be externalizing (e.g. aggression) and internalizing problems (e.g. depression). Two potential mediators of change will be examined in the current study: therapeutic alliance and parenting. Mother and child in both the experimental and control condition will be surveyed at baseline, post treatment and after 6 and 12 months (follow-up). It is hypothesized that children in the experimental condition will show a stronger decrease in anxiety symptoms compared to children that receive treatment as usual. Moreover, we expect that a strong therapeutic alliance and decreases in parental control and rejection will contribute to treatment success.

Discussion. Early treatment for anxiety problems has the potential to not only result in anxiety reductions, but also to prevent future problems such as substance abuse and psychopathology throughout adulthood. Our results will be immediately relevant to practice, since we are partnering with 'real world' community agencies. If the CBT program proves more effective than treatment as usual, it could be implemented in community mental health care agencies across the Netherlands and beyond. Moreover, it has the potential to make treatment in these community settings shorter, more efficient and therefore cost-effective.

INTRODUCTION

Anxiety disorders are one of the most common types of psychopathology during childhood (Costello Mustillo, Erkanli, Keeler, & Angold 2003). In Europe, 12–20% of children experience anxiety (Costello & Angold, 1995). More than 12% of the children is diagnosed with an anxiety disorder. In the Netherlands the prevalence of anxiety disorders is even higher than 20% (Kroes et al., 2001; Verhulst, vanderEnde, Ferdinand, & Kasius, 1997). Various forms of anxiety disorders exist. The most common anxiety disorders in childhood are the specific phobia, social anxiety disorder, separation anxiety and generalized anxiety (Muris, 2010).

A characteristic feature of all anxiety disorders in children is the preoccupation with danger. Although the type of stimulus eliciting fear may change over time due to developmental transformations, anxiety and fear are a chronic problem. In an attempt to cope with the perceived threat of the outside world children with anxiety disorders learn to avoid potentially threatening situations. As a result, the social and academic functioning of children with anxiety is jeopardized. Children with anxiety have fewer friends and receive lower grades at school (Carr, 2006). Additionally, the importance of parental factors (e.g. genetic transmission, anxious modeling, over-controlling parenting style) in the etiology and maintenance of childhood anxiety is well established (Bögels & Brechman-Toussaint, 2006). In turn, as a result of a child's anxiety family life can be impaired such that families with anxious children perceive more stress and participate less in social activities (Carr, 2006). Finally, clinical levels of anxiety during childhood present great risks for future development, such as an increased risk for substance abuse and suicidality during adolescence (Swadi & Bobier, 2003) and higher rates of psychopathology and educational underachievement in adulthood (Cartwright-Hatton, McNicol, & Doubleday, 2006; Woodward & Fergusson, 2001). Because of the high prevalence of anxiety in children and the detrimental effects on socio-emotional and academic functioning, which bear great challenges for future development, much research has been devoted to identifying effective interventions to target childhood anxiety.

Cognitive behavioral therapy (CBT) - with or without parental involvement - is consistently being identified as the most effective treatment for childhood anxiety. A recent meta-analysis among 24 studies found an overall posttreatment remission rate of anxiety disorders of 55.4% and showed a mean overall effect size of CBT is .86 (In-Albon & Schneider, 2007). All CBT treatments share similar ingredients such as exposure to anxious situations, cognitive restructuring of dysfunctional thoughts, relaxation before and during anxious situations and positive self-talk. In the Dutch context a protocolized CBT treatment for anxious children and adolescents called 'Thinking + Doing = Daring' (TDD) has been developed by Bögels (2008) based on these

principles. Importantly, the intervention integrates parents by teaching them how to communicate with their child about anxious situations and how to motivate and support their child in overcoming its fear. Also the parent's own fears and anxieties are being discussed. The treatment consists of twelve weekly sessions with the child and three sessions with the parents. Three months after therapy, a follow-up session takes place.

In a study by Bodden et al. (2008) the effectiveness of the TDD-treatment was tested with a randomized controlled trial including three different conditions. Children were between eight and 17 years old and either received the TTD (individual CBT with little parental involvement), a family CBT or were put on the waitlist for eight weeks. Some of the families in the waitlist condition received the treatment after eight weeks. These post waitlist results were included in the effect calculation. At post-treatment 41% of the children was free of all anxiety disorders and 56% was free of their primary anxiety diagnosis. All waitlist children still had anxiety disorders after the waitlist period. At three-month follow up these percentages were 52% and 67% respectively. Concerning the difference between the TTD and the family CBT, the study found better treatment outcomes for the TDD (56% recovered from anxiety) compared to the family CBT (28% recovered from anxiety). The effect size for the TDD was 1.39 and 1.03 for the family CBT (as measured with the parent version of the Dutch version of the Screen for Child Anxiety Related Emotional Disorders (SCARED-NL). In families where parents had an anxiety disorder, children also benefited more from the TDD (46% recovered from anxiety at post treatment) compared to family CBT (19% recovered from anxiety at post treatment). Also, more dropouts were found in the family CBT-condition (19%) than in the TDD (3%). In sum, the effect sizes of the TDD program are promising and based on this study's results the TDD, that is an individual CBT with little parental involvement, seems to be more beneficial than a family CBT. The child and therapist manuals of the TDD are published including assessments and treatment integrity forms, and the program is now widely used in the Netherlands.

The primary aim of this study is to replicate and extend the findings of Bodden et al. (2008) in a randomized controlled trial. In contrast to Bodden et al. two conditions will be used: the experimental condition which will consist of the TDD program and the control condition which will consist of treatment as usual (TAU). The ultimate proof of the effectiveness of a treatment program is when it exceeds the effects of the treatment that families and children normally receive. Furthermore, to test the long-term effects of treatment six-month and 12-month follow up assessments will be conducted. Importantly, this study will take place in the real-world context, where co-morbidity is the rule rather than the exception (Hinshaw 2002). In this way the study's

results can be generalized to the context where the intervention may eventually be delivered, that is in mental health institutions in the Netherlands.

Finally, despite the promising results of CBT so far, variability in treatment outcomes remain. Not all children with anxiety profit from therapy. It is not clear why some children fail to show improvement in therapy, since we have little understanding of the underlying mechanisms and processes of change. Randomized controlled trials inform us *if* a certain interventions works but they do not tell us by what mechanism, information that is essential in order to further improve and tailor intervention efforts. Two potential mediators of change will be examined in the current study: therapeutic alliance and parenting.

Many researchers have confirmed the importance of alliance in adult therapy. Stronger therapeutic alliance predicts better outcome (Horvath & Bedi, 2002; Martin, Garske, & Davis, 2000). However, the role of alliance in child-therapy has received little attention so far and results are mixed. Kazdin et al (2005) found that strong therapeutic alliance predicted more improvement in the child. However, in a study by Liber et al. (2010) alliance and treatment outcome were only moderately related. In two studies by Kendall et al. (1994; 1997) no significant association between alliance and treatment outcome were found. In the adult literature, alliance at one month after treatment has started is usually used to predict treatment outcomes (Martin et al., 2000). However, alliance is likely to fluctuate across the treatment period. In order to test when alliance best predicts treatment outcomes, alliance will be assessed at multiple time points: one and two months after treatment has started and at post treatment.

The second potential mediator is parenting. Childhood anxiety is more common in families with anxious parents, suggesting a familial transmission of anxiety (Eley, 2001). Numerous studies in previous years have focused on the influence of family interactions in the development, maintenance, and improvement of childhood anxiety (e.g. Chorpita & Barlow, 1998; Vasey & Dadds, 2001) and found several potential parenting behaviors influencing childhood anxiety. The dimensions *rejection* and *control* received a great amount of consideration in the parenting literature (e.g. Hudson & Rapee, 2001; Moore, Whaley, & Sigman, 2004; Rapee, 1997), but with different definitions and mixed results. Recently, McLeod, Wood and Weisz (2007) conducted a meta-analysis on both dimensions and found that both rejection (small effect) and control (medium effect) were associated with childhood anxiety. If treatment for childhood anxiety is effective, parent-child interactions are likely to change. In the current study, we will track changes in the dimensions rejection and control.

Aim and hypotheses

The primary aim of the study is to evaluate the effectiveness of the CBT-program Thinking, Doing and Daring (TDD) by comparing it to treatment as usual (TAU). Our primary outcome, children's anxiety, will be assessed through parent reports and children's self-reports. To measure long-term effects of treatment, follow-up assessments at three month, six month and one year follow up will be conducted. The second aim is to analyze whether there are secondary positive outcomes beside recovery of anxiety. Secondary outcomes (e.g. depression, aggression) will be assessed through parent and teacher reports. The third aim is to analyze the potential mediating influence of alliance and parenting on positive treatment outcomes.

More specifically, we expect that a) children in the experimental condition will have significantly less anxiety symptoms after treatment and at the follow-up measurements than children who received treatment as usual, b) children who recover from an anxiety disorder will also show a significant reduction in secondary problem behavior (e.g. depression, aggression), c) children who form a strong alliance with their therapist will have less anxiety symptoms than children who form a less strong alliance, d) parent-child dyads for those children who improve through therapy will show less parental control and rejection after treatment than at the start of treatment.

METHODS/DESIGN

Trial design

The effectiveness of the TDD program will be tested in a RCT in which three Dutch community mental health agencies (Pro Persona Youth in Nijmegen and Arnhem and the Ambulatorium Nijmegen) will participate. A total of 120 clinically anxious children (8 –12 years old) and their parents will participate in this study after filling in a consent form (see Figure 1 for the study design). The participants will be randomly allocated to the experimental (TDD, $N = 60$) or control condition (TAU, $N = 60$). The TDD consists of twelve weekly sessions with the child and three sessions with the parents. The treatment is supported with child, parent and therapist manuals. Children in the control group will receive the treatment that is usually delivered in those agencies. This means that these children will receive the treatment that the therapist considers to be the most effective treatment for that particular child. Baseline assessments, post-treatment, a six-month follow-up and a one year follow-up will be conducted among children, mothers and therapists and through direct observations (see Table 1).

To compensate for their time filling in the research questionnaires, parents will receive a financial contribution and children will receive little gifts (such as pens,

stickers and small candy). Ethical approval has been granted by the ethical committee of the Faculty of Social Sciences at the Radboud University Nijmegen (ECG16122010).

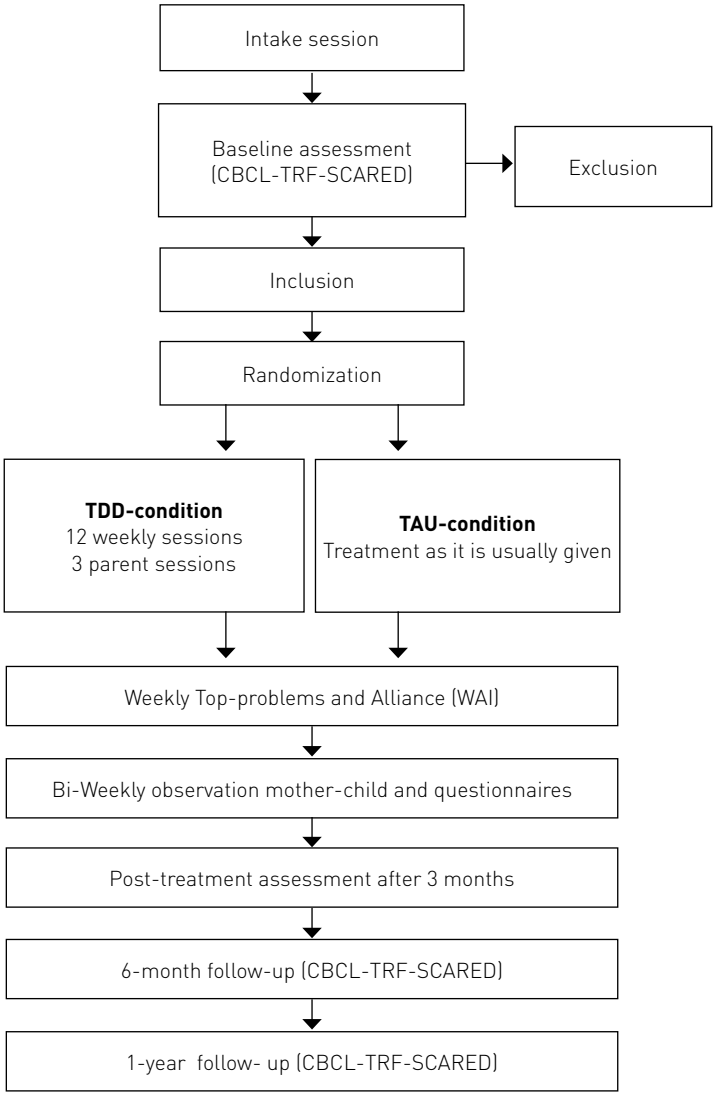


Figure 1 Flow chart of the phases of the randomized trial

Table 1 Measurements collected at each wave

	Measurement waves					
	Baseline/ pre treatment	1 month	2 month	Post treatment	6 month follow-up	1 year follow-up
SCARED-NL	x			x	x	x
CBCL	x			x	x	x
TRF	x			x	x	x
TASC		x	x	x		
WAI-s		x	x	x		
Parenting	x			x	x	x

Participants

Child-participants between the age of eight to twelve years will be recruited at one of the agencies. As part of the usual intake procedure families are asked to fill in standard questionnaires to collect information for diagnostic assessment and indication criteria. When a child is between eight and twelve years old additional questionnaires will be administered. These are: the Child Behavior Checklist (CBCL), the Teacher Report Form (TRF) and the Screen for Child Anxiety Related Emotional Disorders (SCARED) and are meant to assess children's level of anxiety and to determine the presence of additional problems. Inclusion criteria are a score above the clinical cut-off on either the child or parent version of the SCARED-NL total scale or one of the following subscales: generalized anxiety, social anxiety, separation anxiety and panic disorder. Exclusion criteria are autism, post-traumatic stress syndrome, specific anxiety disorder, obsessive-compulsive disorder and an IQ below 80. Medication is allowed and will be assessed during the measurement waves.

Families with an eligible child will be informed about the project by one of the researchers and will be asked to participate. When a family agrees to participate, they fill in an informed consent form. Families will be randomly allocated to the TDD or TAU condition using a blocked randomization scheme (block size 4). Randomization will be done by an independent researcher at the Behavioural Science Institute.

Therapists

All therapists (n = 16) participating in this study work at one of the three agencies. Two therapists are mental health workers and 14 therapists are graduated psychologists of which 12 have a registration as a Health Care psychologist ('GZ-psycholoog'). Seven therapists are between 25 and 40 years old. Five therapists are between 40 and 55 years old, and four therapists are older. Years of experience of the therapists varies between three and 27 years. At each institution the therapists will be randomly assigned to the experimental or control condition. The therapists in the experimental

condition will participate in a two-day training in the protocol provided by the author of the manualized protocol, Susan Bögels. In this training the protocol will be explained and practiced on each other during exercises and role-plays. The therapist in the control condition will receive no extra training.

Intervention

Experimental condition

The experimental condition (TDD) consists of twelve weekly sessions with the child and three sessions with the parents. In the first session the rationale behind cognitive behavior therapy will be explained to the child and its parents. During the second session the child learns to identify his anxious thoughts and how to generate alternative thoughts. Challenging anxious thoughts is also discussed. Relaxation and mind-distraction is practiced in the third session. In the same week as the third session, a parent session is taking place where the parent will be made aware of the influence of their own fear on the behavior of the child. Parents are also taught how to support their child in every step it takes facing his fear. In the fourth session children make a hierarchy of anxious situations they want to face during therapy. Also, self rewarding is explained in this session. Exposure to the anxious situations starts in session five and lasts until session ten. In the same week as session six, the second parent session is scheduled. Parents will be taught how to support their child during exposure tasks. Their thoughts about their child will be discussed and challenged. In the seventh and eighth session challenging thoughts will be illustrated by doing an experiment in which the child learns to restructure his thoughts. In session nine the child will be motivated to talk more with his parents about its fear. The parents are also motivated to communicate more with their child about anxiety and with each other about their parenting styles. It will be explained how spouses can support each other. A summary of the learned skills during therapy is given in session ten. The last exposure task is a game or a quest. How the child should deal with set backs is discussed in session eleven. In the last session, session twelve, the therapy ends by giving the child a certificate. How the child can deal with new anxious situations without the therapist is also discussed. Each month after this session the therapists will make a phone call to stimulate the child to keep using the learned skills. Three months after session twelve a follow-up session is held with the child and his/her parents. The therapy, the change in behavior of the child and the learned skills will be evaluated. Each therapy will be supported by a therapist manual, and child and parent workbooks. Within three months this treatment will be completed.

Control condition

Children and families in the control condition (TAU) will receive treatment that is being normally given at each institution during the period of three months. There are no restrictions for this condition and we will track the types of interventions provided. The therapist will decide what the treatment should be. Usually therapy for anxious children consist of various sessions in which therapists use different parts of protocols or from their own clinical experience, mostly based on cognitive restructuring, exposure tasks and relaxation tasks with the child and a few sessions with the parents. Sometimes other techniques such as EMDR (Eye Movement Desensitization and Reprocessing) or Mindfulness are used.

Data collection

In order to compare our findings with those of Bodden et al. (2008) we will use similar instruments for both child and mother. The anticipated flow of data collection is graphically shown in Table 1. All therapy sessions will be audio-taped. For treatment integrity, three sessions per client will be randomly selected and coded. We will use coding measures of Bögels (2008) to track treatment integrity.

Outcomes

The primary outcome, anxiety symptom level, will be measured with the SCARED-NL (Muris, Bodden, Hale, Birmaher, & Mayer, 2007), a screening instrument for children. The child self-report (C) and parent-report (P) version consist of 69 identical items which differ only in the substitution of you/your child. Mother and child score each item on a 3-point scale ranging from 0 (never or almost never) to 2 (often). The SCARED-NL demonstrates good convergent and divergent validity compared with psychiatric diagnoses and/or structured psychiatric interviews (Birmaher et al., 1999; Bodden, Bögels, & Muris, 2009).

Secondary outcome measures are depression and aggression which will be assessed with the Child Behaviour Checklist (CBCL; Achenbach, 1991a) and the Teacher Rate Form (TRF; Achenbach, 1991b). Both questionnaires describe a wide domain of internalizing and externalizing behavior problems of children. The CBCL consists of 113 items and the TRF consists of 118 items; ninety-three items are overlapping. Both mother and teacher are asked to rate each item on a 3-point scale ranging from 0 (does not apply to the child) to 2 (clearly or often). The checklist provides T-scores for internalizing and externalizing behavior. Both the CBCL and the TRF show satisfactory psychometric properties (de Groot, Koot, & Verhulst, 1994).

Therapeutic alliance between therapist and child will be measured with two alliance questionnaires. The therapist will fill in the Dutch translated version of the Working-Alliance-Inventory-Short Form (WAI-S; Tracey & Kokotovic, 1989; Vervaecke

& Vertommen, 1993). The WAI-S was developed to measure Bordin's three aspects of alliance: the bond, agreement of tasks-, and goals (Horvath & Greenberg, 1986; Horvath, & Greenberg, 1989). The scale consists of 12 items on a 7-point scale. Research has demonstrated the reliability and validity of the scale (Horvath, 1994; Busseri & Tyler, 2003). The child will be asked to fill in the Dutch translated version of the Therapeutic Alliance Scale for Children (TASC-nl; Shirk & Saiz, 1992). The TASC-nl includes 12 items which have to be completed on a 4-point scale ranging from 1 (not at all) to 4 (very much). The TASC was designed specifically for the use with children and adolescents. Positive and negative aspects of the therapeutic alliance are measured. In previous research the TASC has demonstrated adequate internal consistency, $a = .72$ to.74, (DeVet, Kim, Charlot-Swilley, & Ireys, 2003; Shirk & Saiz, 1992).

The possible mediator parenting will be assessed through observations of structured mother-child interactions (Granic, Hollenstein, Dishion, & Patterson, 2003), taking place in the homes of the families at a time convenient for them. Interactions will be videotaped and subsequently coded for the dimensions rejection and control. In the study the focus is on mothers, since they are in most cases the primary caregiver and we want to standardize across participants and measurement waves. A standardized paradigm will be used for observations of mother-child interactions. Mother and child will engage in three 5-minute episodes: (1) a competitive sports game on the Nintendo Wii console, (2) a discussion about something the child is anxious about in the coming week, and (3) a cooperative sports game on the Nintendo Wii console The digital video recordings will be coded using Noldus Observer XT. Three assistants will be trained to reliably code videos for the dimensions rejection and control. Assistants will be intensively trained to a minimum criterion of 75% agreement and 0.65 kappa using a frequency/sequence-based comparison and a criterion of 80% agreement using a duration/sequence based comparison. Recalibration training will be conducted to minimize coder drift. A second coder for reliability purposes will code 20% of all sessions. Coders will be blind to which sessions will be used to assess observer agreement and also blind to the condition and when in the treatment protocol the observations were collected (pre, post or follow-up).

Sample size calculation

The study aims to assign 120 anxious children to the project. The children will be equally divided across both conditions. Power analysis (G-power) is based on a 3-month effect size of 1.0 taking into account a maximum of 20% attrition over time and loss of power due to multiple imputation. Sample sizes will be 60 families per condition (alpha < .05, power = .80). For testing the effect of the potential mediators, we do not need to run a RCT per se. However, as we are the first running a follow-

up study on Bodden et al. (2008), it is essential to establish whether we will obtain similar effect sizes. Hence, we cannot estimate the variability in the mediators beforehand – as this has not been examined in these kinds of CBT treatments before – but previous work on other types of pathology (Granic, O'Hara, Pepler, & Lewis, 2007) and the high effect size necessary to examine differences at all, provide us with confidence that our design and sample size is suitable. The sample sizes are large for observational treatment studies involving parent-child interactions (Granic & Patterson, 2006). Excellent observational studies with similar or smaller sample sizes have been published in top-tier journals. This is largely due to the fact that micro-coding in observational designs holds repeated measurements of individual variables (Lichtwarck-Aschoff, Geert, Bosma, & Kunnen, 2008).

Statistical analyses

In accordance with the intent-to-treat philosophy, all children randomized to a condition will be included in the analyses to test the study hypotheses. Analyses will be conducted using Mplus, which is a statistical modeling program that has special features to deal with missing data and it allows analyses with complex data while taking into consideration the longitudinal character of the data. Regression analyses will be conducted to test whether children in the experimental condition (TDD) show a stronger decrease in anxiety symptoms than in the control condition (TAU). Also for the second aim of our study, namely testing whether secondary problem behavior (i.e. aggression, depression) decreases more in the experimental condition, regression analyses will be conducted. Third, to investigate the mediating role of alliance and parenting, mediation analyses will be performed in Mplus, using bootstrap methods.

DISCUSSION

The design of this study is a randomized controlled trial to test the effectiveness of the TDD program, developed by Bögels (2008), for eight to twelve years old children with anxiety. It is hypothesized that children that follow the TDD treatment will show a stronger decrease in anxiety symptoms compared to children that receive treatment as usual. Moreover, we expect that a strong therapeutic alliance and decreases in parental control and rejection will contribute to treatment success.

Strengths and limitations

An important strength of this study is that we will use a control condition in which children will not be put on a waitlist, as many other RCTs do, but where children will receive treatment as usual. In this way it will be a stronger test of the effectiveness of

the TDD program. Second, long term effects of the program will be examined with one year follow up assessments. Furthermore, the vast majority of RCT studies focuses solely on the effectiveness of the tested program, that is *if* a certain intervention works, but do not examine *how* the intervention works (i.e. the mediators of change). This study's aim is to understand why some children improve and others not by a) testing if alliance is responsible for therapeutic change, and b) testing if parental control and parental rejection mediate treatment outcome. A limitation of the study is that only mothers can participate. While there are several good reasons for this choice (e.g. mothers are more likely to spend time with their children and to participate in intervention and research programs), previous research has shown that mothers and fathers uniquely contribute to the development, maintenance and amelioration of children's anxiety (Bögels & Phares, 2008). Hence, future research should involve fathers in order to test differential effects of mothers and fathers.

Implications for practice

Since all referred children between eight and twelve years old will be screened, anxiety will be recognized early in development. Early treatment for anxiety problems have the potential to prevent future problems, such as substance abuse and psychopathology throughout adulthood (Swadi & Bobier, 2003; Woodward & Fergusson, 2001). Further, this project aims to unravel some of the underlying mechanisms of treatment success of anxiety disorders in children. This will subsequently lead to improvement of care. These insights will be used for improving the protocols of this specific treatment. It will make treatment shorter, more efficient and therefore cost-effective. Finally, in the project we are partnering with "real world" community agencies. Therefore, our results will be immediately relevant to practice and there is potential for large-scale roll-out across the Netherlands.

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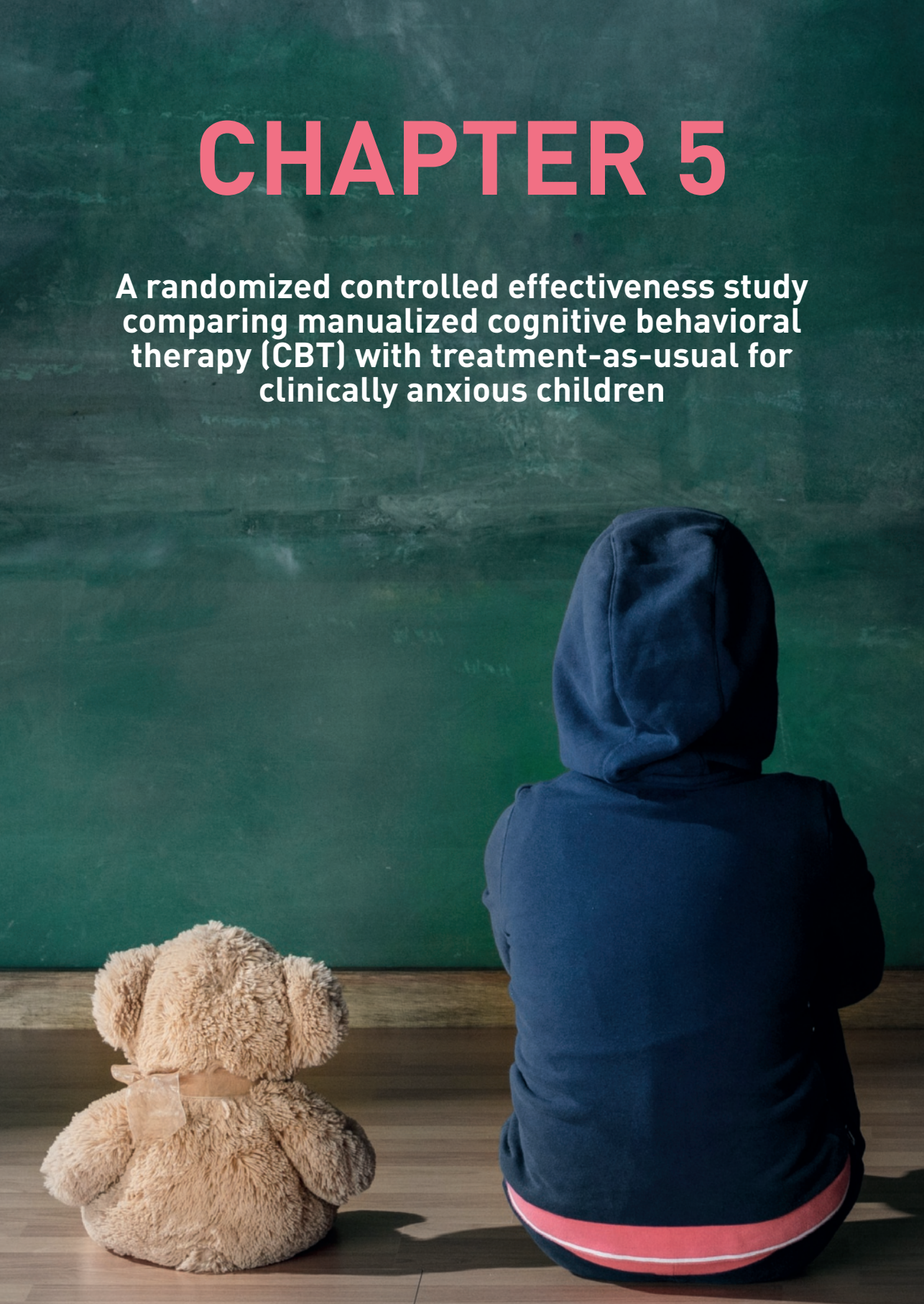
CHAPTER 5

A randomized controlled effectiveness study comparing manualized cognitive behavioral therapy (CBT) with treatment-as-usual for clinically anxious children



ABSTRACT

Background. CBT is an empirically supported treatment for childhood anxiety disorders. However, it has been rarely tested in real-world clinical practice or compared to treatment-as-usual (TAU).

Method. The present study was a randomized controlled trial (RCT) comparing manualized CBT with TAU in Dutch mental health centers for clinically referred anxious children (*N* = 88) aged 7-13 years. Treatment predictors included therapeutic alliance and parenting. Assessment took place at baseline, post-treatment, 6 and 12 months after treatment, and consisted of child-reports of anxiety, therapeutic alliance, and parenting; and mother-reports of children's anxiety, children's problem behavior, and parenting.

Results. Both groups benefitted significantly from treatment with medium to large effect sizes, for mother- and child-reported outcomes. CBT was not superior to TAU on primary or secondary outcomes. TAU was even superior to CBT in some instances. Treatment gains were maintained at follow-ups. Therapeutic alliance and parenting did not predict treatment outcome.

Conclusions. Manualized CBT did not produce better treatment outcomes than usual treatment within routine clinical practice. Findings suggest that CBT can be effective in a shorter and more flexible manner. More research is needed to identify which children profit best from which treatment.

INTRODUCTION

CBT has consistently been identified as an effective and first-choice treatment for childhood anxiety disorders (Higa-McMillan, Francis, Rith-Najarian, & Chorpita, 2016; James, James, Cowdrey, Soler, & Choke, 2015). Over the last decades, many manualized CBT programs have been published (e.g., Coping Cat, Kendall & Hedtke, 2006) and evaluated by the criteria of The American Psychological Association Task Force on Promotion and Dissemination of Psychological Procedures (1995). However, there are some concerns with these studies. First, they are typically employed using strict inclusion and exclusion criteria, controlled procedures, and delivered by a small number of trained therapists within specialized treatment settings or research clinics. In contrast, "real-world" effectiveness studies examine populations of children and families within community mental health centers, recruit agency-employed therapists, and conduct research in everyday clinical practice (Weisz, Jensen-Doss, & Hawley, 2006). For generalizability to real-world clinical settings, it is critical to conduct RCTs outside of highly controlled clinical trials (Higa-McMillan et al., 2016).

Second, there is a strong need to compare manualized CBT to usual treatment within routine clinical practice. Most community mental health centers have not incorporated manualized CBT programs; when they do, they usually apply the manual flexibly and use select parts (Southam-Gerow et al., 2010). RCTs often compare manualized CBT to waiting list conditions and studies comparing CBT to active controls or TAU are scarce. The few studies that have compared CBT with active controls or TAU have shown no superior effect of CBT (James et al., 2015). This is in line with evidence suggesting that CBT can be effective in a shorter and more flexible manner than prescribed by manualized CBT programs (Vande Voort, Svecova, Brown Jacobsen, & Whiteside, 2010). Third, therapists are usually not randomized to treatment conditions, resulting in uncontrolled therapist effects such as the preference or experience of the therapist with the specific treatment.

Furthermore, there has been a great deal of variability in treatment outcomes for individual children (Kazdin, 2007). Investigating potential treatment predictors and moderators will specify for whom, and under what conditions, treatment works best. Predictors can be baseline characteristics that have a main effect on treatment outcome regardless of the treatment, while moderators have an interaction effect with the treatment (Kraemer, Wilson, Fairburn, & Agras, 2002). This information can help clinicians personalize treatment for a specific child. Unfortunately, within the field of childhood anxiety, few studies are available that have conducted these types of detailed analyses, with the notable exception of the Child/Adolescent Anxiety Multimodal Study (CAMS). Numerous predictors and moderators in the CAMS trial were examined and only symptom severity and caregiver strain predicted treatment

outcome (Compton et al., 2014). Other family characteristics did not predict treatment outcome. This is somewhat surprising given the large body of developmental and epidemiological evidence that has shown links between family functioning and childhood anxiety (Creswell, Murray, Stacey, & Cooper, 2011). It may be that general family characteristics do not predict treatment response, but more specific parenting practices or dimensions do. Less maternal warmth and more control have been associated with less favorable treatment outcome in anxious children (Creswell, Willetts, Murray, Singhal, & Cooper, 2008; Festen et al., 2013). In the current study, was assessed whether specific anxiety-enhancing parenting (i.e., high warm and low rejecting and controlling behaviors) predicted treatment outcome.

Another predictor that has been examined in the CAMS trial, is the relationship between the therapist and child (Cummings et al., 2013). A strong bond according to the child predicted better outcomes for children receiving CBT. However, there are studies that found no association for child-reports (e.g., Marker, Comer, Abramova, & Kendall, 2013). These inconsistencies might be explained by the timing of assessment, given that early assessment has been differentially associated with treatment progress compared to later assessment (Chiu, McLeod, Har & Wood, 2009). Symptom improvement can influence the therapeutic relationship over the course of treatment (Kazdin, 2007). Especially for anxious children, it seems crucial to form a good relationship within the first treatment sessions (Langer, McLeod, & Weisz, 2011). In the current study, the therapeutic relationship was assessed after the first treatment session to indicate early in treatment whether therapeutic alliance predicted treatment outcome.

The primary aim of the present study was to evaluate the effectiveness of a manualized CBT program by comparing it to treatment-as-usual (TAU) in real-world clinical practice with randomized agency-employed therapists. The secondary aim was to examine whether therapeutic alliance and parenting predicted treatment effects. Assessment consisted of child-reports of anxiety, therapeutic alliance, and parenting; and mother-reports of children's anxiety, children's problem behavior, and parenting. The study was registered prior to beginning (Trial registration number: NTR2967) and hypotheses were published in a protocol paper (Jansen et al., 2012). First, we hypothesized that both treatments would be effective in reducing anxiety symptoms and problem behavior, but expected children receiving CBT to have significantly less anxiety symptoms and problem behavior after treatment compared to children receiving TAU. However, recent findings by James et al. (2015) have called this optimistic hypothesis into question, showing no superior effect of CBT compared to TAU. Second, we expected that children of mothers with low anxiety-enhancing parenting (i.e., high warm and low rejecting and controlling behaviors) would have significantly better treatment outcomes compared to children of mothers with high

anxiety-enhancing parenting (i.e., low warm and high rejecting and controlling behaviors). Furthermore, we predicted that children with a strong therapeutic relationship would have significantly better treatment outcome compared to children with a low therapeutic relationship.

METHOD

Participants

Participants were 88 children who were selected for this study by one of two procedures. In the first procedure, all children between seven and twelve years old, who were referred to one of three participating mental health care centers in the Netherlands between January 2012 and January 2014, and their mothers were asked to fill out the Screen for Child Anxiety Related Emotional Disorders (SCARED; Birmaher et al., 1999) to assess the children's level of anxiety. If the child's or mother's total SCARED score or one of the following subscales: generalized anxiety, social anxiety, separation anxiety, or panic disorder fell in the 'high' or 'at risk' category, eligibility for participation was further examined by experienced agency clinicians. We wanted to interfere as little as possible with the regular diagnostic procedure that consisted of interview sessions in which DSM-IV diagnoses were determined. If additional assessment was deemed necessary, further psychological assessment was conducted. Inclusion criteria were a DSM-IV anxiety disorder and exclusion criteria were a primary diagnosis of posttraumatic stress disorder, autism spectrum disorder, specific phobia, obsessive-compulsive disorder, an IQ below 80, and the need for immediate intervention to prevent the child or the family from harm (e.g., suicidal intentions). These exclusion criteria required a different approach and the manualized treatment that we used was not suitable for children meeting these exclusion criteria.

In the second procedure, primary schools were approached to participate in this study. All parents in participating schools with children in grade three to six had to give their active consent before children were allowed to fill out the SCARED. When children had a score in the category 'high' or 'at risk' on the SCARED total scale or one of the previously mentioned subscales, parents were called to ask if they recognized the anxiety of the child and if they had considered seeking help for these problems. Additionally, they were offered screening for eligibility in one of the participating mental health care centers and mothers were then asked to fill out the SCARED. Once families contacted the mental health care centers, the diagnostic assessment was the same as the first procedure.

Design and Procedure

The study was approved by the Ethic Committee of Radboud University's faculty of Social Sciences. Families meeting inclusion criteria and agreeing participation, signed informed consent. All participants were randomly allocated to CBT or TAU with a block size 4 randomization scheme (see Figure 1). Research assistants conducted the assessments at the children's homes at baseline, post-treatment, and six and twelve months after treatment. During the three months of treatment, research assistants had weekly telephone calls with children and mothers for assessment. Research assistants were all students with a bachelor's or master's degree in social sciences. All treatment sessions were audiotaped by the therapists.

Assessments

Screen for Child Anxiety Related Emotional Disorders (SCARED; Birmaher et al., 1999). This child-report (C) and parent-report (P) assesses children's anxiety symptoms and generates a Total score and scores on the subscales Panic disorder, Generalized anxiety disorder, Separation anxiety disorder, Social phobia, Obsessive-compulsive disorder, Posttraumatic stress disorder, and Specific phobia. Each scale is categorized into a low, normal, high, or at risk score. For purposes of this study, we included the Total scale and the subscales Separation anxiety, Panic disorder, Social anxiety, and Generalized anxiety. The psychometric properties of the SCARED have been well established (Muris, Bodden, Hale, Birmaher, & Mayer, 2007). In the current study, reliability of the SCARED-C was excellent for the Total scale (Cronbach's α = .91); good for Panic disorder (Cronbach's α = .83) and Social anxiety (Cronbach's α = .83); and adequate for Generalized anxiety (Cronbach's α = .74) and Separation anxiety (Cronbach's α = .71). Reliability of the SCARED-P was good for the Total scale (Cronbach's α = .88), Social anxiety (Cronbach's α = .86), and Generalized anxiety (Cronbach's α = .81); and adequate for Panic disorder (Cronbach's α = .74) and Separation anxiety (Cronbach's α = .72).

Child Behaviour Checklist (CBCL; Achenbach, 1991). The CBCL is a widely-used parent-report that measures internalizing (anxious, depressed and withdrawn behavior) and externalizing problem behavior (aggressive and rule-breaking behavior). T-scores for the internalizing and externalizing subscale of 64 or higher represent the clinical range. The psychometric properties of the CBCL have been well established (Ivanova et al., 2007). In the current study, reliability of the CBCL was good for externalizing problem behavior (Cronbach's α = .84) and adequate for internalizing problem behavior (Cronbach's α = .79).

Therapeutic Alliance Scale for Children (TASC; Shirk & Saiz, 1992). The TASC is a child-report that assesses the therapeutic alliance and generates three subscales: the bond, task, and negativity scale. Previous research has demonstrated good

reliability with Cronbach's α = .88 to .92 (Creed & Kendall, 2005). In the current study, the TASC had questionable reliability for the bond scale (Cronbach's α = .66) and poor reliability for the negativity (Cronbach's α = .57) and task scale (Cronbach's α = .38). We decided that Cronbach's α lower than .65 was unacceptable, resulting in pursuing analyses only with the bond scale.

Egna Minnen Beträffande Uppfostran (EMBU-C/P; Arrindell, Emmelkamp, Brilman, & Monsma, 1983). The EMBU measures parenting with a child-report (C) and parent-report (P). The EMBU-C assessed three main parenting behaviors (warmth, rejection, and overprotection) as well as anxious rearing (Muris, Meesters, & van Brakel, 2003). The EMBU-P measures the same three parenting behaviors as well as favoring subject (Castro, de Pablo, Gomez, Arrindell, & Toro, 1997). Previous research has shown questionable to good reliability for both the EMBU-C with Cronbach's α = .66 to .81 (Muris et al., 2003) as for the EMBU-P with Cronbach's α = .66 to .84 (Castro et al., 1997). In the current study, we were primarily interested in the three anxiety-enhancing parenting behaviors: warmth, rejection, and overprotection. However, there were reliability issues with the overprotection scale of both reports. The EMBU-C had adequate reliability for the rejection scale (Cronbach's α = .78), and questionable reliability for the warmth (Cronbach's α = .68) and overprotection scale (Cronbach's α = .60). The EMBU-P had good reliability for the warmth scale (Cronbach's α = .85), adequate reliability for the rejection scale (Cronbach's α = .71), and poor reliability for the overprotection scale (Cronbach's α = .58). We decided that Cronbach's α lower than .65 was unacceptable, resulting in not pursuing analyses with the overprotection scale of both the EMBU-C and P.

Therapists

Nineteen agency-employed therapists were randomly allocated to CBT or TAU. CBT therapists received a two-day training organized by the original author of the manualized CBT program 'Thinking + Doing = Daring' (Bögels, 2008). Therapists consulted other therapists when needed. After one year, a meeting took place with all the participating CBT therapists to discuss treatment coherence and related issues. During the course of the study, three TAU therapists changed jobs and were replaced by three new therapists. None of the treatments that were already started had to be taken over by a new therapist. Therapeutic demographics CBT and TAU are presented in Table 1. Despite the randomization, CBT therapists were significantly older, $t(17) = 5.15$, $p = .000$, and had more years of experience, $t(17) = 3.81$, $p = .001$, compared to TAU therapists.

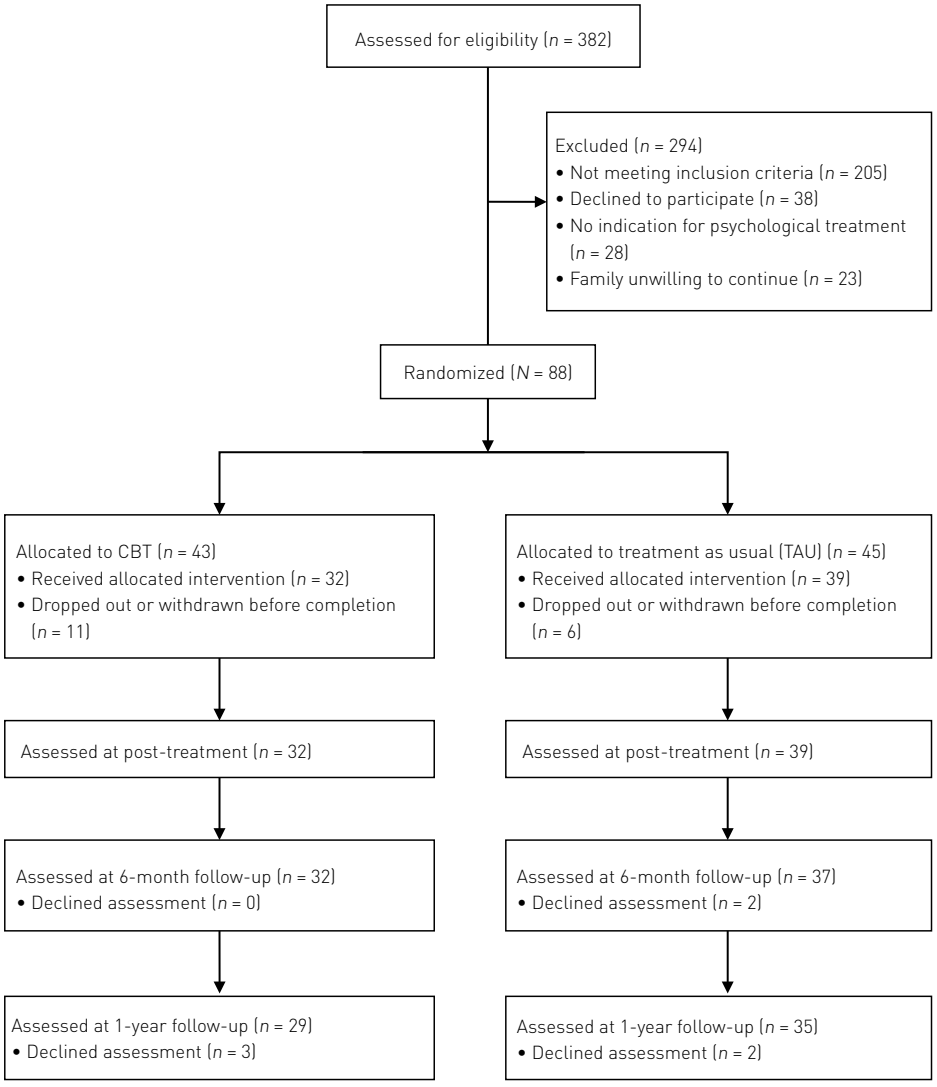


Figure 1 Participation flow through the study

Table 1 Therapeutic demographics for CBT and TAU

Demographics	CBT (*n* = 8)	TAU (*n* = 11)
Age, *M (SD)*	51.63 (9.38)	31.45 (7.69)
Years of experience, *M (SD)*	19.75 (7.59)	8.09 (5.77)
Gender		
Female, *n* (%)	5 (62.5)	10 (90.9)
Registration		
Clinical psychologist, *n* (%)	0	1 (9.1)
Psychotherapist, *n* (%)	2 (25.0)	0
Health care psychologist, *n* (%)	4 (50.0)	5 (45.5)
Developmental psychologist, *n* (%)	0	4 (36.4)
Mental health worker, *n* (%)	2 (25.0)	1 (9.1)

Treatment

Manualized CBT

Children in CBT (*n* = 43) received the Dutch manualized CBT program 'Thinking + Doing = Daring' (Bögels, 2008) by a trained therapist. Evidence for its partial effectiveness has been tested with a RCT including individual CBT, family CBT, and waitlist (Bodden et al., 2008). Both CBT conditions showed medium to large effect sizes. Based on these results, the revised manualized CBT program was made out of individual CBT combined with elements of family CBT (Bögels, 2008). Manuals for therapists, children, and parents were published and widely used in the Netherlands. The manualized CBT program is comparable to other programs such as Coping Cat (Kendall & Hedtke, 2006) and Friends (Barrett, Lowry-Webster, & Turner, 2000), but has a greater emphasis on cognitive restructuring and behavioral experiments. The treatment contained 15 sessions in total. There were 12 weekly sessions with the child. During three of these 12 sessions, the parents participated in the session and there were three additional treatment sessions with the parents alone. Each session lasted 60 to 90 minutes and the child and parents had to do homework assignments.

During the first session, psycho-education about anxiety was given and the rationale behind CBT was explained to child and parents. The second session focused on cognitive restructuring. The child learned to identify anxious cognitions and to generate alternative cognitions. During the third session, the child learned coping skills such as relaxation exercises. In the same week as the third session, a parent session took place to exercise with cognitive restructuring and the parents learned about the influence of their own anxiety on their children. The fourth session was

with the child and the parents and focused on constructing the fear hierarchy and reward system. Exposure to anxiety-provoking situations started in session five and lasted until session ten. During these sessions, the therapist practiced facing fearful situations with the child and motivated the child to practice at home. In the same week as session six, the second parent session took place during which the parents were motivated to support their child during exposure tasks. Behavioral experiments were introduced in session seven and eight. The child learned to challenge anxious cognitions by conducting behavioral experiments. In the ninth session, there was a parent-child joint meeting that focused on communicating with each other about fears. With the parents, parenting styles were also discussed. A summary of the skills taught during therapy was given in session ten and dealing with anxiety in the future was discussed in session eleven. During the last session with the child and parents in week twelve, treatment was evaluated and relapse prevention was discussed. The child received a certificate at the end of treatment.

Treatment-as-usual

Children in TAU ($n = 45$) received treatment considered by the therapist as most effective for that particular child. There were no restrictions to this condition. The therapist decided on the frequency and duration of the treatment. Children were tracked for a period of three months in treatment, since this was considered an average length of time for treatment and was equal to the manualized CBT program. After treatment, therapists were asked about the content of the provided treatment and the number of sessions with the child and/or parents. In most instances, the treatment was based on CBT principles (96%). CBT was combined with intensive parental involvement (47%; more sessions with the parents than with the child), minimal parental involvement (44%, less sessions with the parents than with the child), or without any parental involvement (4%). In just 4% of all therapies, treatment focused only on psychomotor therapy, a form of creative art therapy that focuses on body awareness exercises and physical activity as a therapeutic instrument to work on the relation between experiences and feelings (Probst, Knappen, Poot, & Vancampfort, 2010).

Statistical Analyses

Missing data on item level were imputed using the Missing Value Analysis (MVA) of SPSS. No more than 6% of the items were missing per questionnaire. In accordance with the intention-to-treat principle, all children randomized for treatment were included in the analyses to test the main hypotheses. All analyses were conducted for both intention-to-treat (ITT) and completers only (CO). For ITT, missing values were imputed for all measurements using 20 imputation sets by multiple imputations in SPSS. Imputations were done separately for CBT and TAU, and variables that

correlated significantly were used as auxiliary variables (Graham, 2009). Baseline characteristics among the treatment groups were tested with independent t-tests and Chi square analyses. Primary outcomes were SCARED-C and P Total scale and the subscales Separation anxiety, Social anxiety, Panic disorder, and Generalized anxiety. Secondary outcomes were CBCL Internalizing and Externalizing problems.
Analyses of covariance (ANCOVA's) were conducted to compare the CBT with TAU. We controlled for experience of the therapists and gender of the children. No other demographic variables were related to treatment outcome or to the potential predictors. Effect sizes were computed using Cohen's *d* (using pooled SD), where values of 0.2, 0.5, and 0.8 correspond to small, medium, and large effect sizes, respectively (Cohen, 1988). Multiple linear regression analyses were conducted to test for predictor effects. This was done with the subscales of the TASC and EMBU-C at baseline as potential predictors for the SCARED-C Total scale; and the subscales of the EMBU-P at baseline as potential predictors for the SCARED-P Total scale and the CBCL Internalizing and Externalizing problems. All linear regression analyses were run separately for each potential predictor. Additionally, we tested moderation effects with the interaction of parenting x treatment condition and alliance x treatment condition.

Table 2 Baseline demographics for CBT and TAU

Baseline Demographics	CBT (*n* = 43)	TAU (*n* = 45)	Comparisons
Child			
Age, *M (SD)*	9.86 (1.28)	10.11 (1.35)	$t(86) = -0.89$, $p = .38$
Male, *n* (%)	12 (27.9)	19 (42.2)	X^2 (1, $N = 88$) = 1.98, $p = .16$
Caucasian, *n* (%)	37 (94.9)	42 (100.0)	X^2 (1, $N = 81$) = 2.21, $p = .14$
Mother			
Age, *M (SD)*	43.79 (4.71)	42.93 (4.82)	$t(86) = 0.84$, $p = .40$
Married, *n* (%)	29 (72.5)	30 (69.8)	X^2 (1, $N = 83$) = 0.08, $p = .78$
Education, college or higher, *n* (%)	13 (32.5)	18 (41.9)	X^2 (1, $N = 83$) = 0.78, $p = .38$

RESULTS

Baseline Comparisons

Table 2 summarizes participants' baseline demographics and comparisons between CBT and TAU. No significant differences were observed. The baseline clinical characteristics are presented in Table 3. No significant differences between CBT and TAU were observed for the SCARED-C (Total anxiety $t(86) = 0.96$, $p = .34$; Separation anxiety $t(86) = -0.97$, $p = .34$; Social anxiety $t(86) = -0.85$, $p = .40$; Panic disorder $t(86) = 1.07$, $p = .29$; Generalized anxiety $t(86) = 1.23$, $p = .22$), SCARED-P (Total anxiety $t(86) = -0.54$, $p = .59$; Separation anxiety $t(86) = -1.62$, $p = .11$; Social anxiety $t(86) = -0.83$, $p = .41$; Panic disorder $t(86) = 0.49$, $p = .63$; Generalized anxiety $t(86) = -0.53$, $p = .60$) and CBCL (Internalizing problems $t(86) = -0.26$, $p = .79$; Externalizing problems $t(86) = 0.07$, $p = .95$).

The percentage of children in CBT meeting the clinical range of the SCARED-C was 26% for Total anxiety, 16% for Separation anxiety, 47% for Social anxiety, 35% Panic disorder, and 35% for Generalized anxiety. For the CBCL this was 63% for Internalizing and 28% for Externalizing problems. The clinical range in TAU for the SCARED-C was 22% for Total anxiety, 22% Separation anxiety, 42% for Social anxiety, 18% for Panic disorder, and 31% Generalized anxiety. For the CBCL this was 64% for Internalizing and 24% for Externalizing problems. There were no norm scores available for the SCARED-P. Furthermore, the number of families that dropped out was not significantly different between treatment conditions, X^2 (1, $N = 88$) = 0.84, $p = .36$.

Treatment Efficacy

Primary and secondary outcomes for CBT and TAU are presented in Table 3. In line with expectations, both treatment conditions were effective in reducing anxiety symptoms and problem behavior. For CBT, a large effect size for SCARED-C Total anxiety and a small effect size for SCARED-P Total anxiety at post-treatment was found, while for TAU a medium effect size for SCARED-C and P Total anxiety was found. At subscale level of the SCARED and the CBCL, effect sizes for both conditions ranged from small to large directly after treatment.

At six-month follow-up, both treatment conditions demonstrated large effect sizes for SCARED-C Total anxiety. For SCARED-P Total anxiety, a medium effect size was observed for CBT and a large effect size for TAU. At subscale level of the SCARED and the CBCL, the effect sizes for CBT ranged from small to large and for TAU from medium to large six months after the treatment. At 12-month follow-up, effect sizes for both treatment conditions were large for SCARED-C and P Total anxiety. At subscale level of the SCARED and the CBCL, effect sizes for both conditions ranged from small to large 12 months after the treatment.

Table 3 Primary and secondary outcomes for ITT analyses at post intervention and follow-ups

	Baseline		Post-treatment				6-month follow-up				12-month follow-up			
	CBT	TAU	CBT		TAU		CBT		TAU		CBT		TAU	
Scale	*M (SD)*	*M (SD)*	*M (SD)*	*d*	*M (SD)*	*d*	*M (SD)*	*d*	*M (SD)*	*d*	*M (SD)*	*d*	*M (SD)*	*d*
SCARED TOT														
child	0.80 (0.26)	0.74 (0.27)	0.51 (0.33)	0.96	0.55 (0.35)	0.63	0.41 (0.25)	1.53	0.43 (0.32)	1.06	0.40 (0.22)	1.65	0.41 (0.29)	1.20
mother	0.62 (0.23)	0.64 (0.22)	0.52 (0.26)	0.42	0.47 (0.23)	0.78	0.48 (0.25)	0.60	0.40 (0.20)	1.17	0.37 (0.20)	1.18	0.38 (0.25)	1.12
SCARED SEP														
child	0.67 (0.33)	0.74 (0.39)	0.38 (0.31)	0.91	0.44 (0.35)	0.79	0.29 (0.25)	1.32	0.37 (0.35)	1.01	0.29 (0.25)	1.29	0.25 (0.24)	1.51
mother	0.63 (0.30)	0.74 (0.35)	0.49 (0.37)	0.42	0.44 (0.30)	0.92	0.39 (0.30)	0.81	0.41 (0.35)	0.94	0.33 (0.27)	1.07	0.31 (0.30)	1.32
SCARED SOC														
child	1.25 (0.53)	1.16 (0.45)	0.88 (0.58)	0.66	1.00 (0.57)	0.31	0.67 (0.49)	1.12	0.70 (0.53)	0.94	0.71 (0.52)	1.01	0.79 (0.56)	0.73
mother	1.06 (0.55)	1.15 (0.56)	1.03 (0.52)	0.06	0.88 (0.56)	0.48	0.98 (0.49)	0.14	0.75 (0.49)	0.76	0.73 (0.37)	0.69	0.77 (0.47)	0.73
SCARED PAN														
child	0.62 (0.43)	0.53 (0.35)	0.41 (0.41)	0.50	0.44 (0.37)	0.24	0.27 (0.33)	0.93	0.35 (0.36)	0.52	0.31 (0.39)	0.76	0.34 (0.35)	0.55
mother	0.36 (0.28)	0.34 (0.27)	0.28 (0.30)	0.27	0.27 (0.26)	0.24	0.28 (0.32)	0.27	0.18 (0.19)	0.66	0.20 (0.21)	0.67	0.22 (0.26)	0.45
SCARED GEN														
child	0.93 (0.40)	0.82 (0.42)	0.59 (0.51)	0.73	0.59 (0.40)	0.46	0.43 (0.35)	1.33	0.47 (0.42)	0.85	0.44 (0.44)	1.17	0.48 (0.43)	0.80
mother	0.90 (0.45)	0.95 (0.46)	0.75 (0.38)	0.37	0.69 (0.43)	0.59	0.71 (0.41)	0.44	0.62 (0.40)	0.77	0.60 (0.50)	0.63	0.59 (0.47)	0.77
CBCL INT	0.58 (0.37)	0.54 (0.33)	0.54 (0.39)	0.36	0.37 (0.33)	0.88	0.40 (0.36)	0.86	0.27 (0.26)	1.11	0.25 (0.21)	1.20	0.32 (0.32)	0.70
CBCL EXT	0.37 (0.33)	0.31 (0.27)	0.36 (0.37)	0.28	0.27 (0.30)	0.34	0.28 (0.31)	0.45	0.19 (0.20)	0.59	0.18 (0.19)	0.46	0.20 (0.25)	0.38

Note. ITT = intention-to-treat; *d* = Cohen's *d;* SCARED = Screen for Child Anxiety Related Emotional Disorders; child = child-report; mother = mother-report; TOT = Total scale; SEP = Separation anxiety; SOC = Social anxiety; PAN = Panic Disorder; GEN = Generalized anxiety; CBCL = Child Behaviour Checklist; INT = Internalizing problems; EXT = Externalizing problems.

Manualized CBT versus TAU

In contrast to our initial hypothesis and in line with recent findings, we did not find significant better treatment outcomes for CBT compared to TAU (see Table 4). We observed significant differences in the opposite direction than expected. We found significant better treatment outcomes in TAU for SCARED-P Social anxiety at post-treatment, $F(1, 83) = 5.95$, $p = .017$, and at six-month follow-up, $F(1, 83) = 5.81$, $p = .018$. The CBT versus TAU effect sizes for these significant differences were all in the medium range (Table 4). Furthermore, we observed significant better treatment outcomes in TAU for Internalizing problems at post-treatment, $F(1, 83) = 6.28$, $p = .014$. The CBT versus TAU effect size for baseline-post-treatment was medium.

Table 4 Effect sizes and treatment outcome for CBT versus TAU

	Baseline-Post		Baseline-6-month FU		Baseline-12-month FU	
Scale	*d*	$F_{1,83}$	*d*	$F_{1,83}$	*d*	$F_{1,83}$
SCARED Total						
child-report	-0.30	1.39	-0.27	2.15	-0.24	0.29
mother-report	0.32	0.79	0.46	2.78	0.05	1.73
SCARED Separation						
child-report	0.01	0.04	-0.06	1.23	0.37	0.20
mother-report	0.47	2.77	0.26	0.27	0.38	0.01
SCARED Social						
child-report	-0.40	0.51	-0.22	0.01	-0.32	2.91
mother-report	0.43	5.95*	0.64	5.81*	0.08	0.00
SCARED Panic						
child-report	-0.31	2.64	-0.46	0.53	-0.30	0.11
mother-report	-0.05	0.51	0.29	2.48	-0.18	0.00
SCARED Generalized						
child-report	-0.27	0.84	-0.36	1.04	-0.37	0.70
mother-report	0.25	0.58	0.34	3.71	0.14	3.08
CBCL Internalizing	0.58	6.28*	0.30	2.53	-0.20	0.29
CBCL Externalizing	0.07	0.00	0.10	2.01	-0.04	0.33

Note. * $p < .05$; ** $p < .01$; *** $p < .001$; Post = post-treatment; FU = follow-up; SCARED = Screen for Child Anxiety Related Emotional Disorders; CBCL = Child Behaviour Checklist.

Treatment Predictors and Moderators

Unexpectedly, we found no significant main effects of alliance and parenting on treatment outcomes. We additionally tested whether treatment differences by groups

on outcomes showed specific moderation effects. Only one significant effect occurred between the bond and treatment conditions on outcome at post-treatment, $F(4, 78) = 4.32$, $p = .037$, $R^2 = .18$. The therapeutic bond was differentially associated with treatment outcome (SCARED-C Total anxiety at post-treatment) for CBT versus TAU. Opposite to what we expected, we found that CBT children who rated the bond at baseline as low (< 2.9) reported significantly *lower* anxiety symptoms at post-treatment, compared to children who rated the bond as high (> 2.9). This result was not found for TAU.

Completers Only Analyses

In contrast to ITT analyses, results for treatment outcomes with CO analyses showed significant differences between CBT and TAU for SCARED-C only. At post-treatment, we observed significantly better treatment outcomes in TAU for Generalized anxiety, $F(1, 67) = 5.24$, $p = .025$, and Panic disorder $F(1, 67) = 5.64$, $p = .020$. However, we also found instances of significant better treatment outcome in CBT. At post-treatment, for Total anxiety, $F(1, 67) = 7.50$, $p = .008$, and Social anxiety, $F(1, 67) = 12.98$, $p = .001$. At six-month follow-up, for Social anxiety, $F(1, 65) = 4.35$, $p = .041$, and for Generalized anxiety, $F(1, 65) = 4.40$, $p = .040$.

Similar to ITT analyses, we found no significant main effects of alliance on treatment outcomes and only one significant interaction effect between the bond and treatment conditions ($B = .28$, $SE = .09$, $p = .004$) on SCARED-C Total anxiety at post-treatment, $F(4, 67) = 6.46$, $p < .001$, $R^2 = .28$. In contrast to ITT analyses, we observed significant main effects of parenting on treatment outcomes. In line to what we expected, we found that mothers who rated their amount of rejection towards the child at baseline as low ($B = .19$, $SE = .08$, $p = .016$ and $B = .17$, $SE = .05$, $p = .003$), reported lower amounts of Internalizing, $F(3, 68) = 17.36$, $p = .016$, $R^2 = .43$, and Externalizing problems at post-treatment, $F(3, 68) = 43.32$, $p = .003$, $R^2 = .66$, compared to mothers who rated the amount of rejection as high. This relation was still present for rejection ($B = .27$, $SE = .10$, $p = .010$ and $B = .23$, $SE = .09$, $p = .016$) and Internalizing problems at six-month follow-up, $F(4, 65) = 8.37$, $p < .001$, $R2 = .34$, and Internalizing problems at 12-month follow-up, $F(4, 58) = 10.69$, $p < .001$, $R^2 = .42$.

Furthermore, we found two significant interaction effect between parenting and treatment conditions on Internalizing problems. First, we observed an interaction effect between rejection and treatment conditions ($B = -.45$, $SE = .16$, $p = .005$) on Internalizing problems at 12-month follow-up, $F(4, 58) = 10..69$, $p < .001$, $R^2 = .43$. Second, we observed one interaction effect between warmth and treatment conditions ($B = .28$, $SE = .10$, $p = .010$) on Internalizing problems at six-month follow-up, $F(4, 65) = 8.60$, $p < .001$, $R^2 = .35$.

DISCUSSION

The main aim was to assess the efficacy of a manualized CBT program compared to treatment-as-usual (TAU) for clinically anxious children recruited from a sample of children treated in Dutch mental health treatment centers. In line with expectations, both CBT and TAU were significantly effective in reducing anxiety symptoms and internalizing and externalizing problem behavior. The effect sizes for CBT were comparable to those reported in Bodden et al. (2008) and in other studies that investigated CBT for anxious children (James et al., 2015). Notably, the results demonstrated that treatment gains for children in both treatment conditions were sustained even after one year. Contrary to our original hypothesis, and in line with recent meta-analytic findings (James et al., 2015), CBT was not superior in reducing anxiety symptoms or problem behavior compared to TAU.

Perhaps the most probable explanation for the overall similar treatment effects is that the vast majority (96%) of TAU included elements of CBT. The general difference between CBT and TAU was that trained therapists administered the manualized CBT; hence, they conducted highly structured treatment sessions with exact instructions for the frequency and content of each session while in TAU, therapists were not trained and the frequency and content of treatment was entirely up to them. At the start of this study, we did not anticipate the extent to which CBT principles would be incorporated in regular treatment for children with anxiety disorders. Importantly, the rigid insistence on sticking to the content, structure, and sequence of the CBT manual did not seem to provide additional benefit with regards to treatment outcome. Within TAU, treatment was more flexible and perhaps more personalized and adjusted to the needs of the child and family. Moreover, the amount of treatment sessions within the 13 weeks of TAU were lower (on average 7.56 child sessions) compared to CBT (12 child sessions). This could indicate that the same treatment progress can be accomplished with fewer CBT sessions when treatment is custom fitted. Previous research also indicates that CBT can be effective in less sessions and more flexible than manualized CBT programs (Vande Voort, et al., 2010). However, some caution is warranted, since we did not analyze the number of parent sessions for TAU and did not analyze the amount of treatment that the children might have received after the 13 weeks of TAU (nor for CBT).

Another difference between the treatment conditions was that parental involvement was minimal for CBT, while this was intensive in 47% of TAU cases. Perhaps relatedly, we found some minor differences in mother-reported treatment outcomes between the two conditions. Mothers in TAU noted less internalizing problems in their children directly after the treatment compared to mothers in CBT. This difference was no longer present at the follow-up assessments. A possible explanation could be that

when mothers are intensely involved in the treatment, they perceive less depressive symptoms (since this effect was not present for anxiety symptoms) in their children directly after treatment. Perhaps children feel that their parents are concerned about them, and they receive more attention during this period from their parents, ultimately resulting in a temporarily expression of happiness and less depressive symptoms. However, this possibility should be interpreted with caution. We only had mothers' reports on children's internalizing problems and we did not have children's reports on their own depressive symptoms.

The second aim of the current study was to evaluate potential treatment predictors. In contrast to expectations, parenting and alliance did not predict treatment outcome. Perhaps the influence of parenting on childhood anxiety has been overrated. Support for this possibility was put forward in a meta-analysis by McLeod and colleagues (2007), which demonstrated that parenting explains only 4% of variance in childhood anxiety, suggesting that it is more likely that genetic factors and non-shared environments contribute more to childhood anxiety. Finding from genetic research suggests that genetic factors influence the association between parenting behavior and anxiety symptoms (Eley, Napolitano, Lau, & Gregory, 2010). Both parent and child interact with each other at a genetic and behavioral level, creating a shared dynamical relationship. Children who do not improve following the treatment could be genetically predisposed, *and* they could have parents reacting in a more rejecting and controlling manner, while children who benefit from the treatment are either genetically predisposed *or* have parents reacting in a rejecting and controlling manner. Clinical trials that collect both genetic information and assess parenting behaviors would be important to conduct, to disentangle these hypotheses.

For alliance, one specific moderator effect occurred that was exclusive to children in the CBT condition. Children who experienced a *low* bond after the first session improved more on anxiety symptoms compared to children who experienced a *high* bond after the first session. This is in contrast to what we expected. Since this effect was specific to the children in CBT, perhaps a reason for this finding can be found within the content of treatment. The first session for children in CBT is a highly structured 90-minute treatment session with the therapist, child, and the parents in which the child learns a lot of new information about the therapist and the treatment. During this session, therapists need to strictly manage time and divide their attention among all family members. It can be quite overwhelming and anxiety provoking for children to learn what is expected from them within the subsequent couple of weeks, especially when the child feels rushed or relatively neglected during this session. This could result in the child reporting an initially low bond. The second session involves only the child and therapist. One might assume that further bonding with the therapist takes place which enhances the bond. Additionally, Chiu et al. (2009) found

that improvement in the child-therapist relationship over the course of the treatment, rather than one static measure of alliance at one point, predicted better treatment outcome. Perhaps for children, it is this repair or the trajectory of alliance over the course of the treatment that predicts outcomes best. It seems important for future research to examine alliance at multiple times in treatment, rather than at one point, to clarify these potentially complex and variable predictive relations.

Our conclusions about parenting and alliance should be interpreted with caution due to power and reliability issues. For parenting, we were not able to analyze whether maternal overprotection predicted treatment outcome, although we know that parental control has been more strongly associated with child anxiety compared to parental rejection and warmth (McLeod et al., 2007). Previous studies have also reported poor or questionable reliability of overprotection for both the EMBU-C and P (Aluja, del Barrio, & García, 2006; Young et al., 2013). Young et al. (2013) found a strong correlation between overprotection and anxious rearing scales of the EMBU-C and suggested that these scales may not be adequately differentiated and even redundant. This seems plausible, considering that the EMBU-C and -P contain three overlapping parenting scales as well as additional non-overlapping scales. Furthermore, the EMBU was originally developed by Arrindell et al. (1983) based on Baumrind's (1971) model of parenting that considered warmth and control as two orthogonal dimensions of parenting. A meta-analysis by McLeod et al. (2007) on parenting and childhood anxiety has identified two broad dimensions of parenting, rejection and control, each consisting of different sub-dimensions. Rejection is defined by withdrawal, aversiveness, and warmth, while control includes over-involvement and autonomy-granting. Further studies seem to be warranted to more reliably establish the definition and assessment of parenting constructs.

For alliance, analyses were only conducted with the bond scale, although its reliability was still questionable. Children in the current study were on average younger compared to other studies that achieved adequate reliability (Fjermestad et al., 2016). It may be that in terms of the reliability issue, younger children have more trouble reflecting on the relationship with their therapist. Younger children are often considered less reliable as informants due to their limited cognitive and social-emotional development, such as their sensitivity to social desirability (Silverman & Ollendick, 2005). Additional assessment of child-therapist alliance is based on parental reports, therapist ratings, or treatment observations, though cross-informant agreement is generally low (Creed & Kendall, 2005). Because no gold standard for preferred informant exists, it may be useful for prospective studies with 8 to 12 years old children to combine alliance ratings from multiple informants. This will ultimately lead to a more comprehensive understanding of the dynamics between therapeutic alliance and treatment outcome for children, since recent

findings suggest that the association is more complex compared to what has been previously assumed (Fjermestad et al., 2016; Marker et al., 2013).

The current study has a number of notable strengths, including the use of treatment-as-usual as active control treatment, clinicians' treatment of children in mental health clinical practice, the use of mother- and child-reported outcomes, and long term follow-up assessments. Some limitations should also be considered when interpreting the findings. First, the diagnostic assessment of DSM-IV diagnoses was conducted by agency clinicians after an extensive diagnostic process that was usual in the agencies, but this was not done in a standardized manner such as with diagnostic interviews. Further research would benefit from assessment based on diagnostic interviews. Second, by actively screening children in primary schools, we probably included children who would not have sought or received treatment without recruitment in the current study. Thus, the sample was a mix of children with a clinical anxiety disorder referred for treatment and children who were in need for treatment but would otherwise not have received it. Although mean baseline anxiety scores reported by mother and child were comparable to those in other clinical trials (Bodden, Bögels, & Muris, 2009; Muris & Steerneman, 2001), some caution is warranted to generalize the findings to clinical samples from routine child mental health services. Third, we were unable to include the number of children we anticipated (Janssen et al., 2012). Thus, the analyses were underpowered. More research with bigger sample sizes is needed.

Conclusions and Implications

Although this study has some limitations, it supports previous findings, which suggested that manualized CBT does not outperform usual treatment in routine clinical practice. Treatment-as-usual was even superior to CBT in some instances. Since treatment-as-usual in the participating Dutch agencies consisted of CBT components, the study adds to the growing literature that supports the efficacy of CBT for children with an anxiety disorder. Moreover, findings seem to suggest that CBT can be effective in a shorter and more flexible manner than prescribed by manualized CBT programs. However, treatment predictors and moderators still need to be assessed to determine which children benefit from which treatment.

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CHAPTER 6

General discussion

STUDY AIMS

The main aim of the current dissertation was to address clinical challenges in the treatment of childhood internalizing disorders. Three key issues were targeted: informant discrepancies, parental influences, and applying and improving evidence-based practice. One dataset was part of a larger clinical trial in which children were recruited from Canadian mental health agencies. The other dataset was the randomized controlled effectiveness trial for clinically referred anxious children that was set up in three Dutch mental health agencies. The results of these studies have been presented in the previous chapters. In this general discussion, I will interpret the findings in light of the clinical challenges for childhood internalizing disorders, provide suggestions for future clinical research, and provide applicable implications and suggestions for clinical practice. First, I present a short overview of the main findings. Then, reflections on these findings are given from two perspectives, considering (1) parental perspectives and influences on the assessment of childhood internalizing disorders, and (2) applying and improving evidence-based practice for childhood anxiety disorders. Next, I discuss the main limitations of the studies and provide future suggestions for conducting clinical research. Finally, a closing statement and reflections for clinical practice are provided.

MAIN FINDINGS

In the first part, the focus was on the discrepancies that arise between parents and children regarding internalizing symptoms. In *Chapter 2*, mother-child discrepancies were examined in a study with clinically referred anxious children in the Netherlands. As expected, there was a high level of discrepancy between reports of mothers and children and there was variability in the agreement between mothers and children among the subscales of the anxiety questionnaire. There was higher agreement for separation anxiety and lower agreement for the total amount of anxiety. Furthermore, we explored the relation between observations of the children's anxious behavior and the discrepancies between mother and child. Results indicated that observations of behavioral anxiety were for the most part unrelated to mother and child reports of anxiety, with the exception of two observations. The observed proximity between the mother and the child was positively associated with child-reported separation anxiety and children's observed anxious voice was negatively associated with child-reported panic disorder.

In the second part, the influence of parents in the development, maintenance, and transmission of internalizing disorders in children was addressed. In *Chapter*

3, the potential mediating role of parenting behavior (i.e., maternal warmth and psychological control) was examined in the relation between maternal depression and children's internalizing and externalizing problem behavior. This was tested in a multi-informant cross-sectional study with mother-child dyads from Canada. In line with expectancies, we found that mothers with higher levels of depressive symptoms reported higher levels of internalizing and externalizing problems in their children. Unexpectedly, the children of mothers with higher levels of depressive symptoms did not report higher levels of depressive symptoms for themselves. Another unexpected finding was that observations of maternal warmth and maternal psychological control did not mediate the relation between maternal depressive symptoms and children's mental health problems.

In the third part, the focus was on the importance of testing empirically supported treatments (ESTs) in everyday clinical practice and to identify treatment predictors that may improve treatment response. In *Chapter 5,* manualized CBT was compared to treatment-as-usual (TAU) in a randomized controlled effectiveness study for clinically referred anxious children in the Netherlands. As expected, both manualized CBT and TAU groups benefitted significantly from treatment with medium to large effect sizes, for mother- and child-reported outcomes. Contrary to our original hypothesis, but in line with recent meta-analytic findings (e.g., James et al., 2015), manualized CBT was not superior to TAU within everyday clinical practice. There were some instances in which TAU was superior to manualized CBT. Mothers of children receiving TAU reported less symptoms of social anxiety directly after treatment and at the six-month follow-up, and less internalizing problems directly after treatment. There were no differences at the one-year follow-up or for child reports. An unexpected finding was that specific anxiety-enhancing parenting behaviors (i.e., high warm and low rejecting and controlling behaviors) and therapeutic alliance did not predict treatment response.

In the following sections I discuss the implications of the findings. The first section, *parental perspectives and influences on the assessment of childhood internalizing disorders*, combines the results of the first and second part around the influence of parents. The second part, *applying and improving evidence-based practice for childhood anxiety disorders*, focuses on the results of the third part.

PARENTAL PERSPECTIVES AND INFLUENCES ON THE ASSESSMENT OF CHILDHOOD INTERNALIZING DISORDERS

In clinical practice, clinicians are working with children and their parents who are likely to have different perspectives regarding the child's internalizing problems (De Los Reyes et al., 2015). Clinicians are forced to integrate these discrepant perspectives to form a coherent assessment and treatment plan. However, there are no clear directions on how they should do this (De Los Reyes et al., 2013). As a result, clinicians are more likely to outweigh the information provided by the parent without any evidence that the perspective of the parent is more valuable (Dirks et al., 2012). Our results provide a few new insights to this informant discrepancy debate. First, clinicians may expect lower agreement between mothers and children for internalizing problems that are characterized by less observable symptoms, such as generalized anxiety disorder, and higher agreement for internalizing problems that are characterized by more observable symptoms, such as separation anxiety disorder. Thus, when a child is referred for generalized anxiety disorder (and thus lower agreement is expected) clinicians may consider prior to the assessment to add another informant, such as a teacher.

Second, our results indicated that when a clinician knows or suspects that the mother is struggling herself with depressive symptoms, she is likely to report a higher level of internalizing problems for the child then the child reports for him or herself. In this instance, adding another informant is recommended but may not be enough for clinicians to get the most accurate assessment of the child's mental health concerns. Parents of children with internalizing problems are highly likely to struggle with internalizing problems themselves as well (Cooper et al., 2006; Goodman et al., 2011). It is not clear how this transmission of risk from parental psychopathology to children's psychopathology works. Our results demonstrated that parenting did not mediate this relation and it is likely that the association between parents' and children's internalizing disorders is more complex. Recent findings suggest that the risk mechanisms are a complex interplay between genetic components, environmental influences, temperamental characteristics, and brain functioning in combination with information processing factors, such as attention biases, threat-safety cue discrimination biases, memory biases, and appraisal biases (Lau & Waters, 2017).

Furthermore, most studies on the influence of parenting, like ours, have predominately focused on the influence of mothers, while the influence of fathers is largely understudied (Bögels & Phares, 2008). It is likely that the association is incomplete without paternal parenting. Findings in this regard demonstrated that maternal and paternal parenting may contribute in different ways to the

intergenerational transmission of children's internalizing disorders (Lazarus et al., 2016; Möller, Nikolić, Majdandžić, & Bögels, 2016). Compared to mothers, fathers are more likely to show challenging parenting behaviors, involving active physical and verbal behaviors that encourage children to push their limits (Lazarus et al., 2016). These challenging parenting behaviors might serve as a potential buffer against developing anxiety (Majdandžić, Möller, de Vente, Bögels, & van den Boom, 2014). Moreover, recent findings suggest that parenting stress may be of importance in the complex interplay between maternal and paternal parenting and the intergenerational transmission of children's internalizing disorders (Weijers, van Steensel, & Bögels, 2018). Clearly, future studies should integrate both father's and mother's perspectives and might further explore the role of reducing parenting stress.

Despite the fact the exact processes involved in the transmission of risk are not yet unraveled, the high concurrence of parents' and children's internalizing disorders is not something we can simply dismiss in clinical practice. Thus, when a clinician knows or suspects that the mother is struggling herself with depressive symptoms, it may be particularly useful to already discuss parental psychopathology in the assessment of the referred child. By doing so, clinicians can make a start with explaining some of the risk mechanisms involved (psychoeducation) and make eventual discrepant perspectives between parents and children addressable. Clinicians can use this information to weigh and integrate both perspectives in the assessment of internalizing disorders. Furthermore, clinicians can discuss with parents if there might be a need for additional support or treatment for the parents. This is essential considering the fact that children of parents that feel burdened by their responsibilities have poorer treatment outcome compared to children of parents who do not feel overwhelmed (Compton et al., 2014). Furthermore, recent findings indicate that higher levels of parent-child discrepancies are associated with poorer treatment response (Goolsby et al., 2018). Thus, clinicians might use the discrepancy to consider making adjustments to the treatment plan.

In conclusion, the main message for clinical practice is that both children's and parent's perspectives are preferably equally interpreted in the assessment of internalizing disorders. This can be achieved in three steps. First, screening sessions and Routine Outcome Monitoring (ROM) can, if possible, be done with both the child and the parent(s). The focus within the assessment is ideally not only on the symptoms and problems of the child, but also on those of the parents and significant others. Then, clinicians can weigh the information of the child and parents based on all the information that is being collected, such as the content of the symptoms (i.e., more observable to others versus less observable), the cognitive capacities of the child to reflect on the problems, and the emotional condition of the parents that might influence their perspective. For example, the information of the parents may

be weighted stronger with young children under the age of 8 and the information of the child may be weighted stronger when parents deal with depressive symptoms. Last, clinicians may add another informant in the prospect or event of discrepant information that is difficult to interpret. A teacher is a valuable informant in most instances, but this could also be another informant who has a good perspective on the functioning of the child, such as a grandparent, babysitter, or neighbor.

Taken these three steps into account, assessment procedures for children can be more time-consuming compared to what is now done or compared to assessment procedures for adolescence or adults. There are constant demands to balance cost efficiency issues with providing the best care possible. However, the extra investment in the assessment of childhood internalizing disorders is recommended to prevent the possible under-diagnosis of less observable internalizing disorders (such as generalized anxiety) or the overestimation of the severity of the child's mental health concerns (such as with depressive parents). A thorough assessment will lead to a better fit with a treatment plan. It is likely that if corners are cut for costs at the assessment stage, the higher costs associated with burden of disease or poor treatment response will outweigh initial savings.

APPLYING AND IMPROVING EVIDENCE-BASED PRACTICE FOR CHILDHOOD ANXIETY DISORDERS

Treatment

There has been remarkable amount of research conducted on childhood treatment and there is a large number of identified ESTs (Silverman, Pina, & Viswesvaran, 2008), but the majority of them has not been tested in everyday clinical practice. Over the last decade, less than five percent of RCTs have been conducted in this manner (effectiveness studies) instead of efficacy studies with recruited children treated by researchers or graduate students in university related clinics (Weisz et al., 2015). Furthermore, clinicians in everyday clinical practice are resistant to applying ESTs for numerous reasons (Lilienfeld et al., 2013). Concerns of clinicians are that ESTs have been primarily designed and tested for single problems and diagnoses (and not for co-morbid problems) and for relatively simple and sometimes subclinical problems (and not for the more complex and severe problems); that the rigid and linear design of ESTs hampers individualized treatment to the needs of the child or to address unexpected events; and that ESTs constrains the spontaneity and creativity of the clinician to form a good therapeutic relationship (Weisz et al., 2015). Thus, testing whether or not these concerns are valid and whether ESTs can be applied by

everyday clinicians to regularly referred children in everyday clinical practice is of high importance.

Within our RCT, we compared the treatment response of an EST for childhood anxiety disorders provided by agency-employed clinicians who received training in a manualized based CBT program to the treatment that was regularly provided to the referred children in the agencies. Our results indicated that both treatments were effective in reducing anxiety symptoms in the children with medium to large effect sizes, for mother- and child-reported outcomes. These findings have two implications: (1) an EST for childhood anxiety disorders is effective in everyday clinical practice, but also (2) regularly provided treatment for childhood anxiety disorders in everyday clinical practice is equally effective as an EST. Thus, the concerns that ESTs do not fit 'real world' clinical practice seem unfounded. At the same time, our findings indicated that the provided care was equal to and in some instances even superior to manualized CBT. This is in line with literature finding poorer outcomes for childhood anxiety CBT in community samples compared to what is typically found in university clinic research studies (e.g., Southam-Gerow et al., 2010; Wergeland et al., 2014). Furthermore, it is in line with literature indicating that effect sizes of ESTs are lower for anxiety treatment for children under the age of 12 (as were most of the children in our sample) compared to adolescents who are above the age of 12 (Reynolds, Wilson, Austin, & Hooper, 2012).

There is preliminary evidence suggesting that ESTs for childhood psychopathology (i.e., internalizing and externalizing disorders) may be less powerful in regular treatment than has previously been assumed and that some elements or forms of regular treatment have more potential than previously assumed. Weisz et al. (2013) conducted a meta-analysis for childhood internalizing and externalizing disorders and compared ESTs to regular treatment. Although the results indicated that overall ESTs outperformed regular treatment, the advantages were modest and even non-significant for studies using exclusively diagnosed children and for studies with clinically referred children. Furthermore, there were just three out of the 52 included studies in the meta-analyses that focused on anxiety disorders and all three of those did not demonstrate the superiority of EST. A recent meta-analysis that focused explicitly on childhood anxiety disorders (James et al., 2015) demonstrated that CBT is more effective than waiting list conditions, but not more effective than active controls (e.g., psychoeducation, bibliotherapy) or regular treatment. Furthermore, a recent overview of systematic reviews by Bennett et al. (2016) regarding child and adolescent anxiety treatment indicated that CBT is superior to waitlist, but results regarding CBT versus active controls were mixed. Both meta-analyses were limited by the small number of studies.

Our RCT fits in this gap of effectiveness studies for childhood anxiety and provided insight regarding regular treatment. It demonstrated that the majority of the provided treatment was based on CBT-principles (96% of the instances). It is not surprising that TAU was effective considering the large amount of evidence indicating that CBT is an effective treatment for childhood anxiety (see recent reviews of Bennett et al., 2016; Higa-McMillan et al., 2016; James et al., 2015; Reynolds et al., 2012). We did not anticipate the extent to which CBT principles would be incorporated in regular treatment. The optimistic conclusion that could be derived from this finding is that regular treatment within the agencies is already mostly evidence-based. I can certainly draw from experience working as a clinician myself that applying evidence-based practice has become more prominent within Dutch agencies over the last few years. However, a recent examination of regular treatment for anxious children indicated that clinicians in community agencies are more inclined to apply psychodynamic and family interventions compared to cognitive behavioral interventions (Smith et al., 2017). Thus, some additional factors might have been of influence.

First, all agency-employed clinicians that participated in this study did this voluntarily. It is likely that most of them were already more sensitive to research and evidence-based practice compared to the clinicians that declined participation, and thus, more inclined to administer CBT. Second, a large number of children were excluded from participation (see Figure 1 of *Chapter 5*). The main reason for exclusion was that the child could not wait for the randomization and needed direct intervention. Considering that there were hesitations by the clinicians against the random allocation to the treatment conditions, it is possible that this reason was also used for children that were seen by the clinicians as unfit for manualized CBT. This could have biased the sample and the instances of CBT in TAU. And last, characteristics of the clinicians differed between the CBT and TAU group. Despite our randomization, clinicians in TAU were younger and had less years of treatment experience compared to the clinicians in CBT. Younger clinicians are more likely to have positive attitudes towards evidence-based practice compared to older clinicians (Gudjonsdottir, Arnadottir, Gudmundsson, Juliusdottir, & Arnadottir, 2017). Thus, it might be that clinicians in TAU were more likely to apply CBT compared to their relatively older colleagues in the CBT condition otherwise would have.

Despite the fact that the instances of CBT might have been overrepresented in TAU, it is noteworthy that the similar treatment response of TAU was achieved within less sessions of treatment (on average 7.5 in TAU versus 12 in CBT). This possibility is in line with the limited available effectiveness studies indicating that manualized CBT for childhood anxiety did not produce better treatment outcomes than the regular care in community agencies (Southam-Gerow et al., 2010; Vande Voort, et al., 2010), but where one indicated that regular care had less treatment

sessions compared to manualized CBT (Vande Voort, Svecova, Brown Jacobsen, & Whiteside, 2010), the other indicated that it was the other way round (Southam-Gerow et al., 2010). For our RCT, it is possible that children in TAU continued treatment after three months of treatment. We did not keep track of treatment sessions for TAU after post-treatment (nor for CBT). However, a comparison of treatment characteristics for ESTs versus regular care for childhood psychopathology indicated that the mean number of treatment sessions was higher for ESTs compared to regular care and that there were no significant differences in number of weeks, length of sessions, or total amount of hours of treatment (Weisz et al., 2006). Clearly, further research is needed to examine the specifics of childhood anxiety treatments in regular care. It might be that there are effective components addressed in regular treatment (even within the instances of CBT in TAU) that have not yet been captured within the manualized CBT programs and that these have the potential of endorsing and shortening EST for childhood anxiety.

These unidentified factors might be related to treatment characteristics, child/family characteristics, or characteristics of clinicians. A specific treatment characteristic of manualized CBT for childhood anxiety disorders, like the manual we applied, is that it is transdiagnostic and applicable to multiple anxiety disorders (i.e., panic disorder, social anxiety disorder, specific anxiety disorder, generalized anxiety disorder, and separation anxiety disorder). This is in contrast to the treatment of anxiety disorders in adults, for which there are specific ESTs for each anxiety disorder. Both the efficacy *and* effectiveness of these adult anxiety-specific ESTs have been well established (e.g., Norton & Price, 2007; Stewart & Chambless, 2009). Thus, it is possible that better treatment outcomes are obtained when treatment is custom fitted to the specific anxiety-related problems of the child. For example, children with social anxiety disorder had poorer treatment outcome with a (transdiagnostic) manualized CBT treatment compared to children with other anxiety disorders (Ginsburg et al., 2011; Hudson et al., 2015). It might be that the flexibility of therapists in TAU to adjust (CBT) treatment to specific needs of the child is key to its effectiveness. Further research could focus on this flexibility and might add certain appendixes to the manualized CBT programs. Additional information such as the rational of the specific anxiety disorder can be provided (which might also be established from the extended literature on adult anxiety-specific ESTs), even as suggestions regarding specific interventions. For example, it has been suggested that treatment for children with social anxiety disorder might be enhanced by a consistent and specific focus on reducing self-focused attention during social interactions and reducing the use of safety behaviors (Rapee, Gaston, & Abbott, 2009).

Parental involvement

Another specific characteristic of childhood anxiety treatments is that clinicians are not only dealing with the child, but also with his or her parent(s). The involvement of parents was more intensive in TAU compared to manualized CBT. The CBT manual prescribed that the parent(s) attended 4 of the 12 child sessions, and that they attended 3 additional parent sessions without the child. Parents were encouraged to model courageous behavior; to guide and reward the child during exposure; to discuss dysfunctional beliefs about the child's anxiety; and to address anxiety-provoking parenting (i.e., reducing of overprotection and granting of autonomy). Clinicians in TAU were more inclined (in 47% of the instances) to involve the parents more often. It might be that the effectiveness of TAU was partly due to addressing the parental issues that might hinder healthy development of the child more thoroughly or more personalized compared to manualized CBT. There is substantial evidence that parents play an important role in the development, maintenance, and transmission of internalizing disorders in children (e.g., Creswell et al., 2011). However, studies investigating the effectiveness of parental involvement show inconsistent findings (e.g., Barrett et al., 1996; Bodden et al., 2008). It has been suggested that parental anxiety can also be influential. Involvement of parents has been indicated as *less* effective when parents were dealing with an anxiety disorder (Bodden et al., 2008; Cresswell et al., 2008), however, others have found that the involvement of parents was *more* effective if both parents had an anxiety disorder (Kendell et al., 2008). Furthermore, four meta-analyses have indicated that parental involvement was not associated with differences in effectiveness (In-Albon & Schneider, 2007; Reynolds et al., 2012; Silverman et al., 2008; Spielmans, Pasek, & McFall, 2007).

It seems contradictory that literature regarding the usefulness of involving parents remains ambiguous, considering the consensus regarding parental influences in the development and maintenance of childhood anxiety. One possible explanation is that the influence of parents in the treatment response of childhood anxiety is overrated and that it is not of additional value to involve parents. This is in line with literature indicating that parental behaviors accounted only for a small amount of variance in child outcomes (e.g., McLeod et al., 2007b) and with our results indicating that parenting did not predict treatment response. Another possible explanation is that the long-term effects of the changes in parental behaviors are not captured in regular follow-ups. When treatment is finished, a child will rely more heavily on the parents to keep being exposed to their fears and not avoid them. It is likely that parenting behaviors associated with childhood anxiety, such as over-involvement and low granting of autonomy, may influence the child's behavior increasingly over a longer period of time. There is preliminary evidence for this hypothesis. For instance, parental depression and anxiety has been associated with poorer treatment response,

and this effect amplified in the year after treatment was finished (Hudson et al., 2015). Furthermore, a long-term follow-up of three years indicated that children who received family CBT were less likely to have an anxiety disorder compared to the children who received child CBT (Cobham, Dadds, Spence, & McDermott, 2010). This was regardless of parental anxiety, suggesting that parental behaviors might be of higher significance than parental anxiety diagnosis status.

Thus, it is possible that addressing parental behaviors in treatment that might hinder the child's development might be key to further enhancing childhood anxiety treatment and preventing relapses in the long run. Though, further research might improve (1) the assessment of parenting, and (2) the way parental involvement during treatment is established. First, we analyzed only whether parenting behaviors prior to treatment predicted treatment outcome and did not analyze parenting behaviors over the course of treatment and follow-up. It might be that *changes* in parenting behaviors predict better treatment outcomes in the long-term. Also, we analyzed only whether perceived parenting behaviors as reported by the mother and the child predicted treatment response. Inconclusive findings regarding parenting might also be related to whether parenting behaviors are assessed by reports (of clinicians, parents, or of children) or by observations. Parents of anxious children have been observed to use more anxiety-enhancing parenting behaviors during an interaction with their child than they had reported in an interview (Beato, Pereira, & Barros, 2017). It is likely that factors such as social desirability or differences regarding the interpretation of what they considered as often or too much are of influence on parents' (and their children's) reports. It might be that *observed* anxiety-enhancing parenting behaviors change over the course of treatment and predict better treatment outcomes in the long-term.

Second, all of previous reviews and meta-analyses regarding the effectiveness of parental involvement in treatment (In-Albon & Schneider, 2007; Reynolds et al., 2012; Silverman et al., 2008; Spielmans,et al., 2007) used different definitions of parental involvement. For example, high versus low parental involvement is in most instances, as with the results of our RCT, defined by the number of session that parents are present in treatment. It is likely that it is not the *quantity* of parental involvement that is key to its effectiveness as it is the *quality* of the parental issues that are being addressed during treatment. We also did not analyze the content of parental involvement during TAU and a further investigation of the specific contents may be warranted. There is heterogeneity regarding the different types of parental involvement that have been examined previously. For example, previous studies have focused on improving the communication between family members (e.g., Shortt, Barrett, & Fox, 2001), addressing parental thoughts and feelings about the child (e.g., Nauta, Scholing, Emmelkamp, & Minderaa, 2003), reducing parental intrusiveness

and increasing parental autonomy granting (e.g., Wood, Piacentini, Southam-Gerow, Chu, & Sigman, 2006), and teaching parents strategies to encourage children's exposure to anxiety-provoking situations (e.g., Suveg et al., 2009). A preliminary meta-analysis by Manassis et al. (2014) indicated that CBT with active emphasis on contingency management, in which parents are stimulated to encourage children's exposure to anxiety-provoking situations, and gradual transfer of control, in which the therapist gradually transfers the role of coach to the parent, may support the long-term continuance of treatment effects. Further research may explicitly focus on these elements, as on *how* these elements should be addressed.

Therapeutic alliance

With respect to our second predictor, our RCT results revealed that the therapeutic relationship between clinician and child prior to treatment did not predict treatment outcome. This is in line with research indicating that the therapist-child relationship is not a consistent predictor of treatment (McLeod, 2011). This could indicate that it does not matter if the child experiences a good relationship with his or her therapist, which is somewhat hard to imagine, or that there is more to this story. We only analyzed the relationship as perceived by the child after the first session and did not analyze the therapeutic relationship during the course of treatment. Previous research has indicated that improvement in the child-therapist relationship over the course of the treatment predicted better treatment outcome (Chiu et al., 2009). Perhaps it is not the first impression of the therapist that is important, but that it is the development of the relationship over time that predicts outcome. Future research may examine the therapeutic relationship at multiple times during treatment.

Moreover, we only analyzed the therapist-child relationship as perceived by the child, but it may be more difficult for children under the age of 12 to reflect on the relationship considering their developing cognitive and social-emotional development (Silverman & Ollendick, 2005). Results on the therapeutic relationship with anxious adolescents reassemble studies with adults indicating a strong association between alliance and outcome (Murphy & Hutton, 2018). For children under the age of 12, it may be necessary to add other informants such as the clinician, observers, and parents to fully understand the more complex alliance-outcome association. For instance, Marker et al. (2013) found preliminary evidence for a reciprocal relationship between the therapeutic relationship and children's treatment response with multiple informants. A positive change in the relationship over the course of treatment, as rated by the mother and therapist, was predictive of a reduction in the child's anxiety and that a reduction in the child's anxiety was predictive of a positive change in the relationship, as reported by the therapist and the father. This association was not found for the child-reported therapeutic relationship. Moreover, Fjermestad et al.

(2016) found that it was only the *agreement* between children and therapist regarding the relationship that predicted treatment outcome. Clearly, there are several avenues for future research to take, trying to clarify how alliance predictions work with children (if they actually work as predictors at all).

LIMITATIONS: CHALLENGES AND FUTURE DIRECTIONS FOR CLINICAL RESEARCH

Conducting clinical research with referred children treated by agency-employed clinicians in mental health agencies has some clear disadvantages experimentally and methodologically. There are numerous complicating factors that are difficult to control, but are so often present in everyday clinical practice (Weisz et al., 2013). These variables include child characteristics (e.g., comorbidity and co-occurring problems), family characteristics (e.g., caregiver strain and stress), practitioner characteristics (e.g., full caseloads), agency factors (e.g., limited resources and productivity requirements), and other unpredictable factors (e.g., intervention of child protective services). At the start of this project, we intended to intervene as little as possible with the regular procedures. Unfortunately, this was far more challenging and time consuming than we anticipated and it required a lot of negotiation.

One of the issues was that clinicians felt burdened to add any additional work to their already significant work load or considered additional measures as an additional burden to the families. Clinical interviews or even rating scales to conduct diagnostics assessment were not common practice at that time. Compromises on this matter were that research assistants arranged and analyzed the rating scales of all referred children, research assistants kept a record of all the reasons for exclusion, and intake sessions were without (structured) diagnostic interviews. Although we had a large number of available research assistants that kept records of numerous data and supported the clinicians as much as possible (e.g., planning all manualized CBT sessions with the families and reminding the therapists of the weekly therapist questionnaires), these resources were not unlimited. A consequence was that we could not keep records of all relevant treatment information such as the DSM diagnoses that were established, the exact adherence to treatment, and the number of treatment sessions or other forms of treatment at the end of three months. In hindsight, this information would have been worth collecting.

Another important issue was that manualized CBT was provided to children with anxiety disorders in the agencies, but clinicians were accustomed to deciding based on clinical experience whether manualized CBT or an alternative treatment would be a better fit for a specific family. As also discussed in the previous section,

there were strong hesitations against the random allocation and a large number of children was excluded. We were unable to include the full recommended number of 120 children, despite extending our RCT by one full year and despite our decision in the end to recruit children through schools in the area of the agencies. The studies in this dissertation had low sample sizes and the analyses were underpowered. Thus, most of these results need to be interpreted with caution. It is important to note, however, that this is a common problem in clinical research and our sample size was comparable to other similar clinical studies (e.g., Esbjørn et al., 2013).

Effectiveness studies within childhood clinical practice are important to conduct, however, considering the limitations and challenges it might be worth also considering alternative options. The distance between clinical research and clinical practice and the misconceptions regarding each other's expertise remain large, despite the common goal of improving the care for children (Kazdin, 2008). There is growing awareness in both domains of the need to address this properly and examples of efforts to shrink the gap are shared collaborations and the growing number of scientist-practitioners (like myself) in everyday clinical practice. Tailoring and testing treatment in the 'real world' would be ideal, but requires some compromises from both parties. An example of a stronger alliance between clinical practice and research is the Child STEP's (child system and treatment enhancement projects) in which a modular, transdiagnostic treatment protocol has been set up to provide a more broad and flexible coverage of childhood problems than most standard EST's and, thus, research is done on the more realistic conditions in everyday clinical practice (Chorpita et al., 2013). Interestingly, this modular, transdiagnostic treatment outperformed usual treatment (even after two years), whereas standard EST did not (Weisz et al., 2012; Chorpita et al., 2013).

Another opportunity to set up clinical research from practice is with Routine Outcome Monitoring (ROM). ROM is an assessment method to systematically collect information about treatment progress within everyday clinical practice. It is intended to stimulate client engagement, enhance the therapeutic alliance, improve treatment outcome, and promote efficiency of treatment (Lambert, 2010). In the Netherlands, ROM has been implemented in most mental health agencies over the last few years (De Beurs et al., 2011). This large collection of data makes it possible to investigate the effectiveness of treatments in everyday clinical practice with little interference and time-investment. The Leiden routine outcome monitoring study is an example of big ROM data collection initiative that has led to multiple clinical studies with large sample sizes (e.g., Schat at al., 2017).

And lastly, future research might focus on case studies. These type of studies involve a detailed description and examinations of a specific client (single-case study) or multiple clients (multiple-case study), as well as the surrounding (treatment)

conditions (e.g., Roussos, Penedo, & Muiños, 2018). Case studies have been particularly popular within psychotherapy research, but have been heavily criticized for methodological limitations and have been easily dismissed (McLeod & Elliot, 2011). However, a growing number of case studies are using more reliable measurements and there are new ideas about how to best analyze these data (Fishman, 2005). Case studies have the explicit aim to bridge science and practice. They can provide input to research about the range and scope of everyday clinical practice or generate hypotheses about mechanisms that might influence treatment outcome (Stiles, 2007). This in-depth input makes it possible to test new hypotheses in further stronger research designs. Furthermore, case studies are more informative and accessible for clinicians to keep up with recent findings (McLeod & Elliot, 2011).

EPILOGUE: REFLECTIONS FOR CLINICAL PRACTICE

Prior to the start of my PhD-project, I was working as a clinician in a Dutch mental health care center for children. At the time, evidence-based practice was not that incorporated in clinical practice and the distance between research and practice was rather large. I strongly believed that the care for children could be bettered by conducting research in the 'real' clinical world. So, when the opportunity arose to conduct research with 'our' children, I was highly motivated. I combined my clinical work with this research as an external, clinical PhD-student and I have learned to speak the two languages of science and practice. From this perspective, I would like to include some further thoughts and reflections for clinical practice that go beyond the current findings of the presented studies. I find it important to bridge my current knowledge from the combination of research and clinical expertise to a broader knowledge. I will focus on two concrete suggestions that might directly be relevant for clinicians treating children with an anxiety disorder: improving the use of exposure and optimizing parental involvement in treatment.

Exposure

First, applying ESTs for childhood anxiety disorders are ideally the starting point for treatment. Clinicians might explicitly focus on the effective clinical ingredients to have the highest probability of succeed (Higa-McMillan et al., 2016). Manualized CBT protocols for childhood anxiety have included psychoeducation for children to learn about the way anxiety works; relaxation exercises to lessen the physiological signs of anxiety; cognitive restructuring to identify and change dysfunctional cognitions; and exposure to decrease avoidance behaviors and related impairment (Peris et al., 2015). Both cognitive restructuring and exposure have been identified as the most effective

elements for childhood anxiety improvement, whereas relaxation has been identified as having limited impact (Peris et al., 2015). Furthermore, the use of exposure has been found predictive for treatment outcome (Vande Voort et al., 2010) and showed comparable performance in isolation compared to comprehensive interventions (e.g. Deacon & Abramowitz, 2004). Also, exposure-based therapy for childhood anxiety is an equally well-established treatment as CBT with both cognitive restructuring and exposure, and other CBT-based treatments that did not specifically include exposure-based approaches tended to have smaller effect sizes (Higa-McMillan et al., 2016). Thus, clinicians might skip relaxation exercises and focus more strongly on cognitive restructuring and, in particular, exposure.

Unfortunately, clinicians in everyday clinical practice generally make little use of exposure-based methods (Harned, Dimeff, Woodcock, & Contreras, 2013). It has been suggested that the limited use of exposure is the result of 'therapist drift' (Waller, 2009). This is the common phenomenon among clinicians to shift from 'doing treatment' to 'talking treatment' in the face of difficulties, such as dealing with immediate problems or crises. It has been found that less experienced and more anxious clinicians are in particular more likely to avoid exposure compared to more experienced and less anxious clinicians (Levita, Duhne, Girling, & Waller, 2016). The barriers that clinicians report by themselves for not using exposure in childhood anxiety treatment are that the length of their treatment session is too short for exposure, that they lack proper training, and that they are concerned about the reaction of the parent of the child (Reid et al., 2017). Anxiety treatment for children in everyday clinical practice might be further improved by lowering the threshold for clinicians to use exposure in treatment and make it easier (and less frightening) to add exposure to their treatments.

In the adult anxiety literature, there has been an extensive review published on concrete strategies for clinicians to maximize the use of exposure in practice based on a new approach, the inhibitory learning approach (Craske, Treaner, Conwey, Zbozinek, & Vervliet, 2014). The traditional mechanism through which exposure is thought to work is 'fear habituation' and 'belief disconfirmation' (Salkovskis, Hackman, Wells, Gelder, & Clark, 2007). It has been presumed that fear reduction during exposure is required in order to disconfirm the catastrophic misinterpretation of the feared stimuli. Most manualized CBT programs for children, such as the one we have used, have been focusing on the child's reduction of anxiety during exposure aimed to eliminate the child's anxiety. Consistent with the adult literature, recent findings suggest that these processes have a limited role within CBT for anxious children and that inhibitory learning might be a better alternative (Peterman, Carper, & Kendall, 2016). The approach proposes that exposure helps children to develop an inhibitory (i.e., nonthreatening) meaning of the feared stimuli as an additional association to

the original excitatory (i.e., anxiety-provoking) meaning. Thus, strategies derived from inhibitory learning models do not focus on the reduction of anxiety during exposure and might even maintain or elevate the level of anxiety during exposure (Craske et al., 2014). The aim is not eliminating the child's anxiety, but teaching the child to cope with anxiety. The straightforward strategies described by Craske et al. to improve exposure (e.g., expectancy violation with the catch-phrase 'test it out') do not require much training for clinicians to implement in clinical practice and might lower the threshold. There is even a Dutch translation of the paper available (Vervliet et al., 2014).

Parental involvement

Next, when a carefully conducted treatment with cognitive restructuring and/or exposure is applied to a child without success, alternative options can be considered. Other well-established treatments for childhood anxiety are CBT with parents and CBT with medication (Higa-McMillan et al., 2016). Considering the unknown lasting effects of medication for children and the hesitation of parents (and clinicians) to provide medication to children, it may be first-choice to involve parents more thoroughly. In this instance, clinicians might focus explicitly on the recent findings regarding contingency management and gradual transfer of control (Manassis et al., 2014) and challenging parenting behaviors (Lazarus et al., 2016). The manualized CBT programs we used in our RCT, Thinking + Doing = Daring' (TDD), is widely used in the Netherlands and puts emphasis on these elements (Bögels, 2008). The information in the manual regarding the involvement of parents can be a good starting point for clinicians and the available workbooks for parents may support treatment. However, for those children that have not profited from the regularly provided CBT, there may be an explicit additional focus on two potentially effective components to address the essential parenting behaviors: psychoeducation to the parents and involving parents during exposure.

Just providing psychoeducation to the parents has been established as a probably efficacious treatment (Higa-McMillan et al., 2016). Thus, a good understanding of the components, presentation and nature of anxiety, as well as the (parental) factors involved in the development of their child's anxiety, might help parents to change some of their own behaviors and stimulate their child in treatment. The rational of treatment might get better embedded since there is a better understanding of the relevant components to treatment and their purpose. This seems to be of particular importance for children under the age of 12 who are relying more on their parents to transfer to the role of coach (and continue the long-term positive development), whereas adolescents are likely more capable of becoming their own coach. Although there is information in the TDD therapist manual, this information is brief and it is likely that even less is discussed by the clinician. There is also information

in the workbook for parents, but the information is quite general and there is no direct connection to what behavior is expected of parents to change. Thus, the key challenge for clinicians is to seek out and compile for themselves information about the family factors in the development and treatment of childhood anxiety disorders (see recommended reviews Drake & Ginsburg, 2012; Rapee, 2012) and the etiology of the complex interplay between genetic components, environmental influences, and temperamental characteristics (e.g., Lau & Waters, 2017) applicable to the specific child and his or her parents. There is some sensitivity recommended, considering that most parents of anxious children are highly likely to experience anxiety themselves, feelings of guilt and failed parenting are easily triggered. Dealing with these parenting challenges requires an open, exploratory, and non-judgmental therapeutic attitude in which the therapist forms together with the parents an explanation regarding the specific development of the child. It might help clinicians tremendously when there are up-to-date summaries developed and written in a more accessible language. It might also help to have this information presented in an up-to-date visual framework, such Hudson and Rapee (2004) have done in the past.

Second, when parents embrace the explanation of their child's anxiety development, it might then be important to actually start making changes to their behaviors. Considering the effectiveness of exposure, it might help to have parents run exposure practices with the child and clinician together. When the focus is on 'doing treatment' instead of 'talking treatment' there is less room for avoidance. Since parents are likely to experience anxiety themselves, they are likely to show avoidance and support safety behaviors during exposure. Clinicians may coach parents in encouraging their child's exposure to anxiety-provoking situations by demonstrating the appropriate encouragement. Clinicians may explain to parents that when the child is being exposed to his or her fears this will subsequently elicit anxiety in the parents. However, inhibitory learning emphasizes that children profit from learning that they can handle the arousal instead of trying to lower it (avoidance or safety behaviors). Thus, this asks from parents to manage their own arousal and provide children with the implicit message that they believe that the child is capable of doing the exposure. Also, parents are likely to be a part of a lot of safety behaviors, especially in children under the age of 12. These are behaviors such as speaking for the child at the doctor's office since he or she is afraid to or texting and reassuring the child when he or she is feeling home-sick at a sleep-over. Clinicians may coach parents to provide as little safety behaviors as possible during exposures. Furthermore, parents may be encouraged to do exposures in overcoming their own fears in which they model courageous behavior to their child and stimulate brave and challenging behaviors. When one of parents seems to have difficulties to model courageous behavior, clinicians might actively stimulate the other parent to step in more.

CLOSING STATEMENT

This dissertation focused on the clinical challenges of the assessment and treatment of childhood internalizing disorders. The results with respect to the assessment of childhood internalizing disorders have highlighted the importance of incorporating both children's and parent's perspectives. The results with respect to the treatment of childhood internalizing disorders have indicated that applying an EST to children with an anxiety disorder in everyday clinical practice was effective, and that regular treatment in which clinicians could flexibly adjust treatment to the specific needs of the child and family, was equally effective. The main message for clinical practice is that the appliance of a manualized CBT to children with an anxiety disorder (and their parents) is a good starting point for treatment. Many years of research have led to the development of these manuals and they are based on theoretical models and research on antecedents. In particular, for young children who are likely to start treatment for the first time, it would be wise to apply a structured cognitive behavioral treatment with the effective ingredients of cognitive restructuring and exposure. There is a growing number of ESTs available for various childhood disorders and manualized CBT-based treatment programs are more often used and implemented (Brookman-Frazee et al., 2018). It is positive that the culture of strong clinical resistance against research starts to change. However, when comparing the ESTs that are available for adults and the research around these, research and implementation of findings for childhood anxiety disorders may still be in its infancy. Considering the lower effectiveness of childhood anxiety ESTs compared to ESTs for adolescents and adults, it is possible that there are other potential effective components within regular treatment for children under the age of 12 that have not yet been captured within the existing manualized CBT programs. Clearly, we are on the right track to better the care for children, but there is work ahead of us. Suggestions for future clinical research have been provided.

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Nederlandse Samenvatting

NEDERLANDSE SAMENVATTING

Internaliserende problemen, zoals angstig, somber of teruggetrokken gedrag, komen vaak voor bij kinderen, maar worden slechts zelden opgemerkt door mensen uit hun omgeving. Kinderen met deze klachten zijn anderen meestal niet tot last en vallen in de klas vaak niet zo op. Dit is in tegenstelling tot kinderen met externaliserende problemen, zoals hyperactiviteit en gedragsproblemen, waarbij de omgeving juist zeer veel hinder ervaart. Het is zorgelijk dat internaliserende problemen zo weinig opgemerkt worden, omdat onbehandelde angststoornissen of depressieve stoornissen bij kinderen grote consequenties kunnen hebben, zowel in hun dagelijks leven als ook later in hun leven. Negatieve consequenties zijn bijvoorbeeld verminderde schoolprestaties, verhoogde kans op middelenmisbruik en een verhoogd risico op suïcide. Er wordt gesproken van een internaliserende stoornis wanneer de problemen bij een kind zodanig zijn dat er een angststoornis of depressieve stoornis vastgesteld wordt.

Er is sprake van een angststoornis wanneer de angst buitensporig is ten opzichte van de angstige stimulus (bijvoorbeeld een hond, scheiding van ouders, spreken in de klas), moeilijk onder controle te houden is en grote invloed heeft op meerdere levensgebieden (bijvoorbeeld zowel thuis als op school). Er zijn verschillende type angststoornissen, zoals de separatieangststoornis waarbij een kind bang is om van zijn ouder(s) gescheiden te worden in een mate die niet past bij de ontwikkelingsfase, de sociale angststoornis waarbij een kind bang is om in sociale situaties bekritiseerd of uitgelachen te worden, de generaliseerde angststoornis waarbij een kind zich voortdurend zorgen maakt of piekert over uiteenlopende zaken en de paniekstoornis waarbij een kind bang is om een paniekaanval (een korte periode van intense angst die gepaard gaat met lichamelijke sensaties) te krijgen. Een depressieve stoornis kenmerkt zich door een sombere stemming en/of door verlies van interesse of plezier in bijna alle activiteiten. Daarnaast wordt een depressieve stoornis gekenmerkt door drie of meer van de volgende symptomen: een duidelijke toe- of afname in eetlust en gewicht, slaapproblemen, geagiteerd of geremd gedrag, vermoeidheid, gevoelens van waardeloosheid of schuld, concentratieproblemen en terugkerende gedachten over de dood en zelfdoding.

De schattingen zijn dat ongeveer 20 procent van de kinderen in de basisschoolleeftijd te maken krijgt met een angststoornis en/of een depressieve stoornis. Angststoornissen en depressieve stoornissen komen vaak tegelijkertijd voor bij kinderen en er is sprake van een overlap in klachten. Om deze reden wordt er bij kinderen ook vaker gesproken over een 'internaliserend cluster'. In dit proefschrift wordt er gesproken over internaliserende stoornissen wanneer resultaten voor zowel angststoornissen als depressieve stoornissen gelden. Het is van belang dat

internaliserende stoornissen bij kinderen tijdig herkend en vastgesteld worden zodat er een preventieve of curatieve interventie ingezet kan worden. Hoewel er effectieve diagnostische en behandelmethoden zijn, is er nog veel ruimte voor verbetering. Dit proefschrift richt zich op het verbeteren van het vaststellen en behandelen van internaliserende stoornissen bij kinderen in de klinische praktijk. In dit proefschrift worden drie studies besproken: (1) de verschillen in visies tussen ouders en kinderen op de angsten van het kind; (2) de rol van ouders in het ontstaan, onderhouden en overdragen van depressies; en (3) het toepassen en verbeteren van wetenschappelijk onderbouwde angstbehandelingen in de klinische praktijk.

Studie 1: Verschillende visies tussen ouders en kinderen

Wanneer een ouder en kind een vragenlijst invullen over de internaliserende problemen van het kind is de kans groot dat zij van mening zullen verschillen. Uit onderzoek blijkt dat de mate van overeenstemming tussen ouders en kinderen over internaliserende problemen laag is. Hoewel onderzoek duidelijk laat zien dat ieders visie op de problematiek uniek en van gelijke waarde is, blijken therapeuten in de klinische praktijk toch meer geneigd te zijn om de visie van ouders sterker mee te laten wegen in hun diagnostische oordeel. Richtlijnen stellen dat het verzamelen van informatie van meerdere informanten (zoals kinderen, ouders en leerkrachten) het uitgangspunt moet zijn, maar onduidelijk blijft hoe therapeuten verschillende visies samen moeten voegen om tot een diagnostisch oordeel te komen.

In *Hoofdstuk 2* wordt een studie besproken waarin het verschil tussen de visie van moeder en kind over de mate van angst van het kind onderzocht is. Uit de resultaten blijkt dat er over het algemeen grote verschillen zijn tussen de visie van moeder en kind, maar dat dit verschillend is per type angst. De resultaten laten zien dat moeder en kind het vaker met elkaar eens zijn over de mate van separatieangst en vaker oneens over de totale mate van angst. Verder laten de resultaten zien dat het observeren van angst slechts beperkt gerelateerd is aan de vragenlijst van het kind en op geen enkele manier met die van de moeder. Geconcludeerd kan worden dat er meer overeenstemming tussen moeder en kind is over angsten die beter zichtbaar zijn.

Studie 2: De rol van ouders

Uitgebreid onderzoek heeft laten zien dat ouders een belangrijke rol spelen in het ontstaan en in stand houden van internaliserende stoornissen. Hieruit blijkt er sprake te zijn van een overdracht van generatie op generatie, waarbij er voornamelijk aandacht is geweest voor de psychopathologie van de moeder en de opvoeding van het kind. Zowel ouders met depressieve klachten als kinderen met depressieve klachten ervaren minder warmte en een hogere mate van psychologische controle in de opvoeding.

In *Hoofdstuk 3* wordt een studie besproken waarin de rol van warmte en psychologische controle onderzocht is bij moeders met depressieve klachten en hun kinderen. Uit de resultaten blijkt dat moeders met depressieve klachten zowel meer internaliserend als externaliserend probleemgedrag bij hun kinderen rapporteren. De kinderen van moeders met depressieve klachten rapporteren echter zelf niet meer depressieve klachten in vergelijking met kinderen van moeders zonder depressieve klachten. Net als in *Studie 1* blijken de visie van moeder en kind op de problematiek van het kind van elkaar te verschillen. Mogelijk wordt het verband dat veelvuldig in verschillende onderzoeken wordt gevonden tussen depressieve moeders en probleemgedrag bij kinderen gekleurd door een meer pessimistische blik van depressieve moeders. Verder is er geen effect gevonden van warmte en psychologische controle op de relatie tussen depressieve klachten bij de moeder en probleemgedrag bij het kind.

Studie 3: Toepassen en verbeteren van wetenschappelijk onderbouwde behandelingen

De afgelopen jaren is het belang van het toepassen van wetenschappelijk onderbouwde behandelingen in de klinische praktijk steeds duidelijker geworden, maar is er ook kritiek op deze protocollaire behandelingen. Een veelgehoord kritiekpunt is dat het grotendeel van deze behandelingen niet in de (weerbarstige) klinische praktijk is onderzocht en dat deze strikte behandelprotocollen niet goed aan te passen zijn aan de problemen of behoeften van de kinderen en gezinnen in de klinische praktijk. Het is echter onduidelijk of deze kritiek terecht is. Het is daarom van belang dat de effectiviteit van protocollaire behandelingen voor kinderen in de klinische praktijk worden onderzocht. Daarnaast blijken effectieve behandelingen bij ongeveer 30 procent van de kinderen niet of onvoldoende te werken. Het kan helpend zijn wanneer van te voren te voorspellen is of een kind wel of niet gebaat is bij de behandeling. Dit kan aanwijzingen geven over de factoren die binnen behandeling extra aandacht nodig hebben en de behandeling zouden kunnen verbeteren.

In *Hoofdstuk 4* wordt het studieprotocol beschreven van een gerandomiseerd en gecontroleerd effectiviteitsonderzoek voor kinderen die in behandeling zijn voor hun angststoornis bij een reguliere Nederlandse geestelijke gezondheidszorginstelling. In *Hoofdstuk 5* worden de resultaten van dit onderzoek gerepresenteerd. Er is gekeken of er verschillen zijn in het behandelresultaat tussen een protocollaire behandeling en een reguliere behandeling. Kinderen zijn willekeurig toegewezen aan een geprotocolleerde cognitieve gedragstherapeutische behandeling (CGT) of aan de reguliere behandeling zoals die normaal gesproken aan de kinderen en het gezin gegeven wordt. Er is tevens gekeken of de opvoeding van het kind en de therapeutische relatie tussen de therapeut en het kind het behandelresultaat kunnen voorspellen.

Uit de resultaten blijkt dat er geen verschil in effectiviteit is tussen CGT en de reguliere behandeling. De behandeleffecten van beide behandelingen zijn gemiddeld tot hoog. In enkele gevallen zijn er betere behandeluitkomsten gevonden voor de reguliere behandeling. Moeders in de reguliere behandeling rapporteren minder sociale angsten bij hun kind direct na de behandeling en na 6 maanden na de behandeling. Tevens rapporteren zij minder internaliserende problemen bij hun kind direct na de behandeling. Een jaar na de behandeling zijn deze verschillen niet meer aanwezig. De kinderen rapporteren op geen enkel meetmoment verschillen. Tegen onze verwachting in is gebleken dat zowel de opvoeding van het kind als de therapeutische werkrelatie niet voorspellend zijn voor de behandeluitkomst.

Algemene discussie

In *Hoofdstuk 6* wordt er in de algemene discussie van dit proefschrift verder ingegaan op de resultaten over de diagnostiek en behandeling van internaliserende stoornissen. Meer specifiek wordt er verder ingegaan op (1) de rol van ouders in de diagnostiek van internaliserende stoornissen en (2) het toepassen en verbeteren van wetenschappelijk onderbouwde behandelingen voor kinderen met een angststoornis.

De rol van ouders in de diagnostiek

De resultaten met betrekking tot de diagnostiek van internaliserende stoornissen laten zien dat de visie tussen moeder en kind over de internaliserende problemen van het kind van elkaar verschillen. De resultaten zijn ondersteunend aan de literatuur over de lage mate van overeenstemming tussen moeder en kind over internaliserende problemen en benadrukken het belang van het betrekken van meerdere informanten (minimaal ouder(s) en kind) tijdens de diagnostiek. Dit lijkt in het bijzonder van belang bij internaliserende problemen die minder zichtbaar zijn voor anderen. Tevens laten de resultaten zien dat de visie van moeders sterk gekleurd kan zijn door eventuele eigen (psychische) problematiek. Het is essentieel therapeuten in de hun diagnostische oordeel zich hiervan bewust zijn. Zeker aangezien er bij therapeuten de neiging bestaat om de informatie van de ouders sterker te laten wegen dan die van het kind.

Verder blijkt uit de resultaten dat de opvoeding van het kind geen effect lijkt te spelen in de generationele overdracht van internaliserende stoornissen van moeder op kind. Het meest aannemelijk is dat internaliserende stoornissen van ouder op kind worden overgedragen via een complex samenspel van verschillende factoren (zoals genetische componenten, omgevingsinvloeden, persoonlijke factoren en cognitieve factoren of hersenfuncties). Onderzoek heeft zich tot nu toe met name gericht op de invloed van deze verschillende factoren los van elkaar. Er is verder onderzoek

nodig naar hoe deze factoren tezamen voor een kwetsbaarheid voor het ontwikkelen van internaliserende stoornissen zorgen. Bovendien is er in ons onderzoek en veel ander onderzoek weinig aandacht geweest voor de rol van vaders en lijkt dit complexe samenspel niet compleet te zijn zonder de expliciete rol van vaders in dit geheel.

Toepassen en verbeteren van behandeling

Onze resultaten betreffende de behandeling van angststoornissen bij kinderen laten zien dat wetenschappelijk onderbouwde behandelingen effectief toegepast kunnen worden in de klinische praktijk, maar ook dat de reguliere behandeling even effectief kan zijn. Dit is niet zo verrassend, aangezien het merendeel van de reguliere behandeling bestaat uit elementen uit de cognitieve gedragstherapie. Het is wel interessant dat deze elementen ook effectief zijn wanneer zij flexibel toegepast worden, dat wil zeggen zonder het strikte volgen van de structuur en volgorde van de sessies zoals die omschreven staan in de protocollaire CGT. Bovendien laten de resultaten zien dat er bij de reguliere behandeling minder behandelsessies plaatsvinden en dat ouders intensiever betrokken worden. Mogelijk wordt de reguliere behandeling meer aangepast aan de behoeften van het kind of het gezin en zou de reguliere behandeling efficiënter kunnen zijn dan een protocollaire CGT. Er is echter voorzichtigheid bij deze conclusie geboden, aangezien er zo weinig onderzoek beschikbaar is over de behandeling van kinderen in de klinische praktijk. Onze resultaten vullen een groot tekort in de literatuur en er is zeker vervolgonderzoek nodig om de resultaten te repliceren en deze hypotheses verder te onderzoeken.

Ten slotte wordt er in de algemene discussie verder stilgestaan bij wat de resultaten voor de klinische praktijk betekenen en welke praktische adviezen aan therapeuten gegeven kunnen worden. Allereerst is het van belang om te benadrukken dat protocollaire behandelingen bij uitstek een ideaal uitgangspunt voor kinderen met een angststoornis die voor het eerst in behandeling komen. Protocollaire behandelingen zijn tot stand gekomen vanuit jarenlang onderzoek en onze resultaten laten zien dat deze effectief toegepast kunnen worden in de klinische praktijk. Er zijn wel enkele suggesties te geven welke behandelonderdelen extra belicht kunnen worden. Uit onderzoek blijkt dat exposure en cognitieve herstructurering de meest effectieve behandelonderdelen zijn voor kinderen met een angststoornis, terwijl ontspanningsoefeningen het minst effectief zijn. Bovendien blijkt uit onderzoek bij volwassenen dat het enkel toepassen van exposure gelijke behandelresultaten oplevert dan het toepassen van zowel exposure en cognitieve herstructurering. Het lijkt dus vooral raadzaam te zijn om minder aandacht te leggen op ontspanningsoefeningen en meer op het toepassen van exposure. Therapeuten blijken namelijk over het algemeen juist weinig gebruik te maken van (begeleide) exposure binnen de sessie. Het gebruik van exposure in de klinische praktijk zou nog

duidelijk verbeterd kunnen worden om het effect van exposure te vergroten. Concrete suggesties zijn bijvoorbeeld het specifiek uittesten van de angstige verwachting, variëren van verschillende contexten en stimuli, en veiligheidsgedrag afbouwen (zie ook Vervliet et al., 2014). Een ander verbeterpunt in de behandeling bij kinderen met angststoornissen is de manier waarop ouders gemotiveerd worden om hun kind op een goede manier te coachen om met angstige situaties om te gaan. Duidelijke psycho-educatie aan ouders over de werking van angsten en hun eigen rol daarin zou daarbij ondersteunend kunnen zijn.

Dankwoord

DANKWOORD

Mijn proefschrift is eindelijk klaar! En daar hebben heel veel mensen (direct en indirect) aan bijgedragen, die ik daar graag voor wil bedanken.

First of all, I would like to thank Isabel, my promoter on this project. Thank you for unceasing optimism and problem solving skills to concur all the many challenges that came along this project. I have learned from your strong ability to put issues into perspective, which is certainly essential to conducting clinical research. Furthermore, your constructive feedback on all the various versions of my papers have strengthen my English, but most of all, strengthen my faith that one day I could finish my dissertation. Thank you for your support!

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geaccepteerd. Je hebt met alle geduld meegedacht om alle (78!) vragen van de reviewers uiterst zorgvuldig te kunnen beantwoorden. Deze mijlpaal gaf me het vertrouwen dat ik mijn proefschrift op een dag af zou kunnen ronden.

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inclusief een volle tas met videocamera, statief, Wii-spelcomputer, en cadeautjes voor de kinderen. Tevens zijn alle scholen in regio Nijmegen en Arnhem door studenten benaderd en hebben zij op de deelnemende scholen vragenlijsten bij de kinderen in de klassen afgenomen. Het werd duidelijk dat op een gegeven moment de organisatie van 'ons leger' en alle zaken erom ons de pet te boven ging en als geroepen werd toen onze redder in nood, Marsha Philipsen, aangesteld als onderzoeksassistente. Wat een verademing was dat! Met een gerust hart konden we alle organisatorische zaken aan je overlaten en binnen no time hadden we georganiseerde en opgeruimde kasten vol met gelabelde mappen, gesorteerde spullen, een kleurlabel systeem, en Excel sheets vol data en overzichten. Dank je wel Marsha voor je organisatie talent! Later hebben Aniek te Dorsthorst en Steffi Gevers de afrondende taken van haar overgenomen, waarvoor ook veel dank!

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Curriculum vitae

CURRICULUM VITAE

Marleen van Doorn was born on July 27th 1986 in Tiel, the Netherlands. After graduating secondary school (VWO) in Tiel in 2005, she moved to Nijmegen to study Developmental Psychology at the Radboud University. During college, she volunteered at a child-hotline, facilitated extracurricular activities for children, and was active in the student organization of Developmental Psychology. In 2008, she spent a semester abroad at Pitzer College in California (US), where she worked as a research assistant and followed classes. In 2009, she started her clinical internship at the youth department of Pro Persona in Tiel and her master's thesis focused on the parent-child relation and development of depression in children. She obtained her master's degree in Developmental Psychology in 2010. After her clinical internship, she remained working as a child psychologist at the youth department of Pro Persona.

In 2011, she started her PhD-project on the effectiveness of childhood anxiety treatment in regular care, which was part of the academic workplace Inside-Out in Nijmegen. Together with Mélou Jansen, she developed and implemented the Lef!-poli in the youth departments of Pro Persona in Arnhem and Nijmegen and the youth department of the Ambulatorium in Nijmegen. She combined her clinical work as a child psychologist with conducting clinical research. In 2014, she started the post-master education to become a registered psychologist (GZ-psychologist), during which she worked at the youth departments of Pro Persona in Tiel and Nijmegen and at the Centre of Expertise for Anxiety Disorders, OCD and PTSD, Pro Persona Overwaal, in Nijmegen. In 2017, she started working as a teacher at the Pedagogical Sciences department of the Radboud University. At the moment, she works as a GZ-psychologist at Overwaal and is involved in the development and implementation of Young Overwaal, in which adolescents who have not responded to regular ESTs for OCD or PTSS are administered to an intensive two-week exposure-based treatment.

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