

# Confirming your worst fears

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# VALORIZATION ADDENDUM

The knowledge acquired from the performed studies in this dissertation is of added value to help prevent and treat anxiety problems in children and their parents, by developing individually tailored treatments. In this valorization addendum, implications for science, society, and policy makers are given. First, the relevance of the findings presented in the current dissertation will be addressed and an overview of potential target groups is given for whom the research findings might be relevant. Next, possible activities and products as well as innovative aspects of our studies will be discussed. Finally, the planning and implementation of the findings will be outlined.

## Relevance

Childhood anxiety constitutes an important health care problem as it is one of the most common psychological disorders in children and adolescents (Costello, Mustillo, Erkanli, Keeler, & Angold, 2003; Ford, Goodman, & Meltzer, 2003; Polanczyk, Salum, Sugaya, Caye, & Rohde, 2015; Roza, Hofstra, van der Ende, & Verhulst, 2003). About one third of the general population has experienced an anxiety disorder at least once during their lifetime, and it is clear that this problem oftentimes has its onset during the childhood years (Kessler et al., 2005). The risk for other types of psychopathology, specifically depression, is also increased (Cole, Peeke, Martin, Truglio, & Seroczynski, 1998; Cummings, Caporino, & Kendall, 2014).

Next to the high prevalence rates, childhood anxiety is also a financial burden for society as well as for individual families. With respect to costs, the total costs for anxiety disorders in adults were highest of all mental illnesses in the USA (DuPont et al., 1996). Societal costs of families with clinically anxious children who are living in the Netherlands are almost 21 times as high compared to families from the general population (Bodden, Dirksen, & Bögels, 2008).

It is important to find the most optimal and effective treatment for childhood anxiety disorders. One way to address this issue would be to get insight into the underlying mechanism in the acquisition of anxiety disorders. One of these mechanisms might be threat-related cognitive biases. We know from research that these biases are only to some extent genetically determined (Zavos, Rijdsdijk, Gregory, & Eley, 2010) and that there is a substantial role for environmental factors in the emergence of these cognitive distortions. To this end, we investigated parenting behaviors in relation to children's threat-related cognitive biases as well as anxiety problems. It is important to note that parenting behaviors should not only be perceived as risk behaviors, but could also serve as a protective factor in the development of childhood anxiety. In our research, we have found indications that parental rough-and-tumble (R&T) play may act as a protective factor, while parental modeling and threat information transmission were shown to be potential risk factors for the development of childhood anxiety.

## Target groups

This dissertation aimed to gain more insight in the relations between parenting behaviors, threat-related cognitive biases, and childhood anxiety. Since these cognitive biases are conceived as a vulnerability factor for anxiety disorders and in view of the continuum from normal to abnormal anxiety, it is important to test not only clinically referred samples but also non-clinical populations. This was done in the studies presented in this dissertation, thereby contributing to a better understanding of the relation between parenting, cognitive biases and childhood anxiety in a non-clinical population.

The results are of interest to a broader public of researchers and clinicians who have the goal to better understand the transmission of anxiety problems from parents to children and the role of cognitive biases in this relation. The studies in this dissertation might also be useful for patients with anxiety disorders and their parents as the results might contribute to the improvement of treatment.

The results of the studies presented in this dissertation could furthermore be relevant for policy makers, since interventions aimed at reducing cognitive distortions such as a cognitive bias modification (CBM) training might be a promising new lead in the treatment of anxiety disorders (Hakamata et al., 2010). This could eventually have a positive impact on society through the reduction of economic costs.

## Activities/products

The results of the studies in this dissertation have confirmed that parenting behaviors as well as threat-related cognitive biases are involved in childhood anxiety. The findings enhance our understanding about risk and protective factors in the origin and maintenance of childhood anxiety disorders. The findings of this thesis could have clinical implications for the treatment as well as the prevention of childhood anxiety. First of all, when including parents in therapy, it is important to educate them about their role in the development and maintenance of anxiety problems in their children. Several parental behaviors are of influence on children's anxious cognitions and it is in this respect very important to include mothers as well as fathers, since we know that they both have different roles. The results of our longitudinal study showed that children's cognitive biases and anxiety symptoms had an enhancing influence on detrimental parenting. This implies that the relation between parenting and children's anxiety symptoms is not unidirectional, and that it is therefore also important to inform parents on the effect their children could have on their parenting behavior.

A second important clinical implication is related to the involvement of cognitive biases in childhood anxiety. CBM training, which explicitly aims at reducing threat-

related cognitive biases, has the potential to become an alternative treatment for children with this type of internalizing problems (Lau, 2013). CBM training has many advantages over cognitive behavioral therapy (CBT). First of all, no therapist has to be involved in CBM. The intervention is highly accessible as it can be provided online, making it an attractive treatment option for some anxiety patients. For example, people with social anxiety disorder have the lowest rates of treatment utilization of the anxiety disorders. The vast majority never seek treatment for their social anxiety problems and those who do so make an initial appointment with a therapist only after several years with the disorder (Grant et al., 2005; Olfson et al., 2000). For CBM programs, the threshold to seek help would be much lower as compared to CBT and therefore such an intervention could be an interesting alternative for people with this type of anxiety problem. Furthermore, CBM could also be a good solution for less severe cases of anxiety problems in general and could serve as a preventive method (See, MacLeod, & Bridle, 2009), which could be implemented in a variety of contexts (e.g., schools or healthcare settings).

## Innovation

The studies in the dissertation are innovative as they were not only focused on risk factors for the development of anxiety disorders, but also protective factors. Furthermore, previous experimental research on cognitive biases mostly used animals as stimuli. In our studies we increased the ecological validity by using stories about situations relating to children's everyday life. Furthermore, whereas most studies in this domain have focused on studying only one type of bias, our research included two biases, providing the opportunity to examine whether such biases are inter-related and make independent contributions to anxiety. Another innovative aspect is that previous studies mostly used correlational designs, where we used a longitudinal set-up making it possible to examine prospective time effects. A final innovative aspect was that we took the behavior of mothers as well as fathers into account, which can be seen as an improvement to previous studies that have mainly focused on the role of mothers (e.g., Bögels & Phares, 2008).

## Planning and implementation

All chapters in this dissertation are published in international peer-reviewed scientific journals. This allows other scientists and clinicians to easily access the findings of our studies. Several of the questionnaires and paradigms that were developed for the studies in this dissertation have also been used in other studies. Furthermore, our

paradigms to measure cognitive biases could be redesigned to paradigms that can be used to reduce cognitive biases (CBM training). This could lead to individually tailored treatments, for which content specific CBM could be used to target each specific anxiety disorder, thereby enabling health care providers to deliver an evidence-based intervention with minimal guidance. It could possibly also be used as an intervention while patients are waiting for standard treatment or as a method to prevent relapse.



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