Anxiety disorders in young children: Parent and child contributions to the maintenance, assessment and treatment
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General discussion
The aim of this dissertation was to gain more knowledge about the maintenance, assessment and treatment of anxiety (disorders) in young children aged 4-7 years. More specifically, the role of parents and children within each of these three themes was investigated. For each theme separately, the main results of the studies conducted in this dissertation are summarized and discussed. Directions for future research are given. Last, the limitations of the studies as well as their clinical implications and general conclusions are addressed.

**Maintenance of anxiety in young children**
The dissertation started with an overview of the literature, showing that anxiety symptoms and disorders are prevalent in this age group. Without treatment, anxiety symptoms and disorders tend to persist later in life, and are related to the emergence of other problems as well (chapter 1). Chapters 2 and 3 focused on the possible roles of parents and children in the maintenance of anxiety issues. Theoretical models postulate that parenting is important for the development, maintenance and exacerbation of child anxiety (e.g. Bögels & Brechman-Toussiant, 2006; Creswell, Murray, Stacey, & Cooper, 2011). However, meta-analytic evidence shows that the association between parenting and child anxiety is only modest (McLeod, Wood, & Weisz, 2007). One explanation could be that parenting is important, but mainly for younger children. Young children have to learn to regulate their emotions, and parents are an important source of information in how they can cope with emotions such as anxiety. Furthermore, young children are highly dependent on their parents for fulfilment of their basic needs, arranging play dates, etcetera. The hypothesis that parenting is most important for younger children was examined in chapters 2 and 3.

Contrary to the hypothesis, but in line with results of previous studies (e.g. McLeod et al., 2007), the results from chapter 2, in which the differences in parenting between clinically anxious and non-anxious children were examined, mainly indicated that the effect sizes were modest, also for younger children. Furthermore, in chapter 3, the relationship between parenting and children’s internalizing symptoms was examined, and again, effect sizes were modest. Moreover, results were highly similar for older and younger children. However, two findings from chapter 2 are worth highlighting. First, it was found that parents used more positive reinforcement with their younger (4-7 years) than with their older (8-12 years) children, irrespective of the child’s anxiety status. Second, parents used less force with their older than with their younger clinically anxious children. These findings indicate differences between parenting younger and older (anxious) children, and could imply that different types of parenting may be important to overcome child anxiety at different ages.
It is also important to take into account that there is a bidirectional relationship between parenting and child anxiety (Edwards, Rapee, & Kennedy, 2010; Hudson, Doyle, & Gar, 2009; Silverman, Kurtines, Jaccard, & Pina, 2009). Therefore, it seems logical that the impact of parents on their children is modest, as they probably adapt their parenting to the needs of their individual child. Thus, in part, clinically anxious children may provoke certain behaviors in their parents which may also explain why we found significant differences between parenting clinically anxious children versus healthy control children.

Next, we found that paternal parenting is as (un)important as maternal parenting. This might seem paradoxical as one would assume that maternal parenting would matter most, simply because mothers are most often the primary caregivers. However, in chapter 2 we found that fathers, compared to mothers, used more punishment with both their clinically anxious and non-anxious children (associated with more child anxiety; Gershoff et al., 2010; McLeod et al., 2007; Zabin & Melamed, 1980, but for an exception see Belsky, Hsieh, & Crnic, 1998) and more modeling/reassurance with their clinically anxious children (associated with less child anxiety; Dunne & Askew, 2013; Silk et al., 2013; Zabin & Melamed, 1980). It should be noted that these differences were found even though we did not assess parenting behaviors that are hypothesized and found to be specific for fathers (i.e. challenging behaviors; Bögels & Phares, 2008; Möller, Nikolic, Majdandžić, de Vente, & Bögels, 2016). However, because our study was cross-sectional rather than longitudinal, it was not possible to assess the direction of effects, making it unclear whether anxious children evoke such reactions from their fathers or whether children show these reactions in response to their fathers. Nevertheless, results do show differences in parenting behaviors (i.e. punishment and modeling/reassurance) displayed by mothers and fathers, a topic that is largely neglected in the literature.

With regard to future research, longitudinal studies are necessary to more closely examine the relationship between parenting and child anxiety. Longitudinal studies with large sample sizes could measure different aspects that are hypothesized to have an impact on the relationship between parenting and child anxiety (e.g. parent gender) and measure each predictor’s individual and relative contribution over time (e.g. the effect of child anxiety on parenting). In addition, it could also be examined if the effects of parenting have a higher (negative) impact on children when their mothers and fathers cannot live up to the evolutionary roles of parenting (Bögels & Phares, 2008; Bögels & Perotti, 2011; Möller et al., 2016), that is, when mothers are punishing (rather than care-taking) and/or when fathers do not model brave behaviors.
Future research should also measure more narrow constructs of parenting in their association with child anxiety. For example, McLeod et al. (2007) found a larger effect for the relationship between autonomy granting (a subdimension of control) and child anxiety than for control and child anxiety. Although we addressed specific parenting behaviors in association with child anxiety in our studies, the parenting behaviors addressed could also have been specified further. For example, the parenting concept ‘modeling/reassurance’ included (1) calming down the child, (2) showing brave modeling behaviors and (3) dividing anxiety provoking approach behaviors into smaller manageable steps. It could be that some aspects of modeling/reassurance are more important than others.

To conclude, overall the results of our studies did not confirm that parenting is more important to younger than older children. Moreover, mainly modest effect sizes were found for the relationship between parenting and children’s anxiety/internalizing symptoms. Although the effect sizes were only modest, this does not necessarily mean that they are not important. It is clear that more research is necessary to unravel the complex relationship between young child anxiety and parenting. Parents could then be taught how to help their children best to overcome anxiety or to prevent the development/exacerbation of anxiety disorders.

Assessment of anxiety in young children

It is important that young children are screened for possible anxiety disorders, in order to provide treatment as soon as possible and prevent worsening of anxiety symptoms and disorders over time, as illustrated by research conducted by De Girolamo, Dagani, Purcell, Cocchi, and McGorry (2012) and Wang et al. (2005). De Girolamo et al. (2012) concluded, based on their review of the association between age of onset and mental health service utilization that “treatment delay is much more likely to occur if the onset is in children or young people” (p. 54). In addition, in a large sample of adults, Wang et al. (2005) found that the delay for treatment was largest among anxiety disorders compared to other disorders, ranging from 9 to 23 years. In a sample of children aged 8-17 years, it was found that anxiety disorders were most prevalent (17-35% of the children met criteria for an anxiety disorder depending on what level of impairment was required), but the majority of those children (69%) had never received treatment (either counselling or medication). This is in contrast to untreated children with depression (60%) and ADHD (21%); these disorders are less prevalent but more often treated (Chavira, Stein, Bailey, & Stein, 2004). For children aged 5-6.9 years it was also found that internalizing symptoms were more prevalent than externalizing symptoms, whereas referral is probably higher for externalizing problems (Furniss, Beyer, & Guggenmos, 2006). Together, these findings clearly
indicate that early identification of young children who may meet criteria of an anxiety disorder is important.

Thus far, clinicians and researchers have heavily relied on parent reports to identify those children. As mentioned in the introduction and in chapter 4, parents might be biased to either under- or over-report child anxiety symptoms. Although there are arguments suggesting that young children lack the cognitive skills necessary to provide useful self-report (see Hirshfeld-Becker, Micco, Mazursky, Bruett, & Henin, 2011), young children’s self-report on anxiety is seldom included in studies and therefore scarcely empirically tested. As the inclusion of child self-report on anxiety symptoms in older children is standard, and may provide additional diagnostic information over and above parent report, it was examined in chapter 4 whether young children aged 4-to-7-years would be able to provide informative reports about their anxiety when they could use age appropriate measures.

Results of chapter 4 showed that, at least with the Picture Anxiety Test (PAT; Dubi & Schneider, 2009; Dubi, Lavallee, & Schneider, 2012), children can provide informative self-reports. Results showed acceptable to good internal consistency, convergent validity between the PAT and the Koala Fear Questionnaire (KFQ; Muris, Meesters, & Mayer, 2000) (chapter 4), and sensitivity to change for both questionnaires (chapters 5 and 6). Children, however, could only be distinguished in having an anxiety disorder or not based on their self-report with the PAT (chapter 4). Thus, the findings highlight that when good, age appropriate assessment tools are available, young children’s self-report shows various positive psychometric qualities.

Currently, the PAT (but also the KFQ) mainly focuses on specific fears. For future research it would be interesting to incorporate additional items regarding worry and bodily signs of anxiety. This would make it possible to examine whether young children can already report on such items as these signs of anxiety are least observable to others, and therefore may be of most additive value in addition to parent reports. To date, Muris, Vermeer, and Horselenberg (2008) have found that young children aged 4-6 years linked neutral vignettes more often to anxiety when bodily symptoms of anxiety (e.g. trembling, breathing difficulty, and fast heart rate) were added to the vignette. Tentatively, this could indicate that young children may be able to report on bodily symptoms of anxiety if this is asked in an age appropriate manner. Although more research on this matter is necessary, screening for anxiety issues could detect young children at risk.

Screening at schools for prevention or early intervention purposes could be useful, as this provides the opportunity to reach the majority of children at once. This is especially important as children get regular check-ups until the age of 4.
years via consultation desks, but thereafter they are no longer routinely screened. As most children start school at the age of 4 in the Netherlands, self-report starting at that age would provide the possibility to identify children who consistently show high anxiety. In this way, more children in need of treatment can be offered effective interventions.

**Treatment of anxiety in young children**

In chapters 5 and 6, two cognitive behavioral therapy (CBT) interventions to reduce child anxiety were examined. One was a group CBT for the parents (henceforth parent intervention), whereas the other group CBT had a main focus on the young child itself (henceforth child intervention), although parents were included in the treatment as well. Parent only treatments are uncommon for older children (>7 years), but they are often used with younger children (see chapter 1). However, we also wanted to develop and examine a program with a main focus on the young child itself, as this has not been examined before (for one exception see Minde, Roy, Bezonsky, & Hashemi, 2010, but note that medication was added to the CBT for several children and the treatment was individual rather than group based). Furthermore, the involvement of parents in the anxiety treatment for older children is questionable, given that no additional effect is found for parental involvement (e.g. In-Albon and Schneider, 2007; James, James, Cowdrey, Soler, & Choke, 2013). Examining the effects of a child intervention could provide information on the extent to which young children do or do not need their parents in order for treatments to be effective.

There were similarities and differences between the parent and child group interventions. In both treatments, the content of the programs was comparable. Broadly, the first four sessions were more theoretical (e.g. psycho-education, discussing thoughts) and thereafter exposure took place. In both interventions the first four sessions had a duration of two hours. However, in the child intervention the last 30 minutes of each session were reserved for parents. After the first four sessions, the child intervention continued in the same way (i.e. 90 minutes child group intervention, followed by a 30 minute parent group session), whereas the parent intervention continued with individual telephone sessions. Note that parents in both conditions received psycho-education about child anxiety and implemented the exposure hierarchy and corresponding rewards at home. The main difference between the two interventions was that the children in the child intervention learned CBT skills and conducted exposures in a group together with anxious peers, while in the parent group intervention, parents learned general parent training skills and CBT strategies. Parents taught their children the CBT strategies and conducted exposures with their child individually.
The parent intervention and child intervention were both novel interventions that were tested separately in two pilot studies (so not in a controlled trial in which families were randomized to one of the two conditions). Figure 1 displays the results of both the parent and child intervention. As can be seen, both treatments were effective in reducing child anxiety. Although the outcome of the two treatments are not directly comparable, the post-hoc tested differences in effect sizes between the two treatments were not significant, all \( p's > .05 \). Thus, the child intervention did not outperform the parent intervention, or vice versa. These results tentatively indicate that parents may not be as important in the treatment of child anxiety as previously assumed, also for younger children. Or, said differently, the lack of differences indicates that also young children can be treated effectively on their own, with only minimal parental involvement. Or, alternatively, there is no need to include young children themselves in treatment.

*Figure 1* Effect sizes of change (Cohens’ *d*) from pretest to posttest for the parent intervention and the child intervention of chapters 5 and 6 on parent (SCAS and RPAS) and child (KFQ) reported child anxiety symptoms, parent and teacher reported child behavioral inhibition (BIQ), parent and teacher reported child anxiety-withdrawal, anger-aggression and child social competence (SCBE)

Note. Ang-aggr = anger-aggression; anx = anxiety; anx-with = anxiety-withdrawal; BI = behavioral inhibition; c = child; p = parents; soc comp = social competence; t = teacher.

All changes are displayed as positive effects sizes, note that all effects sizes indicate a decrease from pre- to posttest, except for social competence, which illustrated an increase from pre- to posttest.

Number of informants differed per informant and treatment condition: \( n = 26 \) parents for the parent intervention versus \( n = 22 \) for the child intervention; \( n = 17 \) teachers for both the parent and child intervention; \( n = 24 \) children in the parent intervention versus \( n = 22 \) in the child intervention.
Although the effect sizes of the two treatments did not significantly differ (possibly due to studies being underpowered), an interesting finding (based on differences in the sizes of the effects, i.e. small vs. medium vs. large) is that parents seem to report more child improvement in the parent intervention, whereas teachers seem to report more child improvement in the child intervention (see Figure 1). It could be that parents, as they are the sole participant in the parent intervention and the only ones who can reduce their child’s anxiety, report more positive effects on their child because of their own efforts. In line, as teachers know the child itself is in treatment, they may be more closely watching the child and noticing the progress the child makes. In addition, teachers report a medium effect size increase in children’s social competence for children in the child intervention but not for those children whose parents followed the intervention. Perhaps being in a group treatment also increases the social skills of children as they can both show fear but also be a brave role model and help other children and make friends with children who are also anxious. However, as a critical note, the two studies were run separately and as there was no randomisation to allocate parents and children to either the parent or the child intervention, results of the comparison should be interpreted with care.

Studies that examine whether a parent only or a parent-and-child intervention (in which parents and children were involved for an equal amount of time) is most effective in reducing young children’s anxiety are now emerging. Although Waters, Ford, Wharton, and Cobham (2009) found that both treatments were effective with no significant differences in effect between the two treatment conditions, a recent study of Monga, Rosenbloom, Tanha, Owens, and Young (2014) found that the gains made in the parent-child intervention were significantly larger than those in the parent only intervention. A critical note concerning the study by Monga et al. (2014) is that the results reported for the parent intervention were much smaller than usually found (see chapter 1). At the same time, an important strength of that study was that the children in the parent-only condition also had weekly group meetings. In those meetings they did not learn CBT skills as children in the parent-child intervention, but they were read neutral stories, for example. Therefore, the only difference between the two treatment conditions was whether or not the children also learned CBT skills. As the condition in which children learned CBT skills was most effective, these results show the benefits of involving young children themselves in CBT as well as the possible limited (additional) role of parents in a young child’s anxiety treatment.

With regards to parenting, as illustrated in Figures 2 and 3, after both the child and the parent intervention, parents reported more positive parenting. There were no significant differences in effect sizes between the two interventions. As significant pre- to posttest changes were found in both treatment conditions, these results may
indicate the bidirectional relationship between parenting and child anxiety: parenting affects child anxiety and vice versa. In line, Jongerden and Bögels (2014) found for 8-18-year-old children that parenting indeed changed after child only CBT.

Figure 2 Effect sizes of change (Cohens’ d) from pretest to posttest for the parent intervention and the child intervention of chapters 5 and 6 on mothers’ parenting

![Figure 2](image)

*Note.* Mod & reass = modeling/reassurance; Pos Rein = positive reinforcement; Punish = punishment; Rein Depen = reinforcement of dependency

Only the results of the mothers (n = 23) that were participating in the parent intervention are represented in the figure, as only they learned parenting strategies to help overcome their child’s anxiety, whereas data of all mothers (n = 22) were included for the child intervention, as none of them explicitly learned parenting strategies about how to deal with their anxious child.

A positive effect size indicates an increase in scores from pretest to posttest; a negative effect size indicates a decrease in scores from pretest to posttest.

When looking at the size of the effects (small, medium, large), the results seem to indicate that the parent intervention was more beneficial for mothers’ parenting than the child intervention. Mothers in the parent intervention seem to increase their use of positive reinforcement, force, and modeling/reassurance, and they decrease their use of punishment and reinforcement of dependency. Overall, the same pattern of increases in positive parenting seem to occur in the child intervention, but to a lesser extent. In contrast to the parent intervention, punishment and reinforcement of dependency seem to increase slightly in the child intervention.
For fathers, however, the results are less consistent. Which parenting behaviors appear to positively improve depends on the parenting behavior discussed. That is, there seems to be greater improvement for positive reinforcement and modeling/reassurance, which both increase, and reinforcement of dependency, which decreases, in the child intervention. However, fathers’ punishment seems to decrease more and fathers’ force seems to increase more in the parent intervention. These results could indicate that there may be different ways in which parenting could be altered most effectively. Therefore, interventions should focus on the different roles of mothers and fathers, as in this way, interventions may be optimized.

Results of the two treatment studies showed that both the parent intervention and the child intervention were effective in reducing children’s anxiety levels. In line with the likelihood of the association between parenting and child anxiety being bidirectional (Edwards et al., 2010), it seems logical that both treatments were effective. To reduce the anxiety symptoms and disorders of young children, it seems especially important to break the negative interaction that has developed between
parents and their anxious children over time. For now, it does not seem to matter whether this change is set in motion by changes in the child or in the parent; it is most important to break the vicious circle. Future research should determine which intervention (parent or child intervention) is most effective, for example depending on the anxiety disorder of the child or potential co-morbid problems in either the child or the parent(s).

Limitations
There are three important limitations to the studies conducted in this dissertation. A first limitation with regards to the studies on the maintenance of anxiety is that cross-sectional data (chapters 2 and 3) instead of longitudinal data was used to investigate the relationship between parenting and child anxiety/internalizing symptoms. Based on the findings in our studies it cannot be concluded whether parenting influences child anxiety or vice versa, or whether this relationship may be reciprocal (Edwards et al., 2010).

A second limitation is that the samples of clinically anxious children in our treatment studies were relatively small (chapters 5 and 6) and most children aged 4-7 years came from one treatment center. As this concerned an academic treatment center, it is possible that these anxious children and their parents (who had above average educational levels) do not represent the general population of children with anxiety disorders that seek treatment and results may therefore not generalize to other samples or other mental health care facilities. In addition, both treatment studies lacked a randomized control group. Therefore, it cannot be concluded that the decreases of child anxiety symptoms were solely related to the treatment rather than time-effects. Nevertheless, there was a natural (quasi experimental) waitlist period for around half of the children in the child intervention during which no change occurred.

Finally, a last limitation concerns the fact that parental anxiety/psychopathology was not measured consistently throughout the conducted studies. Results of the impact of parental psychopathology on parenting behaviors, parental report of child anxiety and treatment outcomes are mixed and inconclusive (e.g. Cobham, Dadds, Spence, & McDermott, 2010; De Los Reyes & Kazdin, 2005; Murray, Creswell, & Cooper, 2009; Pareira et al., 2014). Collecting such data could have led to more insight on these matters.

Clinical implications
Anxiety disorders are common in young children and, if untreated, they are related to anxiety as well as other problems later in life (chapter 1). Based on these findings,
it is clear that there needs to be more specific attention for possible anxiety issues in young children. This means that society in general and clinicians in particular should become more aware that young children may experience anxiety disorders. Questionnaires regularly completed by parents, teachers or the young child itself (chapter 4) may heighten the sensitivity to discover children who are in need of a treatment because of their anxiety issues. Currently, many young anxious children seem to go unnoticed, which is a pity as several CBT programs are found to be effective in treating anxiety disorders and symptoms in young children (chapters 1, 5 and 6).

Research showed that young anxious children aged 4 to 7 can be effectively treated, either with CBT directed at only their parents (chapter 5), or directed at themselves with minimal parental involvement (chapter 6). Although randomized controlled trials are necessary to determine whether one treatment is more effective than the other, the current results clearly indicate the positive outcomes of treating young children. Nevertheless, many mental health care institutions do not offer specific treatment for these young children or their parents. So again, more awareness of child anxiety is necessary. However, only increased awareness is not sufficient. The treatments that are developed for young anxious children should be disseminated more broadly, so that they become available to clinicians. Only then can young anxious children (indirectly) receive the treatment they need and deserve.

There is still a lot of uncertainty about the role of parents in the maintenance and treatment of child anxiety. Effects for the association between child anxiety and parenting found in our studies were modest, but not necessarily unimportant. Moreover, parents are able to assist their children in overcoming their anxiety (chapter 5) and it is clear that anxious and non-anxious children experience different parenting practices (chapter 2). However, it is unknown whether such parenting increases their anxiety, or that their child’s anxiety evokes such parenting, or both. More research on this matter is required. Also, such research should not only focus on mothers, but also include fathers. As the fathers and mothers in our studies reported different parenting practices (chapter 2) and different changes in parenting after treatment (chapters 5 and 6), involving fathers next to mothers in the child’s treatment seems of additional value. Fathers may have particular strengths (i.e. they model brave behaviors more often than mothers) and weaknesses (i.e. they use more punishment than mothers) (chapter 2) that clinicians could use in treatment.

To conclude on the clinical implications, it is possible to screen for anxiety symptoms in young children (chapter 4), and there are treatments available to help reduce anxiety in these children, in order to prevent or treat anxiety disorders (chapters 1, 5 and 6). Although more research is desirable to improve the assessment and
treatment of anxiety symptoms and disorders in young children, the results found in the studies of this dissertation are promising and highlight the importance of treating young anxious children through either a parent- or child intervention.

**General conclusions**

How important are parents when it concerns the maintenance, assessment and treatment of anxiety in young children? Young children spend much time with their parents and are heavily dependent on them. So yes, parents are of significant value. At the same time, we should not overestimate parents' influence or underestimate the capabilities of the young children themselves to influence their own anxiety and to influence their parents' behavior. Although not empirically tested in this dissertation, it is highly likely that parenting does not only (modestly) impact child anxiety, but children also have an impact on their parents, which may be equally important.

Parents will probably always stay important with regard to the assessment of anxiety in young children. They are an important source of information and usually make a first appointment with a general practitioner in order to receive referral to mental health care services. However, young children should not be neglected. Their self-report can be used as a source of additional information on their anxiety, the severity and perhaps in the future also their impairment. In addition, child self-report could easily be used as a screening tool for identifying children in need of treatment.

Parents are also important for anxiety treatment of young children. First, results showed that a parent intervention in which children were not included, was effective in reducing child anxiety. And second, parents of young children will always be needed, as young children are not able to come to treatment on their own and need assistance from their parents in doing their homework. Nevertheless, the child intervention was as effective as the parent intervention. After treatment, there was a remission in anxiety disorders and parenting behaviors had changed. Therefore, changes in child anxiety appear to have an impact on parenting behaviors as well, and children can benefit from engaging in treatment themselves.

Thus, the studies in this dissertation show that the capacities of young children should be taken into account, in order to understand the maintenance, and improve the screening, assessment and treatment of anxiety in young children aged 4-7 years. Children seem to have an impact on their parents, and with the right age adjustments, can be helpful informants and clients in their own diagnostic and treatment process.
References


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