

Bryce D. McLeod, Jeffrey J. Wood,
and Shelley B. Avny

What role does parenting play in the development, maintenance, and amelioration of child anxiety? In this chapter, we address this question by reviewing the current state of knowledge regarding the nature and direction of the relationship between parenting and child anxiety. Numerous theoretical models outline the role that various parenting practices may play in the development, maintenance, and amelioration of childhood anxiety. These models vary in terms of their precision and specificity. Traditional models of childhood anxiety focused primarily on broad parenting dimensions of acceptance and psychological control (see Gerlsma, Emmelkamp, & Arrindell, 1990; Masia & Morris, 1998; Rapee, 1997). However, these broad parenting dimensions have fallen out of favor in recent years as meta-analyses have demonstrated that these dimensions explain little of the variance in child anxiety (McLeod, Wood, & Weisz, 2007; van der Bruggen, Stams, & Bogels, 2008). Consequently, experts have issued calls for a move toward a more precise study of the parenting–child anxiety linkage (McLeod et al., 2007; Wood, McLeod, Sigman, Hwang, & Chu, 2003). In response, the field has adopted a more microscopic approach with greater theoretical specificity that focuses upon particular salient parenting practices that may influence children’s acquisition of fear.

An important emphasis of the movement toward greater theoretical specificity is the focus upon the mechanisms linking parenting and child anxiety. Increasingly, theories are specifying the underlying processes hypothesized to link parenting to child anxiety such as cognitive sets, attentional biases, and associative learning. Furthermore, key components of these theories are being evaluated using experimental designs. Indeed, studies that use experimental research paradigms are beginning to shed light upon the nature and direction of the parenting–child anxiety relation. Together, specifying and testing the underlying processes represents an important advance for the field that will have both theoretical and clinical implications.

In this chapter, we provide a general overview of the literature, describe emerging theories, and review experimental studies. General models positing a link between the broad parenting dimensions and variations in childhood anxiety have been more extensively examined than the emerging theories. The literature focused upon the more general models is therefore considered first by reviewing the most recent meta-analyses. We then consider the literature published since the meta-analyses. Our review of the recent literature focuses upon new theories of the parenting–anxiety link as well as the studies that have emerged in the past decade evaluating these refined contemporary models. We finish the chapter with a discussion of avenues for future research intended to build upon and extend the existing research.

B.D. McLeod (✉)
Virginia Commonwealth University,
Richmond, VA, USA
e-mail: bmcleod@vcu.edu

Traditional Dimensions of Parenting Hypothesized to Affect Child Anxiety

Traditional models of childhood anxiety focused primarily on broad parenting dimensions of acceptance versus rejection and psychological granting of autonomy versus psychological control (see Gerlsma et al., 1990; Masia & Morris, 1998; Rapee, 1997; Wood et al., 2003). Both these broad categories represent bipolar parenting dimensions, with positive parenting practices (e.g., acceptance) at one end of the continuum and negative parenting practices (e.g., rejection) at the other end. The first parenting dimension, *rejection*, involves low levels of parental warmth, approval, and responsiveness (i.e., coldness, disapproval, and unresponsiveness) (e.g., Clark & Ladd, 2000; Maccoby, 1992). The second parenting category, *control*, involves excessive parental regulation of children's activities and routines, encouragement of children's dependence on parents, and instruction to children on how to think or feel (e.g., Barber, 1996; Steinberg, Elmer, & Mounts, 1989). Theoretical models posit that variations in these broad parenting dimensions are at least partially responsible for variations in childhood anxiety (DiBartolo & Helt, 2007; Fox, Henderson, Marshall, Nichols, & Ghera, 2005; Hudson & Rapee, 2001; Rapee, 2001; Wood, 2006a). The terms *rejection* and *control* will be used throughout the rest of this paper to refer to these broad parenting categories.

Estimating the Strength of the General Relationship Between Parenting and Child Anxiety

The bulk of the parenting and child anxiety research has focused upon the broad dimensions of parental rejection and control (see Ballash, Leyfer, Buckley, & Woodruff-Borden, 2006; DiBartolo & Helt, 2007; McLeod et al., 2007; Wood et al., 2003). Recent comprehensive literature reviews have synthesized the literature and assessed the strength of the association between

parenting and childhood anxiety. We therefore start our review by summarizing the findings from two recent meta-analytic reviews (McLeod et al., 2007; van der Bruggen et al., 2008).

A recent meta-analysis synthesized the available literature, focusing upon the relation between the broad parenting dimensions and variations in childhood anxiety (McLeod et al., 2007). In all, 47 studies published from 1960 to 2002 were included in the meta-analysis. The findings indicated that parenting accounted for only 4% of the variance in child anxiety ($d=0.43$), which meets criteria for a small effect (Cohen, 1988). Parental control evidenced a slightly stronger relation with child anxiety ($d=0.52$) compared to parental rejection ($d=0.41$). Further, moderator analyses revealed that the strength of the association differed significantly across parental sub-dimensions – the association ranged from $d=0.12$ (parental warmth) representing a small effect, to $d=0.93$ (autonomy granting) representing a large effect. These findings suggest that efforts to tease apart the traditional parenting dimensions of parental rejection and control may benefit the field. Moderator analyses also revealed that three methodological factors explained some variability of the effects, with somewhat stronger effects emerging for studies comparing diagnosed and non-diagnosed youth, for studies using observers to report upon parenting, and for studies with higher quality measurement of parenting practices (i.e., observation methods). Finally, this review highlighted an important limitation in the field. That is, the direction of effects linking parenting to child anxiety had not been established since most studies utilized cross-sectional designs and descriptive methods.

Another recent meta-analysis extended these findings by focusing upon the strength of the association between child and parent anxiety and parental control (van der Bruggen et al., 2008). The review identified 23 studies published from 1989 to 2006 that evaluated the relation between parental anxiety and parental control ($N=11$) or the relation between child anxiety and parental control ($N=17$). The findings indicated that child anxiety and parental control were moderately associated ($d=0.58$), which is consistent with

past reviews (see McLeod et al., 2007). However, there was not a significant association between parental anxiety and parental control ($d=0.08$). These findings suggest that parental anxiety may not translate into higher levels of control, despite conventional wisdom and recent models of anxietyogenesis (e.g., Rapee, 2001).

The meta-analytic findings suggest that parenting explains little of the variance in child anxiety. These findings challenge the traditional models that assert parenting plays a pivotal role in the development, maintenance, and amelioration of child anxiety (e.g., Parker, 1983). However, some simply state these findings suggest that the field needs to move beyond the traditional, poorly specified theoretical models. Proponents of the latter perspective argue that more precisely defined models that specify the putative mechanisms (e.g., modeling; opportunities for extinction; self-appraisal and self-efficacy) underlying the relationship between particular types of parenting and child anxiety will help advance the field (Fisak & Grills-Tauechel, 2007; Fox et al., 2005; Hadwin, Garner, & Perez-Olivas, 2006; Rapee, 2001; Wood, McLeod, Piacentini, & Sigman, 2009).

In recent years, calls for greater theoretical specificity and sharper definitions and measurement of parenting have increased. In the following section, we review efforts to address these calls. We start by reviewing new theories focused upon specific parenting behaviors posited to play a pivotal role in the development, maintenance, and amelioration of child anxiety. Then, we examine recent findings from longitudinal and experimental studies that have attempted to test the connection between these particular parenting practices and patterns of childhood anxiety.

Updating the Literature Review

As noted, calls for researchers to address the gaps in the field have recently increased. Wood and colleagues (2003) called for (a) further specification of theories and (b) clarification of the direction of effects linking parenting to child anxiety. To gauge efforts to heed these calls, we conducted

a literature search to identify studies that were not included in the most recent comprehensive meta-analysis (i.e., McLeod et al., 2007). The search covered from April 2004 up to February 2008 and included the following 12 anxiety-related key terms used by McLeod and colleagues (2007): *Internaliz-*, *Anxi-*, *Fear-*, *Obsessive*, *Compulsive*, *OCD*, *Panic*, *Phobi-*, *Worr-*, *Inhibit-*, *Shy-*, and *Somat-*. These key terms were crossed with the following parenting-related key terms: *Father-*, *Maternal*, *Mother-*, *Parent-*, *Paternal*, *Rearing*, and *Socializ-*. Relevant literature reviews (e.g., Ballash et al., 2006; Dibartolo & Helt, 2007; Field, Cartwright-Hatton, Reynolds, & Creswell, 2008; Fisak & Grills-Tauechel, 2007; Ginsburg, Siqueland, Masia-Warner, & Hedtke, 2004; Hadwin et al., 2006; Tiwari et al., 2008; van der Bruggen et al., 2008) were used to initiate reference trails. We included studies in our review that met the following criteria: (1) The study included a measure of the parenting of one parent in relation to a target child, or separate measures of both parents in relation to the target child; (2) The study either included a measure of anxiety (e.g., self-report) or the child participants were diagnosed with an anxiety disorder (e.g., separation anxiety disorder); (3) The association between parenting and childhood anxiety was tested statistically (e.g., correlation); and (4) The reported mean age of the child participants was below 19 years.

These steps produced a pool of 25 studies (14 cross-sectional, 1 longitudinal, 6 experimental, and 4 interventions) that met criteria. A review of these studies indicates that researchers have made notable efforts to address key gaps in the field. Researchers have adopted a more microscopic focus on the parenting practices that influence children's acquisition of fear. In particular, two parenting behaviors, parental intrusiveness and parental modeling of anxious behaviors, have gained increased theoretical and empirical attention in recent years. Next, we define these parenting behaviors and specify the theoretical models linking these behaviors to the development, maintenance, and amelioration of child anxiety. Then we review the recent empirical literature that has addressed gaps in the field by utilizing

longitudinal and experimental designs to help clarify the direction of effects linking parenting and child anxiety.

Contemporary Theoretical Models: Specific Parenting Dimensions

In recent years, researchers have moved beyond the traditional definitions of parenting to more specific parenting behaviors. This work has primarily focused upon parental intrusiveness and parental modeling of anxious behavior. This level of specificity represents an important shift for the field.

Parental Intrusiveness

Parental intrusiveness is considered a sub-dimension of parental control (Ispa et al., 2004; McLeod et al., 2007). Parents who act intrusively tend to take over tasks that children are (or could be) doing independently and impose an immature level of functioning on their children (e.g., Carlson & Harwood, 2003; Egeland, Pianta, & O'Brien, 1993; Ispa et al., 2004; Wood, 2006a). When defining parental intrusiveness, it is important to consider both the parent's behavior and the developmental level of the child since parent-child interactions that are commonplace for certain age groups can become atypical later in childhood. For example, among school-aged children (i.e., 6–11-year olds), parental intrusiveness can manifest in at least three domains: unnecessary assistance with children's activities and daily routines (e.g., scholastic tasks, dressing), infantilizing behavior (e.g., using baby words, excessive affection), and invasions of privacy (e.g., when parents open doors without knocking) (Hudson & Rapee, 2001; Wood, 2006a; Wood, Kiff, Jacobs, Ifekwunigwe, & Piacentini, 2007). It is also important to distinguish intrusive parental behavior from helpful responsiveness. Responsiveness involves providing support to children who evidently need help in a task – a positive parental behavior (e.g., Maccoby, 1992), whereas intrusiveness involves taking over tasks

in which children could function independently. Intrusiveness therefore needs to be defined in relation to appropriate expectations about a child's capabilities.

Parental intrusiveness may affect the development and maintenance of childhood anxiety by influencing children's self-efficacy and perceived control. Intrusive parental behavior can affect children's self-efficacy (i.e., perceptions of agency and competence with regard to specific tasks; Bandura, 1997). Research has consistently demonstrated that an association between self-efficacy and anxiety regulation exists (e.g., Muris, 2002) and this linkage is explicitly hypothesized and explained in Bandura's social cognitive theory (e.g., Bandura, 1997). Similarly, children's perceived control (i.e., perceptions that one can directly influence opportunities for positive and negative reinforcement) is another process that can be affected by intrusiveness (Chorpita, 2001; Chorpita & Barlow, 1998). It is hypothesized that parents may contribute to the development of cognitive vulnerabilities – undermining self-efficacy and/or lowering perceived control – and, in turn, elevating a child's risk for anxiety when they routinely take over tasks that the child could do for himself/herself (i.e., act intrusively; Chorpita, 2001; Krohne & Hock, 1991). Thus, intrusive parental behavior is hypothesized to contribute to the development of cognitive vulnerabilities that may affect the development and maintenance of child anxiety.

Parental intrusiveness may also affect childhood anxiety by influencing children's opportunities for extinction particularly for children with a high baseline level of fears or a slow extinction curve (e.g., Rubin, Hastings, Stewart, Henderson, & Chen, 1997; Wood et al., 2009). Extinction plays a key role in the amelioration of fear and anxiety wherein repeated exposure to a feared (but benign) stimulus leads to a reduction in the strength of the fear response (Rachman, 1977). Parents who act intrusively are posited to interfere with extinction by preventing the child from actually confronting feared stimuli or by enabling the child to escape anxiety when the naturally occurring exposure is initiated (Fox et al., 2005; Rapee, 2001). For example, the parents of a child

who freezes when he/she is faced with unfamiliar peers in social situations (a common symptom of social anxiety disorder in middle childhood) like church might rub the child's shoulders, hold his/her hand, and remain very close to him/her in an attempt to reduce the child's negative affect. Though potentially effective as a short-term emotion regulation strategy, such parental behavior may unintentionally prevent the child's fear from extinguishing by keeping the child from experiencing the situation independently (and learning there is nothing to be afraid of). Instead, this response may induce dependence on the parents for external emotion regulation (e.g., "I only feel comfortable around new kids when mom and dad are there to calm me down"). Conversely, parents who exhibit low intrusiveness and grant autonomy (i.e., encouraging the child to interact with peers; refraining from physical or verbal comforting) may promote extinction. Though a high level of intrusiveness may contribute to the *maintenance* of a child anxiety disorder, a corollary hypothesis is that reducing intrusiveness may contribute to the amelioration of children's anxiety symptoms, making intrusiveness a potential change mechanism in children's anxiety trajectories (Wood, Piacentini, Southam-Gerow, Chu, & Sigman, 2006).

Parental Modeling of Anxious Behavior

In recent years, research has increasingly focused upon parental modeling of anxious behavior. Parental modeling of anxious behavior entails describing problems to children as irresolvable or dangerous, encouraging (rewarding) children to view problems in a catastrophic manner, and extinguishing via punishment children's expressions of coping thoughts and problem-solving strategies (Capps & Ochs, 1995; Whaley, Pinto, & Sigman, 1999). Modeling is neither necessary nor sufficient to the development of anxiety. However, modeling may increase risk for fear acquisition or interact with other factors to increase risk for the development of anxiety (Fisak & Grills-Taquechel, 2007). Children predisposed to developing an anxiety disorder may

be particularly susceptible to environmental influences, such as modeling (Rapee, 2002). For example, a shy child who consistently watches his/her anxious parent avoid social events may be less likely to initiate play-dates and attend social events himself/herself. Children of observably anxious parents may come to believe that there is no way of coping effectively with problems and are not likely to develop strategies that can help reduce fear and anxiety (Barrett, Duffy, Dadds, & Rapee, 1996; Capps & Ochs, 1995; Whaley et al., 1999).

Two prominent theories are used to explain the causal relation between parental modeling and child anxiety: (a) Bandura's social learning theory (Bandura, 1997) and (b) Rachman's theory of the pathways to anxiety (Rachman, 1977). The social learning theory posits that children acquire fears through observation and replication of parental anxious behaviors (e.g., visual signs of anxiety, verbal expression of anxiety, or behavioral avoidance). Similarly, Rachman's theory suggests that vicarious acquisition represents one of three pathways through which child anxiety may develop (the other two being conditioning and transmission of information). The three-pathway model was an extension of the prevailing theory at the time – fear acquisition through conditioning. Rachman added vicarious acquisition and transmission of information due to evidence that conditioning alone does not provide a comprehensive explanation of fear development. Such evidence included the fact that fears can emerge suddenly or gradually, differences exist in susceptibility to acquisition, fears can be acquired indirectly (even if the person has never been exposed to the stimuli), and some stimuli are more commonly feared than others. Rachman associates more mild and common fears with indirect pathways (e.g., vicarious acquisition) and intense fears with direct acquisition (e.g., conditioning). Together, Bandura and Rachman's theories posit that modeling promotes the development of child anxiety. Specifically, modeling serves to deliver threat information regarding specific stimuli that influence the creation of cognitive biases and promote avoidance of the stimuli (Field, 2006). Thus, parental modeling

is hypothesized to generate cognitive and attentional biases that help contribute to the development, maintenance, and amelioration of child anxiety.

In sum, researchers have recently begun to move beyond the traditional models of parenting. Increased attention upon parental intrusiveness and parental modeling of anxious behavior represents a notable advance for the field as these theories carefully specify how parenting contributes to the development, maintenance, and amelioration of child anxiety. In the following sections, we review the empirical studies completed in recent years that have helped advance understanding of the relation between parenting and child anxiety.

Recent Studies of Parenting and Child Anxiety

Cross-Sectional Studies

In this section, we focus upon the 14 studies completed since 2004 that utilized a cross-sectional design. An in-depth review of these studies is beyond the scope of this chapter since many findings replicate those reported in the recent meta-analyses (McLeod et al., 2007; van der Bruggen et al., 2008). However, we highlight several important trends in the literature.

A few studies have examined the relation between parenting and child anxiety among different ethnic and cultural groups. In the past, most studies have primarily utilized Caucasian samples, which have limited the ability to generalize findings to different ethnic and/or cultural groups (Wood et al., 2003). Two recent studies addressed this limitation. Luis, Varela, and Moore (2008) examined whether parental control and rejection were associated with child anxiety in European American, Mexican American, and Mexican families. Using observational methods to assess parental behaviors, Luis and colleagues found that high parental control was associated with child anxiety in the European American and Mexican American families, but not the Mexican families. These findings suggest that contextual and cultural factors may influence the nature and

strength of the relation between parenting and child anxiety. In another study, Muris et al. (2006) investigated the relation between perceived parental behavior and child anxiety in a large South African sample ($N=701$) of children and adolescents from black, white, and mixed racial backgrounds. Overall, the relations between perceived parental behavior and child anxiety across the ethnic/cultural groups were similar, except that the relation between anxious rearing and child anxiety was stronger for Caucasian youth ($r=0.37$) than for black youth ($r=0.19$). Together, these studies raise important questions and suggest that cultural factors may influence the strength of the association between parenting and child anxiety. Clearly, more research among different ethnic and cultural groups is needed.

A handful of studies have moved toward greater theoretical specificity. One example of this trend is a shift toward examining the relation between parenting behaviors and specific clusters of anxiety symptoms. To date, two studies have evaluated the relation between perceived parenting and symptoms of generalized anxiety disorder (see Brown & Whiteside, 2008; Hale, Engels, & Meeus, 2005). Both studies found that perceived parental rejection evidenced a stronger relation with symptoms of generalized anxiety disorder than did parental control, which runs counter to past meta-analytic findings (see McLeod et al., 2007). These findings suggest that specific parental behaviors may be differentially associated with specific anxiety disorders (e.g., generalized anxiety disorder versus social anxiety or specific phobia). However, these findings require replication since youth reported on both the parenting and symptom measures.

Two studies have investigated the specific linkage between parental intrusiveness and children's separation anxiety (as compared to other types of anxiety) (Wood, 2006a; Wood et al., 2007). In a clinical sample of children with various kinds of anxiety disorders, a measure of parental intrusiveness based upon a composite of child, parent, and observer ratings was linked specifically with separation anxiety. These ratings were not linked to generalized anxiety, social anxiety, or physical symptoms (Wood, 2006a).

However, there was relatively little evidence that child- and parent-reported intrusiveness was differentially linked with child- and parent-reported separation anxiety as compared to other types of anxiety in a typically developing elementary school sample (Wood et al., 2007). All told, the field is moving toward testing the specificity of linkages of particular types of parenting with particular anxiety syndromes. The mixed evidence thus far hints at the possibility that more refinements of methodology could reveal more robust evidence of patterns of differential associations.

Some studies have also begun to investigate whether specific cognitive factors (e.g., threat interpretations, cognitive distortions) mediate the relation between parenting and child anxiety. Studies have found support for this association (Creswell & O'Connor, 2006; Gallagher & Cartwright-Hatton, 2008). Creswell and O'Connor (2006) found a positive relation between the number of threat interpretations made by mothers and children when presented with an ambiguous task, and this effect was partially mediated via the mother's expectations for how her child would interpret the task. Gallagher and Cartwright-Hatton (2008) found that a negative cognitive style (e.g., cognitive distortions) mediated the relation between parental behavior and child anxiety. Together these findings provide evidence that specific cognitive factors may mediate the relation between parenting and child anxiety.

Experimental and Longitudinal Tests of Contemporary Theoretical Models

Until recently, the literature was limited in what it could tell us about the direction of effects linking parenting and childhood anxiety (McLeod et al., 2007; Wood et al., 2003). No study had (a) tested parental behavior as a *causal* influence on childhood anxiety, (b) ruled out the possibility that childhood anxiety causally affects parenting behavior, or (c) ruled out that a third variable (i.e., common genes) affects both parenting behavior and childhood anxiety systematically (or that there is an additive or multiplicative combination of more than one of these possibilities).

Thus, the causal mechanisms that produce the linkage between parental behavior and child anxiety were not established.

Given that current theoretical models posit that parenting plays a role in the development, maintenance, and amelioration of childhood anxiety, the field needs to employ methodologies that can help clarify what role, if any, parenting behaviors play in *causing*, *sustaining*, or *reducing* childhood anxiety. Two types of studies are needed to address the issue of causality. First, longitudinal studies that utilize repeated measures of parenting behavior and childhood anxiety at theoretically meaningful time intervals can test for the sequencing order implicit in the causal models noted above. Second, experimental methods can be employed to directly evaluate the effects of manipulating parenting behavior on childhood anxiety, and vice versa. In the following section, we review recent studies that fall into both categories.

Our literature review identified one longitudinal study conducted since 2004 that addresses the parenting–anxiety linkage. Feng, Shaw, and Silk (2008) examined the developmental trajectories of anxiety symptoms in 290 boys aged from 2 to 10 years. A group-based analysis revealed that the development of anxiety symptoms could be categorized into four distinct trajectories based upon yearly ratings of anxiety symptoms: low, low increasing, high declining, and high increasing. Parenting was measured with an observational paradigm. Temperament (i.e., a largely biological factor) accounted for initial levels of anxiety, whereas higher early maternal control (i.e., an environmental factor) was associated with the low increasing and high increasing developmental trajectories. Notably, the high increasing group had the greatest chance of meeting diagnostic criteria for an anxiety disorder between age 9 and 11 years. These findings support developmental psychopathology models that posit there are multiple pathways through which children develop anxiety symptoms. However, they also support the hypothesis that parenting may play a role in the development of child anxiety, since parenting was related to increases in child anxiety over time. Lastly, from a clinical standpoint, these

findings suggest that early efforts to decrease parental over-control may play an important role in preventing the onset of anxiety disorders.

In a recent study, de Wilde and Rapee (2008) used an experimental design to examine the influence of maternal controlling behaviors upon child-state anxiety. The mothers of 26 children aged 7–13 years were randomly assigned to either an overly controlling or minimally controlling condition toward their child while he/she was preparing a speech. Children whose mothers acted in an overly controlling manner reported experiencing more state anxiety compared to children whose mothers acted in a minimally controlling manner. This pilot study is one of the first to suggest that parental behaviors exert a causal influence upon child anxiety.

A growing body of literature is using a social referencing paradigm to examine the early influences of parental anxious modeling on infants. Social referencing refers to an infant's use of cues from parents to interpret unfamiliar people and events (Feinman, 1992). Infants use their interpretation of their parent's emotional response as a guide to their own behavior. Social referencing processes have been evaluated using semi-naturalistic (see Murray et al., 2007) and experimental designs (see de Rosnay, Cooper, Tsigaras, & Murray, 2006), with findings consistently revealing infants mimicking their mother's affective response to unfamiliar stimuli. It is speculated that the parent's behavior and emotional response is not only mimicked in the moment, but the child may also develop schemas about different aspects of the environment based on continuous and consistent observation of parental fearful behaviors. For example, an infant who regularly observes a parent respond fearfully to strangers may develop a generalized schema about all strangers being harmful. These schemas highlight the potential early environmental influences (e.g., social processes in infancy) on the later development of anxiety disorders (de Rosnay et al., 2006; Egliston & Rapee, 2007). Additionally, children who are exposed to signs of parental anxiety when around unfamiliar stimuli adopt distinctive patterns of interpersonal responsiveness, such that they respond similarly to their parents in interpersonal

situations (Murray et al., 2007). This line of research suggests that parental modeling of anxious behavior may begin to influence a child's cognitive schemas and behaviors at a very young age.

We now turn to another area of experimental research that has systematically evaluated the theories linking parental modeling to child anxiety. In general, these studies entail (a) obtaining a baseline rating of the child's emotional response to a novel stimulus, (b) manipulating the child's exposure to maternal affective responses or verbal information linked to the stimulus (e.g., negative, positive, neutral), (c) rating the child's subsequent emotional response to that stimulus, and (d) re-evaluating the child's emotional response in a short-term follow-up. Despite variations in the designs, findings consistently suggested that mother's responses toward the novel stimuli or verbal information regarding the stimuli subsequently predicted the child's fear and behavior.

Egliston and Rapee (2007) found that the infants whose mothers modeled positive affect showed an increase in positive affect toward the stimulus from baseline, suggesting that maternal positive response interferes with fear learning that was subsequently modeled by the experimenter. Findings are consistent with the social referencing framework, such that infants as young as 12 months use affective signals of familiar adults to regulate their own behavior. One caveat to these findings is that there was only an effect for positive and not negative modeling. However, the fact that negative affect was modeled by an experimenter rather than a familiar adult may have reduced the magnitude of the effect.

Dubi, Rapee, Emerton, & Schniering (2008) addressed this limitation with a similar design, such that mothers were randomly assigned to respond positively or negatively to novel stimuli. Consistent with other studies, results revealed that children whose mothers reacted negatively were more fearful and avoidant toward the stimuli. However, contrary to previous findings in which fearful modeling effects persisted (Gerull & Rapee, 2002) or effects persisted for positive modeling (Egliston & Rapee, 2007), the effects of the conditioned fear response were short lived. Dubi and colleagues suggest that learning through

observation is a weak pathway to develop fear relative to verbal information or conditioning. Indeed, the authors concluded that modeling may be more effective in teaching children true dangers about the world than irrational fears. The authors also suggest that the findings may have been confounded by verbal information provided by the mother rather than indirect observation.

To assess the effects of information on fear response, Field, Ball, Kawycz, and Moore (2007) developed a computerized experimental paradigm using unfamiliar animals. Based upon the general experimental model described above for testing fear acquisition, novel animals were presented on a computer screen accompanied by positive, negative, or no information. The child's fear of the animals was then assessed and compared to their baseline ratings. Field and colleagues found that punitive parenting style moderated the relation between threat information and children's self-reported fear beliefs about novel stimuli. This is consistent with Field and colleague's (2008) theory of the intergenerational transmission of anxiety in which anxious parents provide the child with an unusual set of learning experiences, such as exaggerating threat aspects of information. Unlike previously discussed studies, however, positive information did not function as a moderator. Field and colleagues suggest that threat information contributes to anxiety because it primes children to pay particular attention to it when encountering novel stimuli. Field and Lawson (2008) used the same paradigm to examine the accuracy of the associative strength between the animals and outcome based on verbal information presented (e.g., fearful, positive, neutral). They found that the associative strength was highest when associative learning was consistent with verbal information, required the longest learning time without any information, and was overestimated when associative learning trials were inconsistent with verbal information. These results provide preliminary evidence that specific parenting behaviors interact with one of Rachman's (1977) pathways to fear (verbal information) and suggest that specific learning processes may mediate the relation between parenting and child anxiety.

These experimental studies represent a significant step forward for the field. Most notably, these studies test causal pathways that may contribute to the development and maintenance of child anxiety. One design strength worth noting is the inclusion of a condition in which children were exposed to the stimulus alone without parental manipulation (Egliston & Rapee, 2007). Findings demonstrated that modeling influences a child's emotional response beyond mere exposure to the stimulus, implying that exposure plus modeling may produce stronger effects in intervention than exposure alone. Given that positive modeling and information promoted positive outcomes that interfered with fear development, such techniques may be effective targets for prevention and intervention. A limitation noted by nearly all authors includes a controlled lab setting, which may not simulate a child's natural environment. Future research should therefore focus on controlled experiments in natural settings. Furthermore, the retention of modeling effects beyond the experimental session needs to be further explored. Although follow-up observations were conducted, they were within the confines of the experimental session. One study also hypothesized that toddlers who had access to touch the object may have learned by direct experience that object is harmless (Dubi et al., 2008). This represents a methodological problem in social referencing literature, such that physical touch has been inconsistently regulated across studies. Future research should compare social referencing to direct physical contact as a source of learning to tease apart these two different mechanisms. Several other questions remain unanswered: Is the mother the only influential model? How important is developmental level in the acquisition of fear through modeling? Is modeling truly accounting for the variation in development of anxiety disorders or does it more accurately explain the transmission of brief and specific threat from mother to child?

A final issue that warrants further attention is the interaction between temperament and environmental factors. Dubi and colleagues (2007) found that a behaviorally inhibited temperament did not influence instrumental learning

of approach/avoidance behaviors. This suggests that the interaction between temperament and environmental factors (i.e., modeling) may not be as pronounced as previously hypothesized. However, the authors did note a restricted range of temperaments, such that there were few behaviorally inhibited children, which may have accounted for these findings. Conversely, de Rosnay and colleagues (2006) found that temperamental fearfulness moderated the effect of observed maternal anxiety on avoidance behavior, such that high-fear toddlers were affected more by mothers exhibiting socially anxious behaviors than low-fear toddlers, and only high-fear children were more avoidant in the maternal socially anxious condition than the non-anxious one. This is especially important to explore given that these experimental studies consisted of non-clinical samples. Because anxiety moderates the effect of verbal threat information on avoidance behaviors and attentional biases (Field, 2006), results may differ for children with clinical levels of anxiety or children who are temperamentally predisposed to anxiety (Field & Lawson, 2008).

Testing Models with Intervention Studies

Intervention designs can help clarify the causal relation between parenting and child anxiety as well as help elucidate the change processes in treatment that account for observed outcomes. Although randomized controlled trials (RCTs) cannot provide information about whether parenting behaviors (e.g., intrusiveness) initially cause child anxiety problems, they do represent a rigorous method to test if these parenting practices *maintain* (or, if altered, *ameliorate*) children's anxieties (cf. Cowan & Cowan, 2002). Several studies have experimentally documented an influence of parenting practices on changes in children's internalizing or externalizing behavior using intervention or prevention designs (Brody et al., 2006; Tein, Sandler, MacKinnon, & Wolchik, 2004); a small number have also recently done so for childhood anxiety (Silverman, Kurtines, Jaccard, & Pina, 2009; Wood et al., 2009).

Since interventions for child anxiety disorders are reviewed elsewhere in this book, we consider this literature only briefly and then explore how interventions have been used to evaluate the effects of parenting practices on child anxiety disorders. A typical child-focused cognitive behavioral (CCBT) program involves anxiety management skills training (e.g., psychoeducation, relaxation, cognitive skills) and exposure interventions. CCBT programs have been found to reduce child anxiety at immediate post-treatment relative to wait list control groups (Kendall, 1994; Kendall, Flannery-Schroeder, Panichelli-Mindel, & Southam-Gerow, 1997). Moreover, studies have found that the benefits of CCBT programs are maintained at 1-year (e.g., Flannery-Schroeder, Choudary, & Kendall, 2005; Kendall, 1994; Kendall et al., 1997), 3.35-year (Kendall & Southam-Gerow, 1996) and 7-year (Kendall, Safford, Flannery-Schroeder, & Webb, 2004) follow-ups.

Family-focused CBT (FCBT) programs can be used to examine the effect of manipulating parenting on child anxiety. These programs have been found to reduce child anxiety at immediate post-treatment and 1-year and longer follow-up periods when compared to wait list control groups (e.g., Barrett, 1998; Barrett et al., 1996). Moreover, two studies have compared the relative efficacy of individually administered (as compared to group therapy) FCBT and CCBT programs (Barrett et al., 1996; Wood et al., 2006, 2009). Both trials found that youths in FCBT had lower rates of anxiety disorders and fewer parent-reported anxiety symptoms at post-treatment and follow-up than youths in CCBT. This difference did not hold at a 6-year follow-up (Barrett, Duffy, Dadds, & Rapee, 2001). Furthermore, the majority of FCBT programs have been conducted in group-therapy format and have not differed in treatment effects from CCBT (Barmish & Kendall, 2005). It has been suggested that parental involvement in CBT may be particularly important for child outcomes under specific conditions (Barmish & Kendall, 2005; Kendall & Ollendick, 2004). One relevant parameter includes the extent to which interventions target parental behavior that maintains

child anxiety (Barmish & Kendall, 2005; Barrett et al., 1996).

Silverman and colleagues (2009) used an intervention design to evaluate the directionality of effects linking parenting and child anxiety. A total of 119 youth diagnosed with anxiety disorders were randomly assigned to CCBT with minimal parent involvement or CCBT with active parent involvement (CBT/P). The CBT/P condition was designed to target (a) positive and negative parental behaviors, (b) parent–child conflict, and (c) parental anxiety. A few important findings relevant to understanding the nature and direction of the parenting–child anxiety linkage emerged from this study.

First, there were no significant differences between the CBT and CBT/P at post-treatment suggesting that parental involvement in treatment did not have a notable impact upon youth anxiety outcomes. Second, the findings suggest that there may be a reciprocal relation between parenting and child anxiety. In fact, the findings suggest that child anxiety may influence parental behavior. At post-treatment, there were no differences between the CCBT and CBT/P conditions at the level of parent–child conflict, positive and negative parental behaviors, or parental anxiety. Thus, both child-focused and parent-focused interventions led to similar reductions in parent–child conflict, improvements in parenting behaviors, and reductions in parental anxiety. These findings therefore challenge the traditional assumption that parenting causally influences child anxiety.

Altogether, these findings have important clinical implications. Several large clinical trials have demonstrated that parental involvement in CBT has not produced a meaningful impact upon youth anxiety outcomes. Moreover, Silverman and colleagues (2009) demonstrated that key parent-level factors hypothesized to be causally related to the maintenance of child anxiety (e.g., level of parent–child conflict, specific parental behavior) changed in the CCBT condition. This study therefore does not support the incremental validity of adding family involvement to CBT for child anxiety. However, although these findings indicate that adding family involvement does not

produce superior results, there may be specific circumstances in which FCBT may enhance clinical outcomes.

Wood and colleagues (2006a, b, 2009) randomly assigned 35 children (6–13-years old) to 12–16 sessions of FCBT or CCBT and followed up with them one year after treatment was completed. FCBT focused specifically on reducing parental intrusiveness and increasing autonomy granting, and incorporated traditional CCBT elements delivered in the family context. Blinded diagnostician ratings as well as parent reports of anxiety favored FCBT over CCBT at both post-treatment and follow-up, as did composite ratings of intrusiveness using a multifaceted measure described above in the discussion of Wood (2006a). Child ratings of anxiety symptoms did not differ between groups.

Reductions in parental intrusiveness at post-intervention played a mediating role linking the family intervention (FCBT) with superior child anxiety outcomes at 1-year follow-up. Interestingly, children's age group moderated the association between intrusiveness and anxiety, suggesting that developmental processes influence the relation between parental behavior and child anxiety trajectories. Early adolescents (10–13-year olds) experienced more improvement in anxiety at the 1-year follow-up if their parents had decreased in intrusiveness at post-intervention. However, the same pattern was not observed for younger children (6–9-year olds). To date, few models of the influence of parenting behavior on children's regulation of anxiety have proposed that children of different developmental stages might react differently to specific parenting behaviors. Yet these findings suggest that a child's developmental level may play a role in determining the impact (for good or ill) of specific parental behaviors on children's well-being.

Social cognitive theory provides an explanation of these findings that takes into account the observed developmental differences. This theory posits that individuals have an ongoing need for mastery experiences throughout development to promote self-efficacy and potentiate optimal functioning (Bandura, 1997). Often there is a confluence of the need for mastery experiences

and the particular objectives or tasks requiring mastery that arise at specific stages of development (some of which are culturally defined and others intrinsically motivated). For example, Bandura (1997) notes the developmental advantages to infants of having parents who facilitate mastery experiences in interactions with the physical environment (e.g., helping infants experience cause-and-effect relations as they touch objects to promote a sense of control). It is plausible that the transition to early adolescence is a developmental period marked by a confluence between the child's general need for mastery experiences and a culturally defined need for children to achieve autonomy from their parents. Such a confluence might explain the beneficial effect of reduced parental intrusiveness (and corresponding increased autonomy) for adolescent (but not child) anxiety problems that were found in this study.

According to this formulation, early adolescents may have a particular need for mastery experiences in self-help tasks which, if absent, would reduce their sense of autonomy. Steinberg (1990) has written, "The second decade of a child's life – and, in particular, the first few years of this decade – is a critical time for the realignment and redefinition of family ties" (p. 255). He and other investigators view increased autonomy in adolescence as a catalyst that promotes positive growth in the cognitive, emotional, and social spheres, with parents playing a key role in this transformation by encouraging independence of functioning and volitional behavior (Allen, Hauser, Bell, & O'Connor, 1994; Soenens et al., 2007). The areas emphasized in the intrusiveness measure used in the Wood and colleagues (2009) study (e.g., daily routines and private self-help activities) may be particularly salient domains for autonomous functioning from an early adolescent's perspective. Choices that parents make about how they respond to the capacities of pre-teens and early teens for independent functioning in this domain naturally set limits on how autonomous their children are able to act and, by extension, how efficacious they feel.

Social comparison processes may make independence in private self-help skills particularly salient to early adolescents as compared to younger children. In terms of base rates, it is atypical to receive parental help with activities such as bathing and dressing for early adolescents, but more typical for younger children (Wood et al., 2007). A common reason for pre-adolescent and early adolescent teasing is the victim acting "babyish" and immature (Fine, 1992); variants of such teases used in mass media portrayals of young adolescents include the expression, "Does your mommy help you with that?" Teases are often a guide to expected behavior (cf. Keltner, Capps, Kring, Young, & Heerey, 2001); early adolescents who are still receiving frequent unneeded assistance from parents in activities of daily living may feel a sense of deviance from these expectations, particularly given the low base rates of such assistance in this age group. Through the process of social comparison, deviance from social norms is often linked with negative self-perceptions and anxiety (e.g., Hedley & Young, 2006; Irons & Gilbert, 2005). It may be that an intervention like FCBT that reverses this deviance by promoting independence in the self-help domain can reduce the anxiety previously associated with the norm-violating behavioral pattern (e.g., being dressed by a parent).

These findings also raise some interesting questions regarding how to account for developmental processes when assessing intrusive parenting. Traditionally, intrusive parenting has been measured the same way across the age range from middle childhood to early adolescence (e.g., Hudson & Rapee, 2001; Wood, 2006a). However, the Wood and colleagues' (2009) findings raise the question of whether researchers should employ different scoring criteria or assessment methods for older versus younger children. Decisions on altering scoring criteria according to the child's age group are likely to vary with the research question being addressed. When differences between age groups in the domain of intrusiveness are of interest, the most unequivocal findings are likely to come from a measure that is scored identically irrespective of the child's age,

so that the scoring method is not confounded with age group. However, when main effects of intrusiveness are of primary interest, it may be useful to consider whether behaviors that are counted as “intrusive” at one age group should also be considered “intrusive” for the other age groups. One important question is when particular parental behaviors become “intrusive” relative to a child’s development level and cultural background.

The Silverman and colleagues (2009) and Wood et al. (2009) articles offer examples of intervention research on evidence-based treatments used to examine aspects of theories that have proposed causal linkages between parental anxiety, parenting, and childhood anxiety. While by no means answering completely the core questions in the field about the primary causal and maintaining factors underlying childhood anxiety, both studies offer clues while also exemplifying the different types of methodologies that may be brought to bear on these questions.

Summary and Future Directions

The parenting–child anxiety field is currently making exciting progress. Among the notable accomplishments are greater specificity of theoretical models and the correspondingly precise tests of these models with improving instrumentation (e.g., for measuring parenting practices with more than marginal validity and reliability) and innovative methods. Exemplars of the latter include the use of repeated-measures longitudinal designs using developmentally attuned data-reduction strategies such as latent class analysis to examine the unfolding role of early parenting practices on developmental trajectories of anxiety over childhood; laboratory-based experimental designs that manipulate anxiety modeling, verbal threat information, or parenting strategies to determine the resulting impact on children’s anxiety; and intervention studies explicitly designed to test theories about parental transmission or maintenance of children’s anxiety.

Although many questions remain, the recent research in this area continues to point toward a potential role for parenting practices as one factor of many within the multifactorial, and likely reciprocal, set of dynamics that lead toward or away from child anxiety disorders.

The field may benefit from an increasing breadth of experimental and intervention studies designed to address potential limitations that can be drawn from extant studies. As with all laboratory-based studies, the newly emerging studies on experimental manipulations of parenting in the laboratory would benefit from replication or extension into naturalistic settings. The strengths of the effect of experimental manipulations over time are important to establish in order to assess whether the laboratory effects are analogous or homologous with the development of stable clinical anxiety. Additional experimental studies looking more closely at the effects of particular types of parenting in particular situations would also be quite informative (cf. Wood et al., 2003). The emergence of experimentalism within the discipline may foreshadow a series of studies that could narrow down the contexts, for example, in which parental intrusiveness exerts its expected effects on self-efficacy and state anxiety in adolescents (e.g., only when an audience is present; if the adolescent believes that peers could find out; if the adolescent is primed by information promoting the desire for autonomy in a specific situation). It is, of course, important for experimental studies to examine the other direction of effects, namely, that higher child anxiety may elicit intrusiveness or other parenting practices under certain conditions. A reciprocal influence between parent and child has become a standard element in many conceptual models (e.g., Rapee, 2001) and could be usefully explored within these kinds of experimental designs. In short, an exciting era is upon us in the field of parenting and childhood anxiety. As ongoing studies continue to accrue more information with causal implications, it is likely that extant treatments may be further refined and improved through a more precise focus on putative underlying processes and change mechanisms.

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