



Universiteit
Leiden

The Netherlands

Led by example: fear transmission from parents to children via social fear learning pathways

Nimphy, C.A.

Citation

Nimphy, C. A. (2025, January 24). *Led by example: fear transmission from parents to children via social fear learning pathways*. Retrieved from <https://hdl.handle.net/1887/4177348>

Version: Publisher's Version

License: [Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden](#)

Downloaded from: <https://hdl.handle.net/1887/4177348>

Note: To cite this publication please use the final published version (if applicable).

English Summary

English Summary

Transmission of Fear from Parents to Children via Social Fear Learning Pathways

Children are exposed to new situations, objects, and people on a daily basis. One way for children to determine whether a situation or novel stimulus is safe or threatening and to avoid potential danger is by learning from their parent's reactions. This process, where children learn to be fearful of a novel stimulus from their parents' responses, is known as social fear learning. Social fear learning can occur via two pathways: by observing parents' behavior (also known as the modeling pathway or vicarious learning) and through verbal threat information from parents (also known as the instructional pathway). In infancy, modeling is particularly relevant because communication primarily occurs through facial expressions, gestures, and body language. As children develop more language skills, they become more receptive to verbal cues from parents, which can lead to the development of fear based on the verbal information provided by parents. Research shows that both non-verbal and verbal fear expressions from parents can influence how children respond to new stimuli. However, many aspects of when and how parents can pass on their fears during parent-child interactions remain to be elucidated.

The goal of this dissertation was to investigate the transmission of fear from parent to child via two social fear-learning pathways: (1) modeling and (2) the instructional pathway. Additionally, it explores how other factors, such as the child's temperament and parental anxiety, might strengthen fear transmission through these social learning pathways.

Results

In **Chapter 2**, the transmission of fear via modeling in infancy (0 to 30 months) was examined using a systematic literature review and meta-analysis. Parents displaying fearful responses to new stimuli had a small to moderate effect on children's fear and avoidance of these new stimuli. Children with a fearful temperament were more likely to avoid new stimuli, although this effect was only significant when findings from both experimental and correlational studies were included.

Chapter 3 explored the transmission of fear via the instructional pathway in childhood and adolescence (2.5 to 18 years) via a systematic literature review and meta-analysis. Results suggest that verbal threat information from parents significantly affected children's fear acquisition of new stimuli, even after a single exposure. However, the anxiety dispositions of both parents and children, as well as the child's age, did not strengthen the acquisition of fear through parental verbal threat information.

Chapter 4 expanded on existing research by examining the fear transmission from parents to adolescents regarding social stimuli (e.g., an unknown person), during an interaction task. This experimental study focused on the instructional pathway and found that verbal information from parents about strangers influenced children's reported fear and perception of these strangers. However, children did not display increased fearful behavior, heart rate, or attention bias toward the stranger that was coupled with negative (vs positive) information from their parents. Children of parents with higher social anxiety or children with more fearful temperaments were not more influenced by parental negative verbal information than children of less anxious parents or children with less fearful temperaments.

Chapter 5 investigated the transmission of fear through the instructional route in the context of the COVID-19 pandemic. The COVID-19 virus represented a real-life threat, for children as well as their parents. In this correlational study, it was found that children of parents who were more scared of COVID-19 also reported stronger COVID-19-related fears themselves. Parents with more COVID-19-related fears shared more threatening or fear-inducing information about the virus. This information was associated with more COVID-19-related fear in their children, which partially explained the link between parents' and children's fear of COVID-19.

This dissertation demonstrates how fear related to new stimuli can be transmitted from parent to child via two social learning pathways—through modeling and instructional learning. Chapters 2, 3, 4, and 5 consistently show that the degree to which children exhibited fear and avoidance of these stimuli was related to both non-verbal and verbal expressions of fear from parents. The methods used to measure social fear learning and children's fear reactions in the meta-analyses (Chapters 2 and 3) varied, and these methodological choices are important to consider when interpreting the results. For example, effects were often found when studies assessed children's fear using self-report measures.

Child Temperament and Parental Fear Symptoms as Risk Factors

This dissertation also sheds light on the role of child temperament and parental anxiety as potential risk factors that could strengthen children's fear acquisition through these pathways. Across several chapters, no evidence was found for a moderating role of the child's temperament in fear acquisition following a single exposure to parental verbal threat information. The influence of the child's temperament on social fear learning might depend on the social fear learning pathway (e.g., modeling vs. verbal information) and the child's age. While we found no support for a role of temperament during childhood,

during infancy, children with fearful temperaments may be more sensitive to parental fear expressions than children without fearful temperaments. However, this effect was small. Rather than making children more susceptible to parental anxiety expressions, children with a fearful temperament might show heightened fearful responses to novel stimuli independent of parental expressions. In summary, temperament is a characteristic to consider when investigating child acquisition of fear via social fear learning pathways in infancy.

Moreover, we did not find support for the idea that children of parents with higher anxiety levels become more fearful after a single exposure to parental fearful expressions, than children of less anxious parents. In some cases (see Chapter 2), the influence of parental anxiety disorders or symptoms could not be adequately examined due to the limited number of studies on this topic. During infancy, fearful responses from parents do not immediately predict strong fear or avoidance in infants. However, these parental expressions predicted children's avoidance of that stimulus at a later time point. This suggests that in families with anxious parents, social fear learning is not necessarily stronger, but that repeated transfer of threat information over time may contribute to the transmission of fear within families. Hence, parental (trait) anxiety is not a risk factor for enhanced social fear learning, but maybe (over time) it strengthens children's tendency to avoid novel social stimuli or situations in general. Further research is needed to better understand the mechanisms through which parental anxiety contributes to the transmission of fear from parent to child.

Clinical Implications and Conclusion

The studies in this dissertation demonstrate that fearful responses from parents contribute to children's fear acquisition regarding new stimuli or situations. Learning to be fearful of something novel from parents' reactions can be adaptive in threatening situations. However, it can be maladaptive if children learn from their parents to be scared of a novel stimulus that is not posing a threat. Displaying fearful reactions or verbally communicating about fear or threat towards non-threatening novel stimuli can occur more often in families where parents have anxiety disorders. Nevertheless, the social fear learning pathways seem to work similarly for children of parents with more anxiety symptoms and children with a fearful temperament. Only infants with a fearful temperament seem to become more fearful of new stimuli after observing their parents' fearful reactions, compared to infants with less fearful temperaments.

To prevent children of anxious parents from developing strong fears themselves, preventive strategies could be implemented, such as education or training for parents to reduce children's exposure to fearful reactions. This could be especially useful for parents of infants who have a naturally more fearful temperament, as these infants are likely to be more sensitive to parental fearful reactions. Since older children can acquire fear through both verbal and non-verbal parental reactions, it may help if parents display positive and confident reactions in ambiguous situations, while also conveying less fear-inducing messages verbally. Recent research suggests that positive or confident responses from parents, as well as from researchers or other children, can reduce and prevent children's fear of new situations. To better understand which supportive statements or behaviors from parents can help reduce children's fear (and potentially be used in interventions), future qualitative studies could ask children what has helped them face their fears in the past and which statements from their parents they found encouraging.