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## Emotion regulation and understanding Implications for child psychopathology and therapy

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### Abstract

This paper considers the role of emotion regulation (i.e., extrinsic and intrinsic monitoring and adjusting of emotion) and emotion understanding (i.e., comprehension of the signs of, causes of, and ways to regulate emotion) in childhood adjustment. Developmental and clinical research focused on emotion regulation and emotion understanding are reviewed with an emphasis on studies including psychopathological samples. The implications of emotion research for the study of child psychopathology and child therapy are examined. © 2001 Elsevier Science Ltd. All rights reserved.

*Keywords:* Child therapy; Emotion regulation; Emotion understanding; Emotional development

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### 1. Emotion and child psychopathology

Behaviorism, a guiding theoretical perspective in psychology, for many years generated the lion's share of empirical research. However, in eschewing "internal" variables, some argued that behaviorism left possibly important mental variables out of the equation. The so-called cognitive revolution brought "meaning making" back under scientific scrutiny, but the emphasis on cognitive factors may have underappraised the role of emotion. Although the field refers commonly to "emotional disorders" or "emotional problems" and emotion is considered a cornerstone of human experience, many current theoretical models and the

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research bodies they have generated have not adequately considered the role of emotion in development and psychopathology.

Fortunately, recent research efforts by a diverse group of investigators suggests that the field is in the midst of an “emotion revolution” (cf. Fischer & Tangney, 1995). Research in developmental psychopathology in particular has led to an increase of emphasis on the importance of emotional processes in normative and atypical development (e.g., Cicchetti, 1984; Cicchetti & Cohen, 1995; Luthar, Burack, Cicchetti, & Weisz, 1997; Sroufe & Rutter, 1984). In addition, advances in neuroscience and psychophysiology have greatly expanded our knowledge about the neural and other psychophysiological concomitants of emotion and how these might impact adjustment (e.g., Caciopo, Klein, Berntson, & Hatfield, 1993; Davidson & Fox, 1982; Dawson, 1994; LeDoux, 1993; Nelson & Bloom, 1997; Panksepp, 1993; Porges, Doussard-Roosevelt, & Maiti, 1994; Stansbury & Gunnar, 1994). Furthermore, an interest in emotion has been fueled by the concepts of emotional intelligence, emotional competence, and emotional education that are burgeoning in educational, scientific, medical, and legislative domains (e.g., Buck, 1993; Goleman, 1995; Greenberg, Kusche, Cook, & Quamma, 1995; Repetti, Taylor, & Seeman, 2000; Salovey & Sluyter, 1997).

The present review provides a framework for one focus of future research, the scientific study of the relations among emotion regulation, emotion understanding, and child adjustment (i.e., clinical child psychology). Overall, there are several objectives of the review. First, the paper provides a review of the literature on emotion regulation and emotion understanding examining developmental findings drawn from normative samples along with a smaller body of research, which has focused on emotion processes in at-risk and clinic-referred samples. After the review, the relevance of this research for studying and understanding child psychopathology is discussed. Finally, applications of the emotion research literature to child therapy research are described. Because most current treatment and prevention paradigms used in research settings are based in cognitive and behavioral formulations, there is a need to reexamine these in light of findings from emotion research.

The review focuses on two aspects of emotion: *emotion regulation* and *emotion understanding*. This focus is not because they are the only areas of emotion research with relevance to clinical child psychology. For example, research on temperament and emotional intensity (EI; e.g., Bates & Wachs, 1994; Chess & Thomas, 1990; Eisenberg, Fabes, Guthrie, et al., 1996; Eisenberg, Fabes, et al., 1997; Kagan, Reznick, & Snidman, 1988; Nachmias, Gunnar, Mangelsdorf, Parritz, & Buss, 1996; Park, Belsky, Putnam, & Crnic, 1997), psychophysiological work on emotion (e.g., Field, Pickens, Fox, Nawrocki, & Gonzalez, 1995; Katz & Gottman, 1995; Nachmias et al., 1996; Porges, 1995; Stansbury & Gunnar, 1994; Zahn-Waxler, Cole, Welsh, & Fox, 1995), and the flourishing research on the neural aspects of emotion (e.g., Adolphs, Damasio, Tranel, & Damasio, 1996; Andreasen et al., 1992; Barkley, 1997; Davidson, 1994; Dawson, 1994; Fox, 1994b; Gray, 1990; Heller, 1990; Izard & Harris, 1995; Panksepp, 1990; Reiman, Raichle, Butler, Herscovitch, & Robins, 1984; Rourke, 1988; Seidman, Biederman, Faraone, Weber, & Ouellette, 1997; Steinmetz, 1994) all represent critical areas for further study with importance to developmental psychopathologists. However, because one main goal of the paper concerns using emotion research to improve psychosocial intervention, the work on emotion regulation and emotion understanding was considered most relevant. Nonetheless, in this introduction, we briefly review research on

temperament because of its critical importance in emotional development in general and its relevance to emotion regulation and emotion understanding in particular.

### 1.1. *Child temperament and EI*

The measurement of temperament-based emotionality is a contemporary topic in developmental and clinical research (e.g., Bates & Wachs, 1994; Chess & Thomas, 1990). In this brief review, we illustratively examine this work as a background for the main focus of the paper. An impressive body of evidence has come from the labs of Kagan, Biederman, and others. These researchers provided strong evidence that inhibited temperament is stable and the style is associated with later internalizing disorders (e.g., anxiety disorders; Biederman et al., 1993a, 1993b; Hirshfeld et al., 1992; Kagan et al., 1988; Kagan, Snidman, Arcus, & Reznick, 1994; Rosenbaum et al., 1992). They have also suggested that other temperament patterns (e.g., uninhibited) may be associated with externalizing disorders (e.g., Schwartz, Snidman, & Kagan, 1996). Along similar lines, Derryberry and Reed (1994) posited two temperamental patterns that may be vulnerabilities for the development of psychopathology. First, they described a *reward/approach* orientation that may create a vulnerability to impulsivity-related disorders. Second, they described a *punishment/avoidance* orientation that may place a child at risk for the development of an anxiety disorder.

Research has amplified the findings on the importance of temperament for later child outcome by examining the influences of other important variables, such as emotion regulation and family environment. For example, across a series of cross-sectional and longitudinal studies, Eisenberg et al. have examined the relations among EI (a temperament-based index of emotionality), emotion regulation (indexed by attentional regulation and coping measures), and social adjustment (as indexed by socioemotional competence, prosocial behavior, sympathy responses, or problem behaviors). Their findings are particularly important for the current paper because of the focus on the relations between temperament and emotion regulation. In general, elevated levels of negative EI (i.e., negative emotions like anger, sadness, or fear) are the risk factor, but high general and positive EI have also been linked to negative outcomes (e.g., Eisenberg, Fabes, Guthrie, et al., 1996). Based on their findings, Eisenberg et al. have posited that moderate EI relates to positive outcome (e.g., social adjustment; Eisenberg, Fabes, et al., 1997). In addition, their work and research by others (e.g., Rubin, Coplan, Fox, & Calkins, 1995) have supported the important role of the interaction of emotion regulation and EI/temperament. We will return to this topic shortly.

The relations among family environment variables (e.g., maternal depression and parenting practices), temperament, and later outcomes have also been emphasized by temperament researchers. For example, maternal depression may interact with child temperament and attachment to producing negative outcomes (e.g., Rubin, Both, Zahn-Waxler, Cummings, & Wilkinson, 1991). Furthermore, parenting practices and caregiver characteristics appear to have a moderating influence on outcomes associated with temperamental styles (e.g., Nachmias et al., 1996; Park et al., 1997).

Overall, the research has indicated that temperament-related emotionality plays an important role in the development of psychopathology and adaptation. Temperament appears to provide the blueprint and foundation from which and on which emotional development

“builds.” Thus, when considering the “brick and mortar” that emotion regulation and emotion understanding represent, an appreciation of the blueprint and foundation is necessary. This emotional “plan” dictates in many ways the form the “building” can take as well as how the use of various “building blocks” can optimize the overall “design.” In addition, the blueprint and foundation also set in motion the beginnings of the relationship of the “building” with the “neighborhood.” We will discuss the interrelations among emotion regulation, emotion understanding, and temperament throughout the paper.

## 2. Emotion regulation

Research on emotion regulation has increased rapidly in the last decade. However, as many investigators have noted, definitions of emotion regulation have typically been implied and not stated (e.g., Thompson, 1994). Recent efforts have been made to clarify the construct of emotion regulation and a broad definition of the term appears to be emerging (e.g., Calkins, 1994; Campos, Campos, & Barrett, 1989; Cole, Michel, & Teti, 1994; Kopp, 1989; Thompson, 1994; Walden & Smith, 1997).<sup>1</sup> First, emotion regulation is a dialectical construct involving both emotion as a *behavior regulator* and emotion as a *regulated phenomenon* (e.g., Campos et al., 1989; Cole, Michel, et al., 1994; Kopp, 1989). Most research emphasizes the latter — i.e., how we attempt to regulate emotion — and thus, most research has examined various regulatory processes. As an example, Thompson (1994, pp. 27–28) defined emotion regulation as the “extrinsic and intrinsic processes responsible for monitoring, evaluating and modifying emotional reactions especially their intensive and temporal features, to accomplish one’s goals . . .” Furthermore, he outlined several possible ways that emotion is regulated by (a) a neurophysiological response, (b) attentional processes, (c) construals/attributions, (d) access to coping resources, (e) exposure to environment, and (f) responses/behavior.

A second aspect of emotion regulation is related to the distinction between *control* and *regulation*. For example, Cole, Michel, et al. (1994, p. 83) defined *regulation* as the “dynamic ordering and adjusting” of emotional behavior, whereas *control* was viewed as the *restraint* of emotional processes. In other words, emotion regulation involves more merely stopping or reducing emotion; indeed, sometimes emotion regulation involves increasing emotional arousal (e.g., getting “psyched” up for a big game; cf. *emotion cultivation*; Fredrickson, 1998). Along these lines, emotion dysregulation is not necessarily the lack of regulation but instead regulation that is “operating in a dysfunctional manner” (Cole, Michel, et al., 1994, p. 80).

Another aspect of emotion regulation concerns its relations to child and environmental variables (e.g., family and culture). The transaction of child temperament and caregiver characteristics and behaviors (e.g., attachment and parenting style) in the development of

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<sup>1</sup> We wish to note that considerable research has examined the neural underpinnings of emotion regulation, which we do not review here (e.g., Dawson, Hessler, & Frey, 1994; Fox, Calkins, & Bell, 1994; Gottman & Katz, 1989; Rubin et al., 1995).

Table 1

## Aspects of the emotion regulation

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Dialectic nature of emotion regulation implies a view of emotion as <i>regulator</i> of behavior and emotion as <i>regulated</i> phenomenon.
Emotion regulation is accomplished through the purposeful (i.e., goal oriented) monitoring, evaluating, and modifying of emotional reactions by extrinsic and intrinsic processes.
Emotion regulation implies a “dynamic ordering and adjusting” of emotion — not emotional restraint.
Emotion regulation develops via a transaction of temperamental characteristics and environmental circumstances (e.g., caregiver style).
Adequate emotion regulation is necessary for socioemotional competence and mental health.

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emotion regulation is of particular importance (e.g., Calkins, 1994). From this perspective, emotion regulation develops largely in the context of the relationship(s) between the child and his/her parents/caregivers.

Finally, emotion regulation is viewed as an integral process in socioemotional competence and mental health (e.g., Gross & Muñoz, 1995; Hubbard & Coie, 1994; Linehan, 1993; Stifter, Spinrad, & Braungart-Rieker, 1999). In other words, regulating one's emotions represents a critical challenge, important for interpersonal and intrapersonal functioning. Table 1 summarizes the key points of this definition of emotion regulation.

The following review of the developmental literature is illustrative, whereas the review of the psychopathology research is more exhaustive. We begin by examining work on emotion expression, an early form of emotion regulation. Then, we examine research on other emotion regulation processes.

### 2.1. *Emotion expression: normative populations*

Research on emotion expression has been prolific, possibly because of the existence of reasonably good ways to measure expression. Excellent reviews exist of the developmental literature (e.g., Bretherton, Fritz, Zahn-Waxler, & Ridgeway, 1986; Camras, Malatesta, & Izard, 1991; Lewis & Haviland, 1993; Malatesta, Culver, Tesman, & Shepard, 1989); thus, we examine this literature illustratively, focusing more on investigations with psychopathological samples.

Infants express emotions almost immediately, and the coherence of these expressions develops quickly (Camras et al., 1991; Lewis, Sullivan, Ramsay, & Alessandri, 1992). Sensorimotor development (e.g., onset of locomotion) aids the increase of expression, perhaps because more self-object relationships are possible as motor abilities increase (e.g., Campos, Kermoian, & Zumbahlen, 1992). Although natural emotion expression comes much earlier (largely before age 2 years), by the age of 4 years, most children can pose emotion expressions as well as adults can (Lewis, Sullivan, & Vasen, 1987). Development of complex emotion expression (e.g., pride, shame, embarrassment, and guilt) appears to come later than for more basic emotions (e.g., Griffin, 1995; Lewis, 1993b; Stipek, 1995; Zahn-Waxler & Robinson, 1995), although perhaps earlier than some theorists supposed. Most work has suggested that between ages of 2 and 3, children display shame, pride, and guilt expressions in appropriate eliciting circumstances (e.g., Barrett, Zahn-Waxler, & Cole, 1993; Belsky, Domitrovich, & Crnic, 1997; Lewis, Alessandri, & Sullivan, 1992).

Bretherton et al. (1986) provided an excellent review of the literature on the development of expressing emotions verbally (including talking about feelings). They trace the development from social referencing (i.e., looking to mother for appraisal of an object), shared reference (i.e., an infant looking where mother is looking), and intentional communication (i.e., an infant's a priori awareness of the effect on the listener of his/her communication) beginning around 9 months. The onset of emotion language occurs around 18 months, with rapid increase in the next 1-1/2 years. Talking about causes and the interpersonal function of emotion begins at the end of the second and beginning of the third year. Beyond age 3, causal inferencing develops rapidly; we shall examine the "content" of this talk in our examination of the literature on emotion understanding. Relational factors like a caregiver (e.g., mother) talking about emotions with a child appear related to this development (e.g., Denham, Cook, & Zoller, 1992).

## *2.2. Emotion expression: psychopathological populations*

Expression of basic and complex emotions among psychopathological populations has not been extensively examined. However, if examinations of at-risk populations are included, the number of extant studies becomes relatively larger. For example, children who have been exposed prenatally to cocaine demonstrate deficits in basic emotion expression such as delayed or idiosyncratic expression (e.g., Alessandri & Lewis, 1996a; Alessandri, Sullivan, Imaizumi, & Lewis, 1993; Bendersky, Alessandri, & Lewis, 1996). Other research has suggested that infants of mothers with high levels of depressive symptoms exhibit a lot of negative emotions and fewer positive emotions during learning tasks (e.g., Lundy, Field, & Pickens, 1996; Pickens & Field, 1993).

Research on the emotion expression of maltreated children has been most extensive. Maltreated children demonstrate deficits in their ability to pose emotion expressions, as do their mothers in some studies (Camras et al., 1988; During & McMahan, 1991). Maltreated children also are more inhibited in their emotion expression (i.e., less expression) during conflict situations compared to nonmaltreated peers (Camras & Rappaport, 1993). Additionally, maltreated girls expressed more shame and less pride compared to nonmaltreated peers. In addition, maltreated children (especially girls) received higher levels of negative feedback from their mothers during research tasks (Alessandri & Lewis, 1996a, 1996b). Although deficits in emotion expression are apparent in maltreated children, the reasons and the ramifications remain unclear. Possibly, these children suppress expression because of (a) fear of reprisal, (b) the "need" to be tough, or (c) the understanding that such expression will be ignored (see Alessandri & Lewis, 1996b). Whether this "inhibition" is context-bound (i.e., only occurring around abusive parent) and whether it is linked, or becomes linked, to short- or long-term behavioral or biological outcomes remains to be determined.

Studies with actual psychopathological samples are fewer but suggest some similar conclusions. Research has been conducted with children diagnosed with Down syndrome, autism, schizophrenia, disruptive behavior disorders [e.g., conduct disorder (CD) and oppositional defiant disorder (ODD)], and depressive disorders. Children with autism demonstrate a poorer ability to pose emotion expressions (e.g., Kasari & Sigman, 1996; Loveland et al., 1994) compared both to nondisordered children and to children with Down syndrome. The deficits are particularly apparent in social situations where children with

autism fail to exhibit “affective sharing” or socially aimed expressions of positive affect; this deficit suggests possible difficulties in the expression of complex emotions like pride (e.g., Kasari, Sigman, Baumgartner, & Stipek, 1993; for review, see Kasari & Sigman, 1996). Emotion expression deficits have also been identified in children with Down syndrome, although the differences are less extreme and there is strong evidence of coherent, albeit delayed, emotional development (Cicchetti & Sroufe, 1976; Kasari & Sigman, 1996; Motti, Cicchetti, & Sroufe, 1983). Walker, Grimes, Davis, and Smith (1993) found that children who later developed schizophrenia exhibited both increased negative emotion expression and decreased expressions of joy prior to disorder onset when compared to siblings who did not develop schizophrenia.

Casey (1996) reviewed a number of studies from her lab that examined the emotional development of children with diagnosed disruptive behavior disorders [i.e., ODD, CD, or attention deficit hyperactivity disorder (ADHD)] and a smaller group of children with major depressive disorder (MDD). She found that children with ADHD exhibit more facial expressions and greater change of facial expression during joint play tasks compared to both nondisordered children and children with ODD or MDD, whereas children with ODD or MDD exhibited fewer expressions compared to nondisordered children. Additionally, in a study that may have tapped expression of more complex emotions (e.g., pride), Casey and Schlosser (1994) found that children diagnosed with ODD, CD, or ADHD exhibited more hostility and more surprise in response to positive peer feedback, consistent with works by Dodge (1980) and Dodge and Schwartz (1997), which document a hostile attributional bias among children with disruptive behavior disorders.

Children at-risk for or diagnosed with a psychological disorder appear to have some emotion expression problems. Three patterns — (a) inhibition of expression, (b) poor control of expression, and (c) nonnormative expression — have been most commonly found; these patterns are likely linked to emotion regulation efforts and may represent understandable but nonoptimal efforts to regulate emotion (e.g., Thompson & Calkins, 1996). For example, inhibition of expression may be adaptive in an abusive context where open emotion expression is punished. An important direction for future research lies in determining both common and differential pathways (inhibition, undercontrol, or nonnormative) that lead to psychological disorder or more positive outcomes. For example, it is plausible that the inhibition of expression found in maltreated children may lead to internalizing problems. Alternatively, it is also plausible that the inhibition may give way to poor modulation of emotion later in development, leading to disruptive behavior disorders. Of course, it is also possible that *both* results occur, leading to a comorbid presentation that is prevalent in child clinical samples (e.g., Russo & Beidel, 1994). At this point, research is lacking that identifies the specific correlates that lead to specific outcomes.

### *2.3. Other emotion regulation processes: normative populations*

Emotion expression serves a regulatory purpose by signaling to others (and ourselves) our emotional state, often leading to efforts by others to offer assistance in regulation and coping. Such regulation is but one way in which emotions are regulated. In Section 2.4, we review research on other forms of emotion regulation.

Kopp (1989) described several levels of emotion regulation, from (a) species-typical biological programs to (b) elemental cognitive and associative learning regulation strategies to (c) planful strategies (object-oriented or language-oriented). Infants exhibit emotion regulatory efforts early, with the first two of Kopp's levels occurring within the first weeks and months of life. Self-strategies include attentional regulation (e.g., gaze aversion), self-soothing (sound making and rubbing self), and nonnutritive sucking. In addition, as we will discuss in more detail later, the infant–caregiver relationship serves important emotion regulation functions. Examples include direct parental regulation of infant emotion (e.g., singing and rocking), associative learning (e.g., parental footsteps or voice having a soothing effect), and intentional modeling of regulatory techniques (e.g., Eisenberg & Fabes, 1992; Kopp, 1989, 1992; Rothbart, Ziaie, & O'Boyle, 1992). Eisenberg, Cumberland, and Spinrad (1998) have outlined three sorts of parental behaviors that directly impact the development of emotional (and social) competence: (a) parental reactions to child emotions; (b) parent–child discussion of emotion; and (c) parental expression of emotion.

An early manifestation of emotion regulation in preschoolers that lends itself to study concerns display rules (e.g., Ekman & Friesen, 1976) — the often culturally determined conventions, which govern emotional expression in social situations. To examine this phenomenon, researchers have designed laboratory situations to elicit use of display rules such as inhibition of an emotional response that has negative social consequences. For example, in a commonly used paradigm, a child is promised a prize after completing some research tasks. However, once the tasks are completed, the researcher offers the child a prize that is designed to be disappointing (e.g., broken toys; Cole, Zahn-Waxler, & Smith, 1994). Researchers examine the child's actual expressions and also ask for the child's description of how s/he feels about the prize. Children as young as 3 exhibit some use of display rules (e.g., Cole, 1986), with girls doing so more frequently than boys (e.g., Davis, 1995). Relatedly, children can “hide” their emotion by changing their facial expression as early as age 3 (e.g., Lewis, Stanger, & Sullivan, 1989). Additionally, temperament and emotion understanding appear to moderate the use of the display rules. For example, Garner and Power (1996) assessed preschoolers' temperament, emotion understanding, and reactions to a disappointing prize. They found that children who with less EI and more emotion understanding were more likely to use display rules when presented with the disappointing prize.

Children's use of planful (Kopp, 1989) emotion regulation strategies (i.e., coping) increases with age. Planful regulation represents the interface between emotion regulation and emotion understanding (i.e., *doing* and *knowing*). We discuss the latter (i.e., “knowing”) in Section 2.4, but for now, it is worth noting that the knowledge of emotion regulation strategies has an impact on the actual “doing” of emotion regulation. Additionally, as we review later, development brings an increase in the beliefs that emotions change and that emotion expressions are controllable. However, these beliefs and the related knowledge about specific emotion regulation strategies do not have a one-to-one correspondence with actual emotion regulation. In fact, children will often engage in particular emotion regulation strategies of which, when asked, they claim ignorance. Hence, “development may consist of a more conscious [and strategic] deployment of” (Meerum-Terwogt & Olthof, 1989, p. 230) strategies that are already part of the child's behavioral repertoire. In other words, knowledge of what one already “knows” how to do fosters doing it.



Two related models of coping, Lazarus and Folkman's (1984) ways of coping paradigm and Weisz's (e.g., Band & Weisz, 1988; Rudolph, Dennig, & Weisz, 1995; Weisz, Rothbaum, & Blackburn, 1984) primary and secondary control coping model, provide useful frameworks for understanding the development of the planful and more complex forms of emotion regulation. Lazarus and Folkman distinguish between problem-focused coping — a person's attempts to change the situation itself, typically by engaging in problem-solving strategies (e.g., defining the problem, generating alternative solutions, and weighing the options) — and emotion-focused coping — a person's engagement in activities (physical or cognitive) that are aimed at lessening emotional distress (e.g., avoidance, selective attention, and “looking at the bright side”). At times, emotion-focused coping leads to cognitive reappraisals of the situation, changing the child's construction of the event without actually altering the situation. Weisz's model distinguishes between primary and secondary control coping. Similar to Lazarus and Folkman's problem-focused/emotion-focused distinction, primary coping involves attempts to influence objective conditions or events, whereas secondary coping is aimed at maximizing one's goodness of fit with the conditions as they exist.<sup>2</sup> A difference between the two models lies in their level of specificity: Lazarus and Folkman's system places emphasis on specific strategies, while the Weisz's model emphasizes the goals underlying behavior and implies developmental patterns of coping and the underlying pattern of competence (cf. Overton, 1991a). As will be discussed below, emotion-focused coping and secondary control coping develop later than problem-focused and primary control coping.

The importance of relational influences on the development of emotion regulation has received a lot of research attention (e.g., Calkins, 1994). For example, the nature of the parent–child (generally mother–child) relationship, both before and after attachment has been solidified, has been linked empirically to emotion regulation development. Maternal rejection, high levels of maternal psychopathology symptoms, poor attachment, parental marital status (i.e., single-parent), and father meeting criteria for a psychiatric diagnosis have all been associated with poorer emotion regulation outcomes (Cassidy, 1994; Cole, Barrett, & Zahn-Waxler, 1992; Field, 1994; Goodman, Brogan, Lynch, & Fielding, 1993; Hofer, 1994). A caregiver appears to provide “scaffolding” (e.g., Denham, Mason, & Couchoud, 1995) or structure that enables and fosters a child's emotional development. Examples of this phenomenon include (a) coregulation of infant emotion that is sensitive to the infant's (e.g., temperamental) needs, (b) coconstruction of emotion narratives by mother–child dyads that may serve as later emotion “scripts” for the child, and (c) maternal encouragement of autonomy as the child learns how to regulate independently of the mother (e.g., Calkins, 1994; Calkins & Johnson, 1998; Casey & Fuller, 1994; Denham, Renwick, & Holt, 1991; Eisenberg et al., 1999; Feldman, Greenbaum, & Yirmiya, 1999; Grolnick, Kurowski, McMenamy, Rivkin, & Bridges, 1998; Kobak, Cole, Ferenz-Gillies, Fleming, & Gamble, 1994; Oppenheim, Nir, Warren, & Emde, 1997; Roberts & Strayer, 1987).

As discussed earlier, Eisenberg et al. have developed a multifactor model of socioemotional competence, emphasizing the central importance of emotion regulation and tempera-

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<sup>2</sup> While Weisz does not make the connection, the system would appear to map onto Piaget's (1929) two processes of assimilation (primary coping) and accommodation (secondary coping).

ment (EI). In general, they have suggested that moderate regulation is optimal — too much results in overcontrolled behavior and too little results in undercontrolled, impulsive behavior (e.g., Eisenberg, Fabes, Karbon, et al., 1996; Eisenberg, Fabes, & Murphy, 1995; Eisenberg, Fabes, et al., 1997). Eisenberg et al.'s work provides evidence in support of the distinction made by Cole, Michel, et al. (1994) — that regulation is not the same as control.

Cultural and ethnic variables may figure prominently into the development of emotion regulation because not all cultures share the same views on emotion expression and regulation (e.g., Fredrickson, 1998; Friedlmeier & Trommsdorff, 1999; Matsumoto, 1990). Weisz et al. (e.g., McCarty et al., 1999; Weisz, Suwanlert, Chaiyasit, & Walter, 1987; Weisz, Suwanlert, Chaiyasit, Weiss, et al., 1987; Weisz et al., 1988) have reported concerning how culture makes a difference in how problem behaviors are expressed and how problems are coped with. In a group of studies on cultural differences in problem behaviors [e.g., as indicated on the Child Behavior Checklist (CBCL), a common parent-report form, or by referral to a mental health clinic], Weisz et al. (summarized in Weisz, McCarty, Eastman, Chaiyasit, & Suwanlert, 1997) found important differences between US and Thai youth. First, on the CBCL, Thai parents report higher levels of internalizing problems for their youth compared to US parents. Conversely, US youth are more frequently referred to clinics for their internalizing behavior problems, whereas Thai youth are more frequently referred for their externalizing behaviors.

More closely related to emotion regulation, McCarty et al. (1999) reported coping method and coping goal differences between US and Thai youth. Thai youth engaged in more covert coping in situations involving adult authority figures. In addition, Thai youth reported more secondary control coping goals when the stressor was separation, whereas the US youth reported more secondary control coping when the stressor was a physical injury. In a study of the emotion regulation of Nepali youth from two different cultural groups, Cole and Tamang (1998) reported finding consistent with Weisz's work, insofar as regulation was consistent with socialization processes within the particular cultures.

#### *2.4. Other emotion regulation processes: psychopathological populations*

Work with psychopathological and other atypical samples has followed similar lines, examining the development of emotion regulation and elucidating the contextual factors important in that development. However, an important distinction must be considered. For at-risk and disordered youth, Thompson and Calkins (1996, p. 163) noted that there are “inherent trade-offs that make nonoptimal strategies of managing emotion expectable, perhaps inevitable, in a context of difficult environmental demands and conflicting emotional goals.” Because different contexts foster different emotion regulation strategies, a model of “optimal” emotion regulation must be considered contextually bound. The studies reviewed in Section 2.3 suggest some characteristics of optimal emotion regulation among largely European American middle-class, nondisordered children whose parents were without a major psychiatric diagnosis. What is optimal for these children may be quite different from what is optimal for children in any of the following possible situations: (a) low-income, violent neighborhood; (b) living with abusive parent(s); (c) living with substance-abusing parent(s); (d) homeless; or (e) living with one or more parents with a psychiatric diagnosis. In

addition, cultural variables also figure into the equation of what is optimal emotion regulation, as discussed above (and see, e.g., Cole & Dennis, 1998). Finally, developmental considerations should be prominent in the discussion of emotion regulation. What is functional and adjustment-oriented at one developmental period may be dysfunctional at another — and these periods may vary depending on culture and other contextual variables. For example, Kobak and Ferenz-Gilles (1995) found that adolescents reporting higher levels of depressive symptoms reported lower use of autonomy-related emotion regulation, suggesting an interaction of development, emotion regulation type, and risk for psychopathology.

Research focused on emotion regulation in diagnosed psychopathological populations is scarce. However, research with nonreferred samples (e.g., at-risk samples) has produced some suggestive evidence that could be explored with psychopathological samples. In a study of infants and toddlers that points to the importance of emotion regulation to later outcomes, Stifter et al. (1999) found that infants exhibiting low levels of emotion regulation were more likely to exhibit noncompliant behaviors as toddlers. In a study with school-aged youth, Eisenberg, Fabes, Guthrie, et al. (1996) investigated the relations of emotion regulation and temperament (EI) to problem behavior (as measured by parent- and teacher-report behavior scales). They found that low emotion regulation and high EI (negative, positive, and general) predicted behavior problems and that emotion regulation buffered the effects of negative EI.

In a study with an explicitly at-risk sample, Cole, Zahn-Waxler, et al. (1994) found that, compared to low-risk children, preschool-aged boys identified as high-risk for disruptive behavior disorders expressed more negative emotion in front of the experimenter, whereas girls at high risk expressed less negative emotion in the absence of the experimenter. These findings suggest differential gender-linked emotion regulation patterns: “overcontrol” for girls and “undercontrol” for boys. These suggestions are consistent with differential gender levels of psychopathology in older children and adults associated with these two broadband psychopathology classifications (i.e., depression and CD).

As reviewed above, there is evidence that maltreated youth express emotion differently than nonmaltreated peers. They also appear to regulate emotion differently and not as well as their nonmaltreated peers. In one study, Shields and Cicchetti (1998) found that 6–12-year-old maltreated youths were more affectively labile and negative (suggesting poor regulation) and were less likely to engage in positive/appropriate emotion regulation strategies at a summer camp.

Some evidence have also suggested that maternal depression may be associated with poor emotion regulation outcomes. In a longitudinal study of examining the antecedents of problem behaviors, Zahn-Waxler, Iannotti, Cummings, and Denham (1990) found that dysregulated (i.e., out-of-control, unruly behaviors such as hostility toward an unknown adult) aggression at age 2 years predicted externalizing behavior problems at ages 5–6, particularly for children whose mothers were depressed. They also reported that certain child-rearing practices appear to contributed to later outcomes, both as risk (e.g., inconsistency and overprotectiveness) and protective (e.g., providing structure during play and rational guidance of child behavior). Marital discord also influences the development of child emotion regulation, particularly if child abuse is occurring concurrently (e.g., Gottman & Katz, 1989; Hennessy, Rabideau, Cicchetti, & Cummings, 1994). For example, Gottman and Katz (1989) examined family, parental, and child–peer interactions along with several physio-

logical indices of emotion processes (e.g., stress and emotion regulation) in families with varying levels of marital distress. They found that children's level of poor peer relations (indexed by child–peer interactions), children's level of chronic stress (indexed by urinary catecholamine levels), and one indicator of children's emotion regulation, vagal tone, were associated with parental variables like negative parenting style and marital discord.

Few investigators have examined emotion regulation in psychopathological samples; however, Casey's (1996) work is an exception. Across several studies, Casey et al. examined the emotional correlates of psychopathology in children diagnosed with disruptive behavior and depressive disorders. For example, she found that when background anger was present, children with ODD exhibited more negative emotion, whereas children with ADHD and MDD exhibited more positive emotion (all compared to nondisordered children), suggesting emotion regulation problems (underregulation) particularly for youth with ODD. It may be that the children with ADHD and those with MDD exhibited poor emotion regulation but in different ways. Consistent with the features of their disorder, the children with ADHD may have been responding noncontingently, suggesting a failure to notice or process important contextual information (i.e., anger in room), whereas the children with MDD may have been exhibiting a "false front" to hide their more negative feelings (cf. Cole, Zahn-Waxler, et al.'s, 1994 results). Casey also reported findings suggesting that children with ODD and MDD have other emotion regulation deficits — children with MDD perhaps overregulate expression and exhibit slow-to-warm behavior and children with ODD express more negative emotion in joint play.

The paucity of research with psychopathological samples limits the conclusions that can be drawn. One preliminary conclusion is that certain patterns of emotion regulation are related to psychological disorders. This association may seem obvious, as emotion regulation patterns (e.g., undercontrol and overcontrol) are hallmark symptoms of some disorders. However, specific pathways remain to be elucidated. For example, do depressed youth regulate emotion differently than conduct-disordered children and if so, how? Furthermore, how do any differences in emotion regulation change across development? Later, we discuss how the reviewed research from labs focused on normative development and Casey's work with diagnosed children offer a framework for future endeavors. Now, we turn to research on emotion understanding.

### 3. Emotion understanding

Emotion understanding refers to *conscious knowledge* about emotion processes (e.g., emotion states and emotion regulation) or beliefs about how emotions work (cf. attributional system of Izard & Harris, 1995). Emotion understanding includes recognition of emotion expression (i.e., facial and bodily) and knowledge about (a) the causes of their (and others') emotions, (b) the cues for their (and others') feelings, (c) multiple emotions, (d) methods of intentionally using emotion expression to communicate to others (or vice versa; e.g., display rules and hiding emotions), and (e) methods of coping with emotions (i.e., knowledge about emotion regulation). Children's development of gradually more sophisticated understandings of emotion fosters many adaptive processes (e.g., social functioning and coping; Brown &

Dunn, 1996; Cassidy, Parke, Butkovsky, & Braungart, 1992; Denham, Renwick-DeBardi, & Hewes, 1994; Garner, 1996; Garner, Jones, & Miner, 1994; Garner & Power, 1996; Hubbard & Coie, 1994). Thus, delayed or limited emotion understanding may place youth at risk for disorder. Development of emotion understanding appears to be related to general cognitive development (e.g., development of a theory of mind; Cutting & Dunn, 1999; Hughes & Dunn, 1998; Lagattuta, Wellman, & Flavell, 1997). In addition, family environment variables like parental style of communication about emotion, quality of the attachment relationship, and parental education (e.g., Cutting & Dunn, 1999; Dunn & Brown, 1994; Laible & Thompson, 1998) are important in the development of emotion understanding. In this section, we review the developmental literature on emotion understanding illustratively, first considering normative samples and then focusing more attention on research conducted with psychopathological samples.

### *3.1. Emotion understanding: normative populations*

Developmental studies of children's emotion understanding have typically been conducted with normative samples and excellent reviews have been published (e.g., Harris, 1993; Schwartz & Trabasso, 1984). The following domains of emotion understanding have been examined empirically: (a) recognition of emotion expressions (e.g., facial); (b) understanding of the causes and effects of emotion; (c) understanding the cues of emotion in self and others; (d) understanding of the phenomenon of simultaneity of emotion; and (e) understanding of emotion regulation and coping (e.g., display rules, hiding emotion, and changing or controlling emotion reactions). We briefly review studies from each domain in turn.

Children recognize facial expressions associated with emotions at an early age — at least by the age of 2 years and some investigators have suggested that infants as young as 9 months (Termine & Izard, 1988) or even 10 weeks (Haviland & Lelwica, 1987) evidence some form of comprehension of emotion from facial expressions (for review, see Gross & Ballif, 1991; Izard & Harris, 1995). However, some questions remain as to whether these early reactions represent recognition of emotion in another, recognition of a signal with ramifications for self, or simple mimesis (see Izard & Harris, 1995 for discussion). Regardless, by age 2 years, most children are using emotion labels for facial expressions and are talking about emotion topics (e.g., Bretherton et al., 1986; Camras, 1980; Camras & Allison, 1985; Gross & Ballif, 1991). Furthermore, their ability to discriminate facial expressions shows a developmental progression, with negative emotions (e.g., sadness and anger) proving the more difficult. Additionally, older children are better able to select appropriate facial expressions for people in situations involving emotional arousal (e.g., conflict; Camras, 1980).

Regarding the causes and effects of emotion and the cues used in inferring emotion, developmental research has detailed a progression from situation-bound, “behavioral” explanations of emotion to broader, more mentalistic understandings (e.g., Harris & Olthof, 1982; Harris, Olthof, & Meerum-Terwogt, 1981; Harris & Saarni, 1989). In other words, early explanations of emotion are based in the external world (e.g., “I am mad because someone broke the toy.”), whereas as children develop, their explanations of emotions move “inward,” focusing on internal causes (e.g., “I am mad because that broken toy was important to me.” or “I am mad because I thought the person who broke my toy was my

friend.”). Although the transition away from “behavioral” theories of emotion is not so simple in that younger children appear to have at least a limited “mentalistic” conception of emotion (e.g., Camras & Allison, 1989; Denham & Zoller, 1991; Gnepp, 1989; Harris & Saarni, 1989; Harter & Whitesell, 1989; Hughes & Dunn, 1998), the general developmental shift from a focus on situational variables to an emphasis on internal variables is well supported in the literature (e.g., DeConti & Dickerson, 1994; Harris, 1993; Thompson, 1987; Weiner & Graham, 1984). As children grow, their emotional inferences contain a more complex and differentiated use of several types of information, such as moral variables (e.g., Barden, Zelko, Duncan, & Masters, 1980; Nunner-Winkler & Sodian, 1988), historical facts/personal information (e.g., Gnepp, 1983, 1989), display rule use (Cole, 1986; Garner, 1996; Saarni, 1979), relevance of different themes across developmental periods (Strayer, 1986), relational and contextual factors (e.g., who is present; e.g., Covell & Abramovitch, 1987), and the target child’s goals or beliefs (e.g., Harris, 1994; Harris, Donnelly, Guz, & Pitt-Watson, 1986; Wiggers & Van Lieshout, 1985). This development appears to be somewhat slower for complex emotions like pride, shame, or embarrassment (e.g., Harter & Whitesell, 1989; Lewis, 1993a, 1993b; Seidner, Stipek, & Feshbach, 1988; Stipek & DeCotis, 1988).<sup>3</sup>

An understanding of the *effects* of emotion is also a developmental achievement for children. One emotion has an impact on or temporally colors subsequent emotions or events. Additionally, emotional effects often persist beyond the immediate or “triggering” event and typically wane over time. With development, understanding of these phenomena becomes more systematic, discriminating, and integrative, with valence and target of the emotion having moderating influences on this development (Bennett & Galpert, 1992; Harris, 1983; Olthof, Meerum-Terwogt, van Panthaleon van Eck, & Koops, 1987).

Children also develop an understanding of multiple emotions, comprehending that feelings rarely occur one at a time but instead come “simultaneously” and directed toward one or more target(s). This sort of understanding is directly related to ambivalent feelings (e.g., being both angry at and still loving toward one’s parent). Development of this understanding proceeds from lack of acknowledgement of multiple emotions in younger children,<sup>4</sup> to acknowledgement and then to a greater understanding, involving an appreciation of variables, such as emotion valence (e.g., multiple positive emotions easier to understand than one negative and one positive), emotion intensity (e.g., one very strong and one very weak emotion easier to understand than two strong ones), and emotion target (e.g., multiple emotions toward acquaintance person easier than multiple emotions toward parent; see, e.g., Carroll & Steward, 1984; Donaldson & Westerman, 1986; Harter & Buddin, 1987; Meerum-Terwogt, Koops, Oosterhoff, & Olthof, 1986; Reissland, 1985; Wintre & Vallance, 1994). This understanding appears to be mediated in part by an understanding that internal factors (e.g., beliefs and goals) have an impact on emotions (Donaldson & Westerman, 1986).

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<sup>3</sup> Although children’s “experience” or at least expression of these complex emotions appears to precede their understanding of it.

<sup>4</sup> In fact, even when children are trained to notice all of the relevant variables, younger children (5-1/2-year-olds) fail to acknowledge multiple emotions (e.g., Peng, Johnson, Pollock, Glasspool, & Harris, 1992; Wintre, Polivy, & Murray, 1990).

Children also learn that they can hide or change their emotional reactions and expressions to serve intrapersonal (e.g., reduce the interference of a negative emotion on performance) and interpersonal (e.g., display rules to save face) goals. In other words, children learn about the advantages of using certain emotion regulation strategies (e.g., Campos et al., 1989; Fox, 1994a; Kopp, 1989). With age comes increases in (a) beliefs in the possibility and controllability of changing one's emotional reactions (Meerum-Terwogt & Olthof, 1989), (b) understanding the need for, and the advantages of, adherence to display rules (e.g., Banerjee, 1997; Cole, 1986; Gnepp & Hess, 1986; Rotenberg & Eisenberg, 1997; Saarni, 1979, 1987, 1988; Underwood, Coie, & Herbsman, 1992; Zeman & Garber, 1996; Zeman, Penza, Shipman, & Young, 1997), and (c) the report of the use of both primary (problem-focused) and secondary (emotion-focused) coping strategies (Altshuler & Ruble, 1989; Band & Weisz, 1988; Glasberg & Aboud, 1982; Lazarus & Folkman, 1984; McCoy & Masters, 1985; Meerum-Terwogt & Olthof, 1989; Rossman, 1992; Weisz et al., 1984).

There are only a few studies that have addressed cultural/ethnic or gender differences in emotion understanding. Some evidence suggest gender differences in beliefs about the need to regulate emotion (boys more often report the importance less expression; Underwood, 1997; Zeman & Shipman, 1997). However, concerning beliefs about the consequences of emotional expression, gender differences are less clear, with one study indicating that girls expect more negative reactions from peers than boys (Underwood, 1997) while another project found that boys expected more negative consequences for emotional displays (Zeman & Shipman, 1997).

Though suggested by research on ethnic differences in emotion regulation, work examining ethnic differences in emotion understanding is sparse. In fact, we could locate only one study that examined cultural or ethnic differences in emotion understanding. In that study, Smith and Walden (1998) reported that African American youth appear similar to Caucasian American children in the development of their emotion understanding. Future work should focus on possible ethnic and cultural differences in emotion understanding, particularly in light of such differences that emerge when studying emotion regulation.

### *3.2. Emotion understanding: psychopathological populations*

Emotion understanding research with psychopathological samples has been relatively meager. First, we examine work with at-risk samples and then examine research with psychopathological samples. Extant work indicates that some deficits exist in the emotion understanding of children at-risk for psychological disorder. For example, abused and maltreated children exhibit deficits in the recognition of face expressions of emotion (e.g., Camras, Grow, & Ribordy, 1983; Camras & Rappaport, 1993; Camras et al., 1990; Camras et al., 1988). Maltreated children, children at risk for disruptive behavior disorders, and "hard-to-manage" preschoolers demonstrated poorly developed understandings of the causes of emotion, for example, by providing fewer appropriate examples of triggers or cues for emotion (e.g., Camras, Sachs-Alter, & Ribordy, 1996; Cook, Greenberg, & Kusche, 1994; Greenberg et al., 1995; Rogosch, Cicchetti, & Aber, 1995; Shipman & Zeman, 1999). In one study of maltreated children, not only was the emotion understanding of the maltreated children lower than nonmaltreated youth but also the mothers of maltreated children were less

likely to discuss emotional topics in a mother–child interactions task (Shipman & Zeman, 1999), recalling the important scaffolding role of parents in emotional development.

Garber, Braafladt, and Weiss (1995) found deficits in dysphoric school-age children's understanding of emotion regulation and coping. Both boys and girls in the dysphoric group reported significantly fewer emotion regulation strategies compared to nondysphoric youth. Additionally, girls reported significantly fewer problem-solving strategies in affiliative situations, whereas boys reported more negative strategies (e.g., yelling and thinking oneself is dumb) across all situations. Relatedly, Zahn-Waxler, Kochanska, Krupnick, and McKnew (1990) have documented emotion understanding differences in children with depressed mothers, with these children reporting aberrant, distorted, and unresolved understandings of guilt. For example, they found that the young children of depressed mothers showed patterns of overarousal in hypothetical situations of interpersonal conflict and distress, exhibiting high levels of responsibility and involvement (and thus, more guilt), whereas for older children, explicit guilt was not in evidence. This absence of guilt does not imply that the older children were guiltless but rather, as Zahn-Waxler et al. argued, children with depressed mothers may experience both intense guilt and a struggle against experiencing it.

Some research has been conducted with diagnosed psychopathological groups (e.g., maladjusted and disordered children).<sup>5</sup> For example, several investigators have found deficits in autistic children's emotion understanding, such as (a) their ability to match drawings of emotional gestures and facial expressions to appropriate contexts/situations, (b) their ability to match face expressions to vocal information, and (c) their comprehension of certain internal causes of emotion (e.g., Baron-Cohen, 1991; Celani, Battacchi, & Arcidiacono, 1999; Hadwin, Baron-Cohen, Howlin, & Hill, 1996; Hobson 1986a, 1986b; Loveland et al., 1995). Some researchers contend that autistic children's difficulty in understanding the role of belief and desire as a prime reason for their difficulty attributing emotion. In fact, children with autism do not appear able to learn to apply the requisite understanding even with multiple teaching trials (e.g., Hadwin et al., 1996).

Deficits in the recognition of face expressions of emotion are also apparent in some psychiatric (i.e., schizophrenic, broadly defined "anxious-depressed") samples (e.g., Walker, 1981; Walker, Marwit, & Emory, 1980). In addition, children described as "disordered" and "maladjusted" (a) provide fewer appropriate examples of situations that would trigger emotions, (b) describe fewer cues for recognizing their own and others' emotions, and (c) exhibited a limited ability to use multiple cues (e.g., personal information) to infer another person's emotion (e.g., Meerum-Terwogt, 1990; Meerum-Terwogt, Schene, & Koops, 1990). Some work with psychopathological samples have also suggested limited or deviant understandings of multiple emotions (Meerum-Terwogt, 1990; Meerum-Terwogt et al., 1990). Although Meerum-Terwogt (1990) and Meerum-Terwogt et al. (1990) found that "disordered" children were as likely to acknowledge multiple emotions as their control peers, they were more likely to (a) attribute three negative emotions to a situation, (b) judge a story as

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<sup>5</sup> Criteria for inclusion in a psychopathological group for some studies has been less than optimally defined at times. Terms like disordered and maladjusted have been used in some research with limited description of their meaning. We include the results in this discussion but are careful not to draw specific conclusions about their meaning, given the lack of specificity in defining inclusion criteria.



having no emotional content, and (c) rate the intensities of the attributed emotion(s) as higher. Thus, information-processing errors (e.g., distortion and deficiency; Kendall, 1993) may be present for some children with diagnosable psychopathological disorders (e.g., Dobson & Kendall, 1993; Dodge, 1980). Despite the apparent deficits, disordered children, unlike autistic children for example, exhibit a developmental progression in their understanding of multiple emotions, albeit lagging (cf. Cicchetti & Sroufe, 1976).

Finally, children in psychopathological groups have demonstrated a limited understanding of emotion regulation and coping (e.g., Meerum-Terwogt, 1990; Meerum-Terwogt et al., 1990; Taylor & Harris, 1984). For example, “maladjusted” or “disordered” children were less likely to explain display rules or note an emotion control strategy compared to their nondisordered peers (Taylor & Harris, 1984). Additionally, “maladjusted” or “disordered” youths expressed several deviant beliefs about emotion regulation, such as “It is not possible to change one’s emotions,” “Positive emotions do not exert a favorable influence,” and “Negative emotions have a negative influence” (Meerum-Terwogt, 1990; Meerum-Terwogt et al., 1990).

To this point, the reviewed research on emotion understanding with psychopathological samples has not used the optimal procedures for classifying the samples, leaving the specificity of the findings in doubt. Fortunately, recent research has begun to make use of more rigorous diagnostic procedures. For example, Casey (1996) found that children diagnosed with a disruptive behavior disorder demonstrated less retrospective self-understanding concerning their expressions when receiving praise during a play session. In other words, when asked how they reacted when praised, youth with ODD, ADHD, or CD were not as accurate in their recollections compared to nondisordered youth, suggesting that these social information processing deficits may be closely linked to emotion processes. In the same study, children with MDD were about equivalent with nondisordered children on self-appraisal of emotion. However, when not reporting on their own emotion (e.g., in vignettes about another child), Casey found that the emotion understanding of children with ODD and children with ADHD were not significantly different from their nondisordered children.

Finally, in a study with 7–15-year-old children diagnosed with DSM-IV anxiety disorders (generalized anxiety disorder, separation anxiety disorder, or social phobia), Southam-Gerow and Kendall (2000) found that compared to a nonreferred sample of children without anxiety disorders, anxiety-disordered youth exhibited less understanding of emotion regulation (e.g., hiding feelings and changing feelings) but equivalent understanding of the cues of emotion and multiple emotions. In the Southam-Gerow and Kendall study, the emotion understanding measurement emphasized children’s understanding of their own emotion and not understanding of emotion more abstractly (e.g., other’s emotions in a vignette).

Some general trends emerge as hypotheses for future work. Children experiencing psychological distress (e.g., self-reported symptoms, clinician-judged difficulties, or hospitalized status) exhibit limited, underdeveloped understandings of emotion (e.g., poor comprehension of the “causes” of emotion and limited recognition of emotion regulation strategies). There is also evidence that deficits in emotion understanding are in the realm of self-understanding: when questioned about the emotion of others in vignette form, the responses of diagnosed youth are not different from those of nondiagnosed youth (e.g., Casey, 1996). However, the sparseness of the literature precludes any definitive statements about

issues such as direction of effect and specificity. It is also uncertain whether the evidence suggests limited emotion understanding or a reluctance to discuss emotions (or some combination) among children experiencing significant psychological problems (cf. Cook et al., 1994). Considering also the paucity of work in general, conclusions discussed are tentative and await additional work.

#### 4. Synthesis and future directions

The possible roles that emotion understanding and emotion regulation play in the development of psychopathology are suggested by a variety of research findings (e.g., Casey, 1996; Cole, Zahn-Waxler, et al., 1994; Eisenberg, Fabes, Guthrie, et al., 1996; Gottman & Katz, 1989; Hennessy et al., 1994; Seja & Russ, 1999; Southam-Gerow & Kendall, 2000; Zahn-Waxler, Iannotti, et al., 1990). In this final section, we consider how the emotion research we have reviewed impacts clinical research. First, we discuss how a consideration of emotion regulation and emotion understanding can strengthen models of psychopathology. Second, we examine the ramifications of the emotion literature for child therapy.

##### 4.1. *The relations among emotion and psychopathology*

Many researchers have already begun to specify and test models that suggest relations among emotion process and the psychological adjustment of youth. One prime example we discussed above is the work of Eisenberg et al. They have amassed data that shed light on the relations among temperament (or EI), emotion regulation, and socioemotional competence.<sup>6</sup> Their work provides an important model for future work through its emphasis on the interrelations of emotion, behavior, and environmental (e.g., family) variables and we advocate a similar focus for future research, one with an emphasis on clinic-referred samples. Obviously, the possibilities for how emotion processes and psychopathology may relate to each other are diverse; hence, we concentrate here on a few of the broad issues for future work to consider.

A first focus would involve specifying patterns of emotion regulation and emotion understanding serve as protective factors and which serve as risk factors for later psychosocial outcomes (e.g., prosocial behavior, socioemotional competence, and high level of behavior problems). At least two different sorts of emotion regulation patterns have been thus far identified in youth at-risk for psychological problems: (a) inhibition of emotion expression and (b) undercontrol of emotion expression.<sup>7</sup> These patterns map onto the traditional internalizing–externalizing dichotomy. Casey's (1996) work supports this connection, finding that children with an externalizing disorder such as ODD exhibit increased levels of

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<sup>6</sup> To a lesser extent, they have examined the psychophysiological correlates of emotion (e.g., Eisenberg et al., 1988; Fabes, Eisenberg, Karbon, Troyer, & Switzer, 1994).

<sup>7</sup> Note that a third pattern, unusual expression, was also found.

negative emotion, suggesting an underregulation of emotion, whereas youth with an internalizing disorder like MDD exhibit positive emotion despite the presence of background anger, suggesting an overcontrol or inhibition of emotion. There is also some evidence that boys are more likely to apply fewer emotion regulation strategies. Furthermore, the emotion understanding research suggests significant gaps in the emotion understanding of diagnosed and at-risk youth with preliminary evidence, suggesting that the disparities are in the area of emotion regulation (e.g., Southam-Gerow & Kendall, 2000). Thus, research seeking to examine how different patterns of emotion regulation and emotion understanding are related to psychopathology, both for general risk and also specific risk, would be useful.

Of course, it is not quite that simple — there is undoubtedly more to the etiological chain, even when only emotion processes are considered. For example, there can be little doubt that EI (cf. Eisenberg, Fabes, et al., 1997; Eisenberg, Guthrie, et al., 1997) and temperamental factors contribute. The greater one's children's baseline of EI, the more regulation will be needed. Because emotion regulation buffers the effects of negative EI, knowing the "starting point" will be important in gauging how a child is doing in terms of his/her emotion regulation and understanding. A further distinction could be made: the "basis" of the EI may differ; in other words, it may be largely genetic or it may largely be environmental, as in the case of traumatic experiences. Thus, future work should focus not only on how the interrelations of patterns of emotion understanding and emotion regulation moderate adaptation but on how other important factors such as cognitive, family, and temperament can be added to create (and test) more complex models. We discuss this briefly in Section 4.2.

The importance of the relational (especially parental) and contextual influences on the development of emotion understanding and emotion regulation has been well demonstrated in the literature. Indeed, emotional development appears to be in part mediated by family relational variables (i.e., attachment relationship, parenting behaviors, and modeling of regulation). Thus, research that links family variables to psychopathology will benefit from a focus on one of the possible mechanisms of this relationship, namely the impact of parental behaviors/symptomatology on children's emotional development. Extant research provides a few possibilities. First, parental scaffolding aids in emotional development, fostering development of emotion understanding and emotion regulation, which in turn leads to positive outcomes. The scaffolding provided by parents includes positive emotion maintenance (e.g., limited hostility display) and appropriate autonomy granting in emotional situations (e.g., Denham et al., 1991). In addition, there appears to be an important function served by labeling and talking about emotions and helping a child label and talk about feelings, particularly perhaps the negative ones (e.g., Denham et al., 1995; Dunn & Brown, 1994); these are roles also assumed in some ways by child therapists, particularly those using cognitive-behavioral approaches.

Second, certain parenting practices increase emotion understanding and emotion regulation, whereas others have a negative impact. For example, when parents provide structure and rational guidance in emotional situations, children's emotion understanding and regulation are enhanced. However, in the context of high levels of negative emotion by parents, children appear less able to regulate their emotion. Third and finally, maternal (and possibly paternal) psychopathology places a child at risk for emotional disturbance. Zahn-Waxler et al. (1990) reported that children with depressed mothers were more likely to exhibit more

frequent and more continuous problem behaviors like out-of-control behaviors and dysregulated aggression when compared to peers with nondepressed mothers.

Other contextual (e.g., cultural and extrafamilial) factors also have an impact on emotion regulation and understanding. For example, there is a paucity of studies considering the impact of extrafamilial relationships on emotion processes, especially in later childhood and adolescence. Some research has highlighted the importance of peer relations in other domains like social competence (e.g., Berndt, 1988; Parker & Asher, 1993) and psychopathology (e.g., CD; Dishion, McCord, & Poulin, 1999; Hinshaw, Lahey, & Hart, 1993; Moffitt, 1993). In what ways do these extrafamilial relationship scaffold a child's emotional development? Finally, on a macrosystem level, the influence of culture has gone underappreciated in this literature. Cultural and ethnic variables may figure prominently in emotional development. For example, not all cultures share the same views on emotion expression and regulation (e.g., Matsumoto, 1990). Future research could examine how culture may relate and moderate linkages among emotion processes and psychopathology.

#### 4.2. *What emotion research means for interventions*

The emotion regulation and understanding research suggests that an increased focus on *emotion* in child therapy may be beneficial. Currently, many treatment programs for youth emphasize solving problems by changing or adapting to external *situations* or by changing dysfunctional thinking habits. However, some youth are not only troubled by difficult circumstances and problematic thoughts but by their own emotions: intense anxiety, powerful anger, and deep sadness. Consistent with this supposition, Hayes, Wilson, Gifford, Follette, and Strohsahl (1996, p. 1152) have argued that some forms of psychopathology may be conceptualized as “unhealthy efforts to escape or avoid emotions, thoughts, memories and other private experiences.” This so-called experiential avoidance represents a different way of viewing psychopathology and implies different approaches to treatment. The integration of emotion-related interventions into current treatments could involve an increased and explicit focus on understanding and better regulating emotions, in part through encouragement to face — and not to avoid or immediately escape — emotional experience (cf. Safran & Greenberg, 1989).

Such reasoning places a spotlight on the relationship between emotion understanding and emotion regulation. The current review suggests that emotion understanding may serve as a mediator for some forms of emotion regulation. However, as also noted, emotion regulation often precedes emotion understanding, so the relationships are by no means simple or linear. It would be useful to understand by what mechanism(s) the two become aligned and more important to our current purpose, how we might maximize the relationship. We have summarized these relations pithily as “How does ‘talking the talk’ relate to ‘walking the walk’ (and vice versa).” The interface of emotion regulation and understanding also implies the following question: “*To what extent and by what process(es) does knowledge impact behavior?*”

Some current treatment approaches, if rigidly applied, could amount to teaching youth ways to avoid feeling bad. An emotion-based approach would invite some emotional experience, with an emphasis on understanding that emotions, even extreme ones, are not

permanent, are enduring, and are not harmful in and of themselves. This sort of approach has already been initiated in the adult literature (e.g., Greenberg & Safran, 1987; Safran & Greenberg, 1989). For example, a common treatment strategy for childhood anxiety involves exposing the child to feared situations with concomitant use of newly acquired coping strategies. From this description alone, it is impossible to determine if the treatment focuses on helping the child cope with the situation or the emotion(s) stirred up by it. It may prove necessary to do both, but the latter (i.e., emotion-focus) is far less often the explicit goal of treatments.

A clinical example may illustrate this issue. One of the authors worked with a 10-year-old separation-anxious boy whose fears included being out in unfamiliar public places. Using an empirically supported treatment program, after a training in coping skills, systematic exposures to public places were used, with the therapist coaching the child in his coping efforts. However, one of the boy's chosen (yet unspoken) coping strategies during a walk around an urban university campus in north Philadelphia was to walk as quickly as possible (almost running), head down and body stiff, to hasten the end of the exposure. The therapist realized that if the child completed the exposure in this way, one could argue that he was "able" to do something he once feared and that he had "mastered" or "coped" with the situation. However, a walk across campus using that strategy seemed akin to a virtual walk because very little can be noticed or enjoyed. In addition, his body posture indicated that he continued to experience high levels of anxiety and discomfort. With the idea that the goal of treatment was to increase his comfort with his emotions as well as situations that provoked them, the young man was redirected to move more slowly, to open his eyes more and notice his environment, and to report on the surroundings, particularly the interesting or pleasant ones. In addition, the youth was asked to report on his body feelings. As the youth focused on the outside world (and its bounty of pleasant and interesting things), his inner world calmed and he felt less anxious. The focus became on actually experiencing the anxiety *in vivo* and from there regulating the thoughts and body reactions that increased that anxiety.

In practice, many treatment programs probably accomplish this sort of goal implicitly. And at least two programs that we know of explicitly apply research on emotional development in developing interventions to address childhood maladaptation (see Greenberg et al., 1995; Robinson, Emde, & Korfmacher, 1997). However, most programs do not include such an explicit emotion focus, though as the above example indicates, the programs do not preclude such an emphasis. Thus, our aim is not so much to criticize current treatment approaches, as it is an attempt to bring emotion and emotional experience (in addition to — not instead of — cognitive restructuring and problem-solving skills) more in focus in child therapy. In other words, one goal of treatment programs should be assisting youth in understanding and regulating their emotions, including not avoiding emotional experience.

A second implication of emotion research for child therapy is suggested by the "scaffolding" effect provided by caregivers (and experimenters in some studies — Denham et al., 1995) that fosters emotional development. It is likely that this scaffolding as it occurs in treatment and the study of this possibility represents an intriguing step. For example, how does the treatment provide structure for the child to develop the appropriate emotional processes? In a treatment for anxiety disorders in childhood, Kendall et al. (e.g., Kendall, 1994; Kendall et al., 1997) have elaborated a treatment model, which involves exposing a

child with an anxiety disorder to feared situations. Some form of “scaffolding” may be involved in a therapist’s fostering the child’s experimentation with new emotion regulation strategies (e.g., positive thinking and problem solving). Indeed, the treatment employs coping modeling, which often takes the form of a therapists explicitly modeling how they cope with and regulate their own anxious distress. Similar to the work by Oppenheim et al. (1997), this sort of modeling could serve as the basis of later emotion scripts used by clients. There are likely to be other ways that scaffolding occurs in the treatment setting. For example, there has been a recent surge of research on family-based treatment of anxiety disorders in children. It is conceivable that a “transitive” sort of scaffolding occurs in these treatments, from therapist to parent and then from parent to child. Silverman and Kurtines (1996) have elaborated a similar model (transfer of control), though without the explicit emphasis on emotion.

A third implication of emotion research for child therapy concerns assessment and treatment-goal setting. Evaluation of a child’s emotional development (e.g., how well the child regulates his/her emotion) and temperament may assist in setting treatment goals. Though measurement in the area is just emerging, interviews like the Kusche Affective Interview Revised (KAI-R) may prove useful. The interventions and planned parent involvement could be designed with this assessment data in mind. Identification of emotion-psycho pathology patterns may serve as a heuristic in the assessment process at pretreatment (e.g., “child possesses limited emotion understanding, poor regulation skills, and high EI”). As knowledge about these patterns increases, identification of the evaluative tools that are useful as well as the likely trajectories of a child, with or without treatment, will emerge. Additionally, assessment of the intervention’s impact on emotion processes would yield important information about normative development as well as shedding light on how abnormal development can be redirected. Research along these lines has been conducted by Greenberg et al. (e.g., Cook et al., 1994; Greenberg et al., 1995). They developed a prevention model for disruptive behavior problems in preschool youth. Their results suggest the intervention is effective, not only does it reduce symptoms associated with risk for disorder but the intervention also made a positive impact on emotion understanding. Emotion-related assessment instruments could be integrated into standard evaluations. However, before this goal can be achieved, steps must be taken to refine the assessment of emotion processes. At a minimum, an examination of the child’s temperament and some assessment of his/her emotion regulation strengths and weaknesses would be useful.

Finally, consideration of emotional processes may lead to refinement of current (and to the development of new) treatment models. Treatments could be tailored for particular emotional development “configurations” (e.g., high negative emotion intensity, low emotion regulation, and moderate emotion understanding) or could be designed for subsets within current nosological entities (e.g., antisocial youth with elevated general emotion intensity). These patterns may also help teasing apart the differences associated with comorbidity in psychopathological populations. It is plausible that these formulations will aid in treatment planning and their advantages (or lack of) can be examined empirically.

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<sup>8</sup> This caution also applies to most research that is applied to treatment approaches. For example, family variables that contribute to psychopathology in one sociocultural context may not do so in another.

A few cautionary comments are necessary regarding the application of emotion research to treatment programs.<sup>8</sup> When integrating information on emotion processes into therapies, the child's relational and contextual circumstances need to be carefully considered. For example, regarding emotion regulation, children with disorders are probably in the unenviable position of having limited optimal regulation options (Thompson & Calkins, 1996). Thus, it is unclear (but testable) if teaching the optimal emotion regulation template of the "typical" child to children at risk for disorder or children with disorders will provide any assistance. Additionally, children with disorder may demonstrate emotion understanding differences; however, their understandings may be sensible (and somewhat adjustment-oriented) given their environment, despite being destined for long-term poor adjustment. Again, it is unclear how helpful providing the "mature" emotion knowledge will be, at least in the short-term. Third, cultural variables related to emotion need to be understood. Many emotion processes are in part determined by cultural traditions (e.g., display rules) and thus, culturally sensitive approaches to this body of research are critical. Finally, an emotion-informed approach need not preclude other treatment techniques (e.g., cognitive, behavioral, and family systems) but it does require that emotion variables take a more prominent position in current formulations.

## 5. Conclusion

An important result of the directions we have outlined is the beginning of an integration of emotion into current conceptual models for child psychopathology and psychotherapy. The intention is not only the "practical" (i.e., improving psychopathology and treatment models) integration across and within disciplines but also integration on the conceptual level. The integration of emotion research could lead to a broadening of the cognitive-behavioral model such that emotion concepts are more explicitly included in models of psychopathology and therapy. Narrow conceptual models miss the heterogeneous nature of children's adjustment (see also Kazdin & Kagan, 1994; Tolan, Guerra, & Kendall, 1995). Integration of biological, social, cognitive, developmental, and emotional approaches will lead to a more complete analysis. Our emphasis has been on how emotion's role in psychopathology may be more thoroughly considered. A diversity of research may actually foster a theoretical shift-enhancing an emotion revolution. However, it will not be a revolution against the cognitive or behavioral or psychodynamic or biological perspectives but an *evolution* wherein emotion is included as an important and legitimate focus of study.

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## References

- Adolphs, R., Damasio, H., Tranel, D., & Damasio, A. R. (1996). Cortical systems for the recognition of emotion in facial expressions. *Journal of Neuroscience*, *16*, 7678–7687.
- Alessandri, S. M., & Lewis, M. (1996a). Development of the self-conscious emotions in maltreated children. In: M. Lewis, & M. W. Sullivan (Eds.), *Emotional development in atypical children* (pp. 185–201). Mahwah, NJ: Lawrence Erlbaum Associates.
- Alessandri, S. M., & Lewis, M. (1996b). Differences in pride and shame in maltreated and nonmaltreated preschoolers. *Child Development*, *67*, 1857–1864.
- Alessandri, S. M., Sullivan, M. W., Imaizumi, S., & Lewis, M. (1993). Learning and emotional responsivity in cocaine-exposed infants. *Developmental Psychology*, *29*, 989–997.
- Altshuler, J. L., & Ruble, D. N. (1989). Developmental changes in children's awareness of strategies for coping with uncontrollable stress. *Child Development*, *60*, 1337–1349.
- Andreasen, N. C., Rezaei, K., Alliger, R., Swayze, V. W. II, Flaum, M., Kirchner, P., Cohen, G., & O'Leary, D. S. (1992). Hypofrontality in neuroleptic-naïve patients and in patients with chronic schizophrenia: assessment with Xenon 133 single-photon emission computed topography and the Tower of London. *Archives of General Psychiatry*, *49*, 943–958.
- Band, E. B., & Weisz, J. R. (1988). How to feel better when it feels bad: children's perspectives on coping with everyday stress. *Developmental Psychology*, *24*, 247–253.
- Banerjee, M. (1997). Hidden emotions: preschoolers' knowledge of appearance-reality and emotion display rules. *Social Cognition*, *15*, 107–132.
- Barden, R. C., Zelko, F. A., Duncan, S. W., & Masters, J. C. (1980). Children's consensual knowledge about the experiential determinants of emotion. *Journal of Personality and Social Psychology*, *39*, 968–976.
- Barkley, R. A. (1997). Behavioral inhibition, sustained attention, an executive functions: constructing a unified theory of ADHD. *Psychological Bulletin*, *121*, 65–94.
- Baron-Cohen, S. (1991). Do people with autism understand what causes emotion? *Child Development*, *62*, 385–395.
- Barrett, K. C., Zahn-Waxler, C., & Cole, P. M. (1993). Avoiders versus amenders: implications for the investigations of guilt and shame during toddlerhood? *Cognition and Emotion*, *7*, 481–505.
- Bates, J. E., & Wachs, T. D. (1994). *Temperament: individual differences at the interface of biology and behavior*. Washington, DC: American Psychological Association.
- Belsky, J., Domitrovich, C., & Crnic, K. (1997). Temperament and parenting antecedents of individual differences in three-year-old boys' pride and shame reactions. *Child Development*, *68*, 456–466.
- Bendersky, M., Alessandri, S. M., & Lewis, M. (1996). Emotions in cocaine-exposed infants. In: M. Lewis, & M. W. Sullivan (Eds.), *Emotional development in atypical children* (pp. 89–108). Mahwah, NJ: Lawrence Erlbaum Associates.
- Bennett, M., & Galpert, L. (1992). Developmental changes in understanding the influence of emotion upon cognitive performance and motivation. *Motivation and Emotion*, *16*, 103–115.
- Berndt, T. J. (1988). The nature and significance of children's friendships. *Annals of Child Development*, *5*, 155–186.
- Biederman, J., Rosenbaum, J. F., Bolduc-Murphy, E. A., Faraone, S. V., Chaloff, J., Hirshfeld, D. R., & Kagan, J. (1993a). A 3-year follow-up of children with and without behavioral inhibition. *Journal of the American Academy of Child and Adolescent Psychiatry*, *32*, 814–821.
- Biederman, J., Rosenbaum, J. F., Bolduc-Murphy, E. A., Faraone, S. V., Chaloff, J., Hirshfeld, D. R., & Kagan, J. (1993b). Behavioral inhibition as a temperamental risk factor for anxiety disorders. *Child and Adolescent Psychiatric Clinics of North America*, *2*, 667–684.
- Bretherton, I., Fritz, J., Zahn-Waxler, C., & Ridgeway, D. (1986). Learning to talk about emotions: a functionalist perspective. *Child Development*, *57*, 529–548.



- Brown, J. R., & Dunn, J. (1996). Continuities in emotion understanding from three to six years. *Child Development*, *67*, 789–802.
- Buck, R. (1993). Emotional communication, emotional competence, and physical illness: a developmental-interactionist view. In: H. C. Traue, & J. W. Pennebaker (Eds.), *Emotion inhibition and health* (pp. 32–56). Seattle, WA: Hogrefe & Huber.
- Caciopo, J. T., Klein, D. J., Bertson, G. G., & Hatfield, E. (1993). The psychophysiology of emotion. In: M. Lewis, & J. M. Haviland (Eds.), *Handbook of emotions* (pp. 119–142). New York: Guilford Press.
- Calkins, S. D. (1994). Origins and outcomes of individual differences in emotion regulation. *Monographs of the Society for Research in Child Development*, *59*, 53–72.
- Calkins, S. D., & Johnson, M. C. (1998). Toddler regulation of distress to frustrating events: temperamental and maternal correlates. *Infant Behavior and Development*, *21*, 379–395.
- Campos, J. J., Campos, R. G., & Barrett, K. C. (1989). Emergent themes in the study of emotional development and emotion regulation. *Developmental Psychology*, *25*, 394–402.
- Campos, J. J., Kermoian, R., & Zumbahlen, M. R. (1992). Socioemotional transformations in the family system following infant crawling onset. In: N. Eisenberg, & R. A. Fabes (Eds.), *Emotion and its regulation in early development* (pp. 25–40). San Francisco: Jossey-Bass.
- Camras, L., Malatesta, C., & Izard, C. E. (1991). The development of facial expressions in infancy. In: R. S. Feldman, & B. Rime (Eds.), *Fundamentals of nonverbal behavior* (pp. 73–105). Cambridge, UK: Cambridge Univ. Press.
- Camras, L. A. (1980). Children's understanding of facial expressions used during conflict encounters. *Child Development*, *51*, 879–885.
- Camras, L. A., & Allison, K. (1985). Children's understanding of emotional facial expression and verbal labels. *Journal of Nonverbal Behavior*, *9*, 84–94.
- Camras, L. A., & Allison, K. (1989). Children's and adults' beliefs about emotion elicitation. *Motivation and Emotion*, *13*, 53–70.
- Camras, L. A., Grow, J. G., & Ribordy, S. C. (1983). Recognition of emotional expression by abused children. *Journal of Clinical Child Psychology*, *12*, 325–328.
- Camras, L. A., & Rappaport, S. (1993). Conflict behaviors of maltreated and nonmaltreated children. *Child Abuse and Neglect*, *17*, 455–464.
- Camras, L. A., Ribordy, S., Hill, J., Martino, S., Sachs, V., Spaccarelli, S., & Stefani, R. (1990). Maternal facial behavior and the recognition and production of emotional expression by maltreated and nonmaltreated children. *Developmental Psychology*, *26*, 304–312.
- Camras, L. A., Ribordy, S., Hill, J., Martino, S., Spaccarelli, S., & Stefani, R. (1988). Recognition and posing of emotional expressions by abused children and their mothers. *Developmental Psychology*, *24*, 776–781.
- Camras, L. A., Sachs-Alter, E., & Ribordy, S. C. (1996). Emotion understanding in maltreated children: recognition of facial expression and integration with other emotion cues. In: M. Lewis, & M. W. Sullivan (Eds.), *Emotional development in atypical children* (pp. 203–225). Mahwah, NJ: Lawrence Erlbaum Associates.
- Carroll, J. J., & Steward, M. S. (1984). The role of cognitive development in children's understandings of their own feelings. *Developmental Psychology*, *55*, 1486–1492.
- Casey, R. J. (1996). Emotional competence in children with externalizing and internalizing disorders. In: M. Lewis, & M. W. Sullivan (Eds.), *Emotional development in atypical children* (pp. 161–183). Mahwah, NJ: Lawrence Erlbaum Associates.
- Casey, R. J., & Fuller, L. L. (1994). Maternal regulation of children's emotions. *Journal of Nonverbal Behavior*, *18*, 57–89.
- Casey, R. J., & Schlosser, S. (1994). Emotional responses to peer praise in children with and without a diagnosed externalizing disorder. *Merrill-Palmer Quarterly*, *40*, 60–81.
- Cassidy, J. (1994). Emotion regulation: influences on attachment relationships. *Monographs of the Society for Research in Child Development*, *59*, 228–249.
- Cassidy, J., Parke, R. D., Butkovsky, L., & Braungart, J. M. (1992). Family–peer connections: the roles of emotional expressiveness within the family and children's understanding of emotion. *Child Development*, *63*, 603–618.

- Celani, G., Battacchi, M. W., & Arcidiacono, L. (1999). The understanding of the emotional meaning of facial expressions in people with autism. *Journal of Autism and Developmental Disorders*, *29*, 57–66.
- Chess, S., & Thomas, A. (1990). Continuities and discontinuities in temperament. In: L. Robins, & M. Rutter (Eds.), *Straight and devious pathways from childhood to adulthood* (pp. 205–220). Cambridge, UK: Cambridge Univ. Press.
- Cicchetti, D. (1984). The emergence of developmental psychopathology. *Child Development*, *55*, 1–7.
- Cicchetti, D., & Cohen, D. J. (Eds.). (1995). *Developmental psychopathology: volume I. Theory and methods*. New York: Wiley.
- Cicchetti, D., & Sroufe, L. A. (1976). The relationship between affective and cognitive development in Down's syndrome infants. *Child Development*, *47*, 920–929.
- Cole, P. M. (1986). Children's spontaneous control of facial expression. *Child Development*, *57*, 1309–1321.
- Cole, P. M., Barrett, K. C., & Zahn-Waxler, C. (1992). Emotion displays in two-year-olds during mishaps. *Child Development*, *63*, 314–324.
- Cole, P. M., & Dennis, T. A. (1998). Variations on a theme: culture and the meaning of socialization practices and child competence. *Psychological Inquiry*, *9*, 276–278.
- Cole, P. M., Michel, M. K., & Teti, L. O. (1994). The development of emotion regulation and dysregulation: a clinical perspective. *Monographs of the Society for Research in Child Development*, *59*, 73–100.
- Cole, P. M., & Tamang, B. L. (1998). Nepali children's ideas about emotional displays in hypothetical challenges. *Developmental Psychology*, *34*, 640–646.
- Cole, P. M., Zahn-Waxler, C., & Smith, K. D. (1994). Expressive control during a disappointment: variations related to preschoolers' behavior problems. *Developmental Psychology*, *30*, 835–846.
- Cook, E. T., Greenberg, M. T., & Kusche, C. A. (1994). The relations between emotional understanding, intellectual functioning, and disruptive behavior problems in elementary-school-aged children. *Journal of Abnormal Child Psychology*, *22*, 205–219.
- Covell, K., & Abramovitch, R. (1987). Understanding emotion in the family: children's and parents' attributions of happiness, sadness, and anger. *Child Development*, *58*, 985–991.
- Cutting, A. L., & Dunn, J. (1999). Theory of mind, emotion understanding, language, and family background: individual differences and interrelations. *Child Development*, *70*, 853–865.
- Davidson, R. J. (1994). Asymmetric brain function affective style and psychopathology: the role of early experience and plasticity. *Development and Psychopathology*, *6*, 741–758.
- Davidson, R. J., & Fox, N. A. (1982). Asymmetrical brain activity discriminates between positive versus negative affective stimuli in human infants. *Science*, *218*, 1235–1237.
- Davis, T. L. (1995). Gender differences in masking negative emotions: ability or motivation. *Developmental Psychology*, *31*, 660–667.
- Dawson, G. (1994). Frontal electroencephalographic correlates of individual differences in emotion expression in infants: a brain systems perspective on emotion. *Monographs of the Society for Research in Child Development*, *59*, 135–151.
- Dawson, G., Hessel, D., & Frey, K. (1994). Social influences on early developing biological and behavioral systems related to risk for affective disorder. *Development and Psychopathology*, *6*, 759–780.
- DeConti, K. A., & Dickerson, D. J. (1994). Preschool children's understanding of the situational determinants of others' emotions. *Cognition and Emotion*, *8*, 453–472.
- Denham, S. A., Cook, M., & Zoller, D. (1992). "Baby looks very sad": implications of conversations about feelings between mother and preschooler. *British Journal of Developmental Psychology*, *10*, 301–315.
- Denham, S. A., Mason, T., & Couchoud, E. A. (1995). Scaffolding young children's prosocial responsiveness: preschoolers' responses to adult sadness, anger, and pain. *International Journal of Behavior Development*, *18*, 489–504.
- Denham, S. A., Renwick, S. M., & Holt, R. W. (1991). Working and playing together: prediction of preschool emotional competence from mother-child interaction. *Child Development*, *62*, 242–249.
- Denham, S. A., Renwick-DeBardi, S., & Hewes, S. (1994). Emotional communication between mothers and preschoolers: relations with emotional competence. *Merrill-Palmer Quarterly*, *40*, 488–508.
- Denham, S. A., & Zoller, D. (1991). "When my hamster died, I cried": preschoolers' attributions of the causes of emotions. *Journal of Genetic Psychology*, *152*, 371–373.

- Derryberry, D., & Reed, M. A. (1994). Temperament and the self-organization of personality. *Development and Psychopathology*, 6, 653–676.
- Dishion, T. J., McCord, J., & Poulin, F. (1999). When interventions harm: peer groups and problem behavior. *American Psychologist*, 54, 755–764.
- Dobson, K. S., & Kendall, P. C. (Eds.). (1993). *Psychopathology and cognition*. San Diego: Academic Press.
- Dodge, K. A. (1980). Social cognition and children's aggressive behavior. *Child Development*, 51, 162–170.
- Dodge, K. A., & Schwartz, D. (1997). Social information processing mechanisms in aggressive behavior. In: D. M. Stoff, J. Breiling, & J. D. Maser (Eds.), *Handbook of antisocial behavior* (pp. 171–180). New York: Wiley.
- Donaldson, S. K., & Westerman, M. A. (1986). Development of children's understanding of ambivalence and causal theories of emotion. *Developmental Psychology*, 22, 655–662.
- Dunn, J., & Brown, J. (1994). Affect expression in the family, children's understanding of emotions, and their interactions with others. *Merrill-Palmer Quarterly*, 40, 120–137.
- During, S., & McMahon, R. (1991). Recognition of emotional facial expression by abusive mothers and their children. *Journal of Clinical Child Psychology*, 20, 132–139.
- Eisenberg, N., Cumberland, A., & Spinrad, T. L. (1998). Parental socialization of emotion. *Psychological Inquiry*, 9, 241–273.
- Eisenberg, N., & Fabes, R. A. (Ed.). (1992). *Emotion and its regulation in early development*. San Francisco: Jossey-Bass.
- Eisenberg, N., Fabes, R. A., Bustamante, D., Mathy, R. M., Miller, P. A., & Lindholm, E. (1988). Differentiation of vicariously induced emotional reactions in children. *Developmental Psychology*, 24, 237–246.
- Eisenberg, N., Fabes, R. A., Guthrie, I. K., Murphy, B. C., Maszk, P., Holmgren, R., & Suh, K. (1996). The relations of regulation and emotionality to problem behavior in elementary school children. *Development and Psychopathology*, 8, 141–162.
- Eisenberg, N., Fabes, R. A., Karbon, M., Murphy, B. C., Wosinski, M., Polazzi, L., Carlo, G., & Juhnke, C. (1996). The relations of children's dispositional prosocial behavior to emotionality, regulation, and social functioning. *Child Development*, 67, 974–992.
- Eisenberg, N., Fabes, R. A., & Murphy, B. C. (1995). Relations of shyness and low sociability to regulation and emotionality. *Journal of Personality and Social Psychology*, 68, 505–517.
- Eisenberg, N., Fabes, R. A., Shepard, S. A., Guthrie, I. K., Murphy, B. C., & Reiser, M. (1999). Parental reactions to children's negative emotions: longitudinal relations to quality of children's social functioning. *Child Development*, 70, 513–534.
- Eisenberg, N., Fabes, R. A., Shepard, S. A., Murphy, B. C., Guthrie, I. K., Jones, S., Friedman, J., Poulin, R., & Maszk, P. (1997). Contemporaneous and longitudinal prediction of children's social functioning from regulation and emotionality. *Child Development*, 68, 647–664.
- Eisenberg, N., Guthrie, I. K., Fabes, R. A., Reiser, M., Murphy, B. C., Holmgren, R., Maszk, P., & Losoya, S. (1997). The relations of regulation and emotionality to resiliency and competent social functioning in elementary school children. *Child Development*, 68, 295–311.
- Ekman, P., & Friesen, W. V. (1976). Measuring facial movement. *Environmental Psychology and Nonverbal Behavior*, 1, 56–75.
- Fabes, R. A., Eisenberg, N., Karbon, M., Troyer, D., & Switzer, G. (1994). The relation of children's emotion regulation to their vicarious emotional responses and comforting behaviors. *Child Development*, 65, 1678–1693.
- Feldman, R., Greenbaum, C. W., & Yirmiya, N. (1999). Mother–infant synchrony as an antecedent of the emergence of self-control. *Developmental Psychology*, 35, 223–231.
- Field, T. (1994). The effects of mother's physical and emotional unavailability on emotion regulation. *Monographs of the Society for Research in Child Development*, 59, 208–227.
- Field, T., Pickens, J., Fox, N. A., Nawrocki, T., & Gonzalez, J. (1995). Vagal tone in infants of depressed mothers. *Development and Psychopathology*, 7, 227–231.
- Fischer, K. W., & Tangney, J. P. (1995). Self-conscious emotions and the affect revolution: framework and overview. In: J. P. Tangney, & K. W. Fischer (Eds.), *Self-conscious emotions: the psychology of shame, guilt, embarrassment, and pride* (pp. 3–22). New York: Guilford Press.

- Fox, N. A. (Eds.). (1994a). The development of emotion regulation: biological and behavioral considerations. *Monographs of the Society for Research in Child Development*, 59 (2–3) (Serial No. 240).
- Fox, N. A. (1994b). Dynamic cerebral processes underlying emotion regulation. *Monographs of the Society for Research in Child Development*, 59, 152–167.
- Fox, N. A., Calkins, S. D., & Bell, M. A. (1994). Neural plasticity and development in the first two years of life: evidence from cognitive and socioemotional domains of research. *Development and Psychopathology*, 6, 677–696.
- Fredrickson, B. L. (1998). Cultivated emotions: parental socialization of positive emotions and self-conscious emotions. *Psychological Inquiry*, 9, 279–281.
- Friedlmeier, W., & Trommsdorff, G. (1999). Emotion regulation in early childhood: a cross-cultural comparison between German and Japanese toddlers. *Journal of Cross-Cultural Psychology*, 30, 684–711.
- Garber, J., Braafladt, N., & Weiss, B. (1995). Affect regulation in depressed and non-depressed children and young adolescents. *Development and Psychopathology*, 7, 93–116.
- Garner, P. W. (1996). The relations of emotional role taking, affective/moral attributions, and emotional display rule knowledge to low-income school-age children's social competence. *Journal of Applied Developmental Psychology*, 17, 19–36.
- Garner, P. W., Jones, D. C., & Miner, J. L. (1994). Social competence among low-income preschoolers: emotion socialization practices and social cognitive correlates. *Child Development*, 65, 622–637.
- Garner, P. W., & Power, T. G. (1996). Preschoolers' emotional control in the disappointment paradigm and its relation to temperament, emotional knowledge, and family expressiveness. *Child Development*, 67, 1406–1419.
- Glasberg, R., & Aboud, F. (1982). Keeping one's distance from sadness: children's self-reports of emotional experience. *Developmental Psychology*, 18, 287–293.
- Gnepp, J. (1983). Children's social sensitivity: inferring emotions from conflicting cues. *Developmental Psychology*, 19, 805–814.
- Gnepp, J. (1989). Children's use of personal information to understand other people's feelings. In: C. Saarni, & P. L. Harris (Eds.), *Children's understanding of emotion* (pp. 151–177). Cambridge: Cambridge Univ. Press.
- Gnepp, J., & Hess, D. L. R. (1986). Children's understanding of verbal and facial display rules. *Developmental Psychology*, 22, 103–108.
- Goleman, D. (1995). *Emotional intelligence*. New York: Bantam Books.
- Goodman, S. H., Brogan, D., Lynch, M. E., & Fielding, B. (1993). Social and emotional competence in children of depressed mothers. *Child Development*, 64, 516–531.
- Gottman, J. M., & Katz, L. F. (1989). Effects of marital discord on young children's peer interaction and health. *Developmental Psychology*, 25, 373–381.
- Gray, J. A. (1990). Brain systems that mediate both emotion and cognition. *Cognition and Emotion*, 4, 269–288.
- Greenberg, L. S., & Safran, J. D. (1987). *Emotion in psychotherapy*. New York: Guilford Press.
- Greenberg, M. T., Kusche, C. A., Cook, E. T., & Quamma, J. P. (1995). Promoting emotional competence in school-aged children: the effects of the PATHS curriculum. *Development and Psychopathology*, 7, 117–136.
- Griffin, S. (1995). A cognitive-developmental analysis of pride, shame, and embarrassment in middle childhood. In: J. P. Tangney, & K. W. Fischer (Eds.), *Self-conscious emotions: the psychology of shame, guilt, embarrassment, and pride* (pp. 219–236). New York: Guilford Press.
- Grolnick, W. S., Kurowski, C. O., McMenamy, J. M., Rivkin, I., & Bridges, L. J. (1998). Mothers' strategies for regulating their toddlers' distress. *Infant Behavior and Development*, 21, 437–450.
- Gross, A. L., & Ballif, B. (1991). Children's understanding of emotion from facial expressions and situations: a review. *Developmental Review*, 11, 368–398.
- Gross, J. J., & Muñoz, R. F. (1995). Emotion regulation and mental health. *Clinical Psychology: Science and Practice*, 2, 151–164.
- Hadwin, J., Baron-Cohen, S., Howlin, P., & Hill, K. (1996). Can we teach children with autism to understand emotions, belief, or pretence? *Development and Psychopathology*, 8, 345–365.
- Harris, P. L. (1983). Children's understanding of the link between situation and emotion. *Journal of Experimental Child Psychology*, 36, 490–509.
- Harris, P. L. (1993). Understanding emotion. In: M. Lewis, & J. M. Haviland (Eds.), *Handbook of emotions* (pp. 237–246). New York: Guilford Press.

- Harris, P. L. (1994). The child's understanding of emotion: developmental change and the family environment. *Journal of Child Psychology and Psychiatry*, 35, 3–28.
- Harris, P. L., Donnelly, K., Guz, G. R., & Pitt-Watson, R. (1986). Children's understanding of the distinction between real and apparent emotion. *Child Development*, 57, 895–909.
- Harris, P. L., & Olthof, T. (1982). The child's concept of emotion. In: G. Butterworth, & P. Light (Eds.), *The individual and the social in cognitive development* (pp. 188–209). Brighton, UK: Harvester.
- Harris, P. L., Olthof, T., & Meerum-Terwogt, M. (1981). Children's knowledge of emotion. *Journal of Child Psychology and Psychiatry*, 22, 247–261.
- Harris, P. L., & Saarni, C. (1989). Children's understanding of emotion: an introduction. In: C. Saarni, & P. L. Harris (Eds.), *Children's understanding of emotion* (pp. 3–24). Cambridge: Cambridge Univ. Press.
- Harter, S., & Buddin, B. J. (1987). Children's understanding of the simultaneity of two emotions: a five-stage developmental acquisition sequence. *Developmental Psychology*, 23, 388–399.
- Harter, S., & Whitesell, N. R. (1989). Developmental changes in children's understanding of single, multiple, and blended emotion concepts. In: C. Saarni, & P. L. Harris (Eds.), *Children's understanding of emotion* (pp. 81–116). Cambridge: Cambridge Univ. Press.
- Haviland, J., & Lelwica, J. (1987). The induced affect response: 10-week-old infants' responses to three emotion expression. *Developmental Psychology*, 23, 97–104.
- Hayes, S. C., Wilson, K. G., Gifford, E. V., Follette, V. M., & Strosahl, K. (1996). Experiential avoidance and behavioral disorders: a functional dimensional approach to diagnosis and treatment. *Journal of Consulting and Clinical Psychology*, 64, 1152–1168.
- Heller, W. (1990). The neuropsychology of emotion: developmental patterns and implications for psychopathology. In: N. Stein, B. L. Leventhal, & T. Trabasso (Eds.), *Psychological and biological approaches to emotion* (pp. 167–211). Hillsdale, NJ: Erlbaum.
- Hennessy, K. D., Rabideau, G. J., Cicchetti, D., & Cummings, E. M. (1994). Responses of physically abused and nonabused children to different forms of interadult anger. *Child Development*, 65, 815–828.
- Hinshaw, S. P., Lahey, B. B., & Hart, E. L. (1993). Issues of taxonomy and comorbidity in the development of conduct disorder. *Development and Psychopathology*, 5, 31–49.
- Hirshfeld, D. R., Rosenbaum, J. F., Biederman, J., Bolduc, E. A., Faraone, S. V., Sandman, N., Redneck, J. S., & Kagan, J. (1992). Stable behavioral inhibition and its association with anxiety disorder. *Journal of the American Academy of Child and Adolescent Psychiatry*, 31, 103–111.
- Hobson, R. P. (1986a). The autistic child's appraisal of expressions of emotion. *Journal of Child Psychology and Psychiatry*, 27, 321–342.
- Hobson, R. P. (1986b). The autistic child's appraisal of emotion: a further study. *Journal of Child Psychology and Psychiatry*, 27, 671–680.
- Hofer, M. A. (1994). Hidden regulators in attachment, separation, and loss. *Monographs of the Society for Research in Child Development*, 59, 192–207.
- Hubbard, J. A., & Coie, J. D. (1994). Emotional correlates of social competence in children's peer relationships. *Merrill-Palmer Quarterly*, 40, 1–20.
- Hughes, C., & Dunn, J. (1998). Understanding mind and emotion: longitudinal associations with mental-state talk between young friends. *Developmental Psychology*, 34, 1026–1037.
- Izard, C. E., & Harris, P. L. (1995). Emotional development and developmental psychopathology. In: D. Cohen, & D. J. Cohen (Eds.), *Developmental psychopathology: volume I. Theory and methods* (pp. 467–503). New York: Wiley.
- Kagan, J., Reznick, J. S., & Snidman, N. (1988). Biological bases of childhood shyness. *Science*, 240, 167–171.
- Kagan, J., Snidman, N., Arcus, D., & Reznick, J. S. (1994). *Galen's prophecy: temperament in human nature*. New York: Basic Books.
- Kasari, C., & Sigman, M. (1996). Expression and understanding of emotion in atypical development: autism and Down syndrome. In: M. Lewis, & M. W. Sullivan (Eds.), *Emotional development in atypical children* (pp. 109–130). Mahwah, NJ: Lawrence Erlbaum Associates.
- Kasari, C., Sigman, M. D., Baumgartner, P., & Stipek, D. J. (1993). Pride and mastery in children with autism. *Journal of Child Psychology and Psychiatry*, 34, 353–362.

- Katz, L. F., & Gottman, J. M. (1995). Vagal tone protects children from marital conflict. *Development and Psychopathology*, 7, 83–92.
- Kazdin, A. E., & Kagan, J. (1994). Models of dysfunction in developmental psychopathology. *Clinical Psychology: Science and Practice*, 1, 35–52.
- Kendall, P. C. (1993). Cognitive-behavioral therapies with youth: guiding theory, current status, and emerging developments. *Journal of Consulting and Clinical Psychology*, 61, 235–247.
- Kendall, P. C. (1994). Treating anxiety disorders in youth: results of a randomized clinical trial. *Journal of Consulting and Clinical Psychology*, 62, 100–110.
- Kendall, P. C., Flannery-Schroeder, E. C., Panichelli-Mindel, S. P., Southam-Gerow, M. A., Henin, A., & Warman, M. J. (1997). Treating anxiety disorders in youth: a second randomized clinical trial. *Journal of Consulting and Clinical Psychology*, 65, 366–380.
- Kobak, R., & Ferenz-Gilles, R. (1995). Emotion regulation and depressive symptoms during adolescence: a functionalist perspective. *Development and Psychopathology*, 7, 183–192.
- Kobak, R. R., Cole, H. E., Ferenz-Gillies, R., Fleming, W. S., & Gamble, W. (1994). Attachment and emotion regulation during mother–teen problem-solving: a control theory analysis. *Child Development*, 64, 231–245.
- Kopp, C. B. (1989). Regulation of distress and negative emotions: a developmental view. *Developmental Psychology*, 25, 343–354.
- Kopp, C. B. (1992). Emotional distress and control in young children. In: N. Eisenberg, & R. A. Fabes (Eds.), *Emotion and its regulation in early development* (pp. 41–56). San Francisco: Jossey-Bass.
- Lagattuta, K. H., Wellman, H. M., & Flavell, J. H. (1997). Preschoolers' understanding of the link between thinking and feeling: cognitive cueing and emotional change. *Child Development*, 68, 1081–1104.
- Laible, D. J., & Thompson, R. A. (1998). Attachment and emotional understanding in preschool children. *Developmental Psychology*, 34, 1038–1045.
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer.
- LeDoux, J. E. (1993). Emotional networks in the brain. In: M. Lewis, & J. M. Haviland (Eds.), *Handbook of emotions* (pp. 109–118). New York: Guilford Press.
- Lewis, M. (1993a). The development of anger and rage. In: R. A. Glick, & S. P. Roose (Eds.), *Rage, power, and aggression: the role of affect in motivation, development, and adaptation* (pp. 148–168). New Haven, CT: Yale Univ. Press.
- Lewis, M. (1993b). Self-conscious emotions: embarrassment, pride, shame, and guilt. In: M. Lewis, & J. M. Haviland (Eds.), *Handbook of emotions* (pp. 563–573). New York: Guilford Press.
- Lewis, M., Alessandri, S. M., & Sullivan, M. W. (1992). Differences in shame and pride as a function of children's gender and task difficulty. *Child Development*, 63, 630–638.
- Lewis, M., & Haviland, J. M. (Eds.). (1993). *Handbook of emotions*. New York: Guilford Press.
- Lewis, M., Stanger, C., & Sullivan, M. W. (1989). Deception in 3-year-olds. *Developmental Psychology*, 25, 439–443.
- Lewis, M., Sullivan, M. A., Ramsay, D. S., & Alessandri, S. M. (1992). Individual differences in anger and sad expression during extinction: antecedents and consequences. *Infant Behavior and Development*, 15, 443–452.
- Lewis, M., Sullivan, M. W., & Vasen, A. (1987). Making faces: age and emotion differences in the posing of emotional expressions. *Developmental Psychology*, 23, 690–697.
- Linehan, M. M. (1993). *Cognitive-behavioral treatment of borderline personality disorder*. New York: Guilford Press.
- Loveland, K. A., Tunali-Kotoski, B., Chen, R., Brelsford, K. A., Ortegon, J., & Pearson, D. A. (1995). Intermodal perception of affect in persons with autism or Down syndrome. *Development and Psychopathology*, 7, 409–418.
- Loveland, K. A., Tunali-Kotoski, B., Pearson, D. A., Brelsford, K. A., Ortegon, J., & Chen, R. (1994). Imitation and expression of facial affect in autism. *Development and Psychopathology*, 6, 433–444.
- Lundy, B., Field, T., & Pickens, J. (1996). Newborns of mothers with depressive symptoms are less expressive. *Infant Behavior and Development*, 19, 419–424.
- Luthar, S. S., Burack J. A., Cicchetti D., & Weisz J. R. (Eds.). (1997). *Developmental psychopathology: perspectives on adjustment, risk, and disorder*. Cambridge: Cambridge Univ. Press.

- Malatesta, C. Z., Culver, C., Tesman, J. R., & Shepard, B. (1989). The development of emotion expression during the first two years of life. *Monographs of the Society for Research in Child Development*, *54*, 1–104.
- Matsumoto, D. (1990). Cultural similarities and differences in display rules. *Motivation and Emotion*, *14*, 195–214.
- McCarty, C. A., Weisz, J. R., Wanitromanee, K., Eastman, K. L., Suwanlert, S., Chaiyasit, W., & Band, E. B. (1999). Culture, coping, and context: primary and secondary control among Thai and American youth. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, *40*, 809–818.
- McCoy, C. L., & Masters, J. C. (1985). The development of children's strategies for the social control of emotion. *Child Development*, *56*, 1214–1222.
- Meerum-Terwogt, M. (1990). Disordered children's acknowledgment of multiple emotions. *Journal of General Psychology*, *117*, 59–69.
- Meerum-Terwogt, M., Koops, W., Oosterhoff, T., & Olthof, T. (1986). Development in processing of multiple emotional situations. *Journal of General Psychology*, *113*, 109–119.
- Meerum-Terwogt, M., & Olthof, T. (1989). Awareness and self-regulation of emotion in young children. In: C. Saarni, & P. L. Harris (Eds.), *Children's understanding of emotion* (pp. 209–237). Cambridge: Cambridge Univ. Press.
- Meerum-Terwogt, M., Schene, J., & Koops, J. (1990). Concepts of emotion in institutionalized children. *Journal of Child Psychology and Psychiatry*, *31*, 1131–1143.
- Moffitt, T. F. (1993). Adolescence-limited and life-course-persistent antisocial behavior: a developmental taxonomy. *Psychological Review*, *100*, 674–701.
- Motti, F., Cicchetti, D., & Sroufe, L. A. (1983). From infant affect expression to symbolic play: the coherence of development in Down syndrome children. *Child Development*, *54*, 1168–1175.
- Nachmias, M., Gunnar, M., Mangelsdorf, S., Parritz, R. H., & Buss, K. (1996). Behavioral inhibition and stress reactivity: the moderating role of attachment security. *Child Development*, *67*, 508–522.
- Nelson, C. A., & Bloom, F. E. (1997). Child development and neuroscience. *Child Development*, *68*, 970–987.
- Nunner-Winkler, G., & Sodian, B. (1988). Children's understanding of moral emotions. *Child Development*, *59*, 1323–1338.
- Olthof, T., Meerum-Terwogt, M., van Panthaleon van Eck, O., & Koops, W. (1987). Children's knowledge of the integration of successive emotions. *Perceptual and Motor Skills*, *65*, 407–414.
- Oppenheim, D., Nir, A., Warren, S., & Emde, R. N. (1997). Emotion regulation in mother-child narrative co-construction: associations with children's narratives and adaptation. *Developmental Psychology*, *33*, 284–294.
- Overton, W. F. (1991). Competence, procedures, and hardware: conceptual and empirical consideration. In: M. Chandler, & M. Chapman (Eds.), *Criteria for competence: controversies in the assessment of children's abilities* (pp. 19–42). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Panksepp, J. (1990). Gray zones at the emotion/cognition interface: a commentary. *Cognition and Emotion*, *4*, 289–302.
- Panksepp, J. (1993). Neurochemical control of moods and emotions: amino acids to neuropeptides. In: M. Lewis, & J. M. Haviland (Eds.), *Handbook of emotions* (pp. 87–107). New York: Guilford Press.
- Park, S. Y., Belsky, J., Putnam, S., & Crnic, K. (1997). Infant emotionality, parenting, and 3-year inhibition: exploring stability and lawful discontinuity in a male sample. *Developmental Psychology*, *33*, 218–227.
- Parker, J. G., & Asher, S. R. (1993). Friendship and friendship quality in middle childhood: links with peer group acceptance and feelings of loneliness and social dissatisfaction. *Developmental Psychology*, *29*, 611–621.
- Peng, M., Johnson, C., Pollock, J., Glasspool, R., & Harris, P. (1992). Training young children to acknowledge mixed emotions. *Cognition and Emotion*, *6*, 387–401.
- Piaget, J. (1929). J. Tomlinson, & A. Tomlinson (Eds.), *The child's conception of the world*. New York: Harcourt, Brace, & World.
- Pickens, J. N., & Field, T. (1993). Facial expressivity in infants of "depressed" mothers. *Developmental Psychology*, *29*, 986–988.
- Porges, S. W. (1995). Orienting in a defensive world: mammalian modifications of our evolutionary heritage: a polyvagal theory. *Psychophysiology*, *32*, 301–318.

- Porges, S. W., Doussard-Roosevelt, J. A., & Maiti, A. K. (1994). Vagal tone and physiological regulation of emotion. *Monographs of the Society for Research in Child Development*, 59, 167–186.
- Reiman, E. M., Raichle, M. E., Butler, F. K., Herscovitch, P., & Robins, E. (1984). A focal brain abnormality in panic disorder, a severe form of anxiety. *Nature*, 310, 683–685.
- Reissland, N. (1985). The development of concepts of simultaneity in children's understanding of emotion. *Journal of Child and Adolescent Psychology and Psychiatry and Allied Disciplines*, 26, 811–824.
- Repetti, R. L., Taylor, S. E., & Seeman, T. E. (2000). *Risky families; family social environments and the mental and physical health of offspring*. Manuscript submitted for publication.
- Roberts, W. L., & Strayer, J. (1987). Parents' responses to the emotional distress of their children: relations with children's competence. *Developmental Psychology*, 23, 415–421.
- Robinson, J. L., Emde, R. N., & Korfmacher, J. (1997). Integrating an emotional regulation perspective in a program of prenatal and early childhood home visitation. *Journal of Community Psychology*, 25, 59–75.
- Rogosch, F. A., Cicchetti, D., & Aber, J. L. (1995). The role of child maltreatment in early deviations in cognitive and affective processing abilities and later peer relationship problems. *Development and Psychopathology*, 7, 591–609.
- Rosenbaum, J. F., Biederman, J., Bolduc, E. A., Hirshfeld, D. R., Faraone, S. V., & Kagan, J. (1992). Comorbidity of parental anxiety disorders as risk for childhood-onset anxiety in inhibited children. *American Journal of Psychiatry*, 149, 475–481.
- Rossman, B. B. R. (1992). School-age children's perception of coping with distress: strategies for emotion regulation and the moderation of adjustment. *Journal of Child Psychology and Psychiatry*, 33, 1373–1397.
- Rotenberg, K. J., & Eisenberg, N. (1997). Developmental differences in the understanding of and reaction to others' inhibition of emotional expression. *Developmental Psychology*, 33, 526–537.
- Rothbart, M. K., Ziaie, H., & O'Boyle, C. G. (1992). Self-regulation and emotion infancy. In: N. Eisenberg, & R. A. Fabes (Eds.), *Emotion and its regulation in early development* (pp. 7–24). San Francisco: Jossey-Bass.
- Rourke, B. P. (1988). The syndrome of nonverbal learning disabilities: developmental manifestations in neurological disease, disorder, and dysfunction. *The Clinical Neuropsychologist*, 2, 293–330.
- Rubin, K. H., Both, L., Zahn-Waxler, C., Cummings, E. M., & Wilkinson, M. (1991). Dyadic play behaviors of children of well and depressed mothers. *Development and Psychopathology*, 3, 243–251.
- Rubin, K. H., Coplan, R. J., Fox, N. A., & Calkins, S. D. (1995). Emotionality, emotion regulation, and preschoolers' social adaptation. *Development and Psychopathology*, 7, 49–62.
- Rudolph, K. D., Dennig, M. D., & Weisz, J. R. (1995). Determinants and consequences of children's coping in the medical setting: conceptualization, review, and critique. *Psychological Bulletin*, 118, 328–357.
- Russo, M. F., & Beidel, D. C. (1994). Comorbidity of childhood anxiety and externalizing disorders: prevalence, associated characteristics, and validation issues. *Clinical Psychology Review*, 14, 199–211.
- Saarni, C. (1979). Children's understanding of display rules for expressive behavior. *Developmental Psychology*, 15, 424–429.
- Saarni, C. (1987, April). *Children's beliefs about parental expectations for emotional-expressive behavior management*. Paper presented for the Society for Research in Child Development, Baltimore, MD.
- Saarni, C. (1988). Children's understanding of the interpersonal consequences of dissemblance of nonverbal emotional-expressive behavior. *Journal of Nonverbal Behavior*, 12, 275–294.
- Safran, J. D., & Greenberg, L. S. (1989). The treatment of anxiety and depression: the process of affective change. In: P. C. Kendall, & D. Watson (Eds.), *Anxiety and depression: distinctive and overlapping features* (pp. 455–489). New York: Academic Press.
- Salovey, P., & Sluyter, D. J. (Eds.). (1997). *Emotional development and emotional intelligence: educational implications*. New York: Basic Books.
- Schwartz, C. E., Snidman, N., & Kagan, J. (1996). Early childhood temperament as a determinant of externalizing behavior in adolescence. *Development and Psychopathology*, 8, 527–537.
- Schwartz, R. M., & Trabasso, T. (1984). Children's understanding of emotions. In: C. E. Izard, J. Kagan, & R. B. Zajonc (Eds.), *Emotions, cognitions, and behavior* (pp. 409–437). Cambridge: Cambridge Univ. Press.
- Seidman, L. J., Biederman, J., Faraone, S. V., Weber, W., & Ouellette, C. (1997). Toward a defining neuro-



- psychology of attention deficit-hyperactivity disorder: performance of children and adolescents from a large clinically referred sample. *Journal of Consulting and Clinical Psychology*, 65, 150–160.
- Seidner, L. B., Stipek, D. J., & Feshbach, N. D. (1988). A developmental analysis of elementary school-aged children's concepts of pride and embarrassment. *Child Development*, 59, 367–377.
- Seja, A. L., & Russ, S. W. (1999). Children's fantasy play and emotional understanding. *Journal of Clinical Child Psychology*, 28, 269–277.
- Shields, A., & Cicchetti, D. (1998). Reactive aggression among maltreated children: the contributions of attention and emotion dysregulation. *Journal of Clinical Child Psychology*, 27, 381–395.
- Shipman, K., & Zeman, J. (1999). Emotional understanding: a comparison of physically maltreating and non-maltreating mother-child dyads. *Journal of Clinical Child Psychology*, 28, 407–417.
- Silverman, W. K., & Kurtines, W. M. (1996). *Anxiety and phobic disorders: a pragmatic approach*. New York: Plenum.
- Smith, M., & Walden, T. (1998). Developmental trends in emotion understanding among a diverse sample of African-American preschool children. *Journal of Applied Developmental Psychology*, 19, 177–197.
- Southam-Gerow, M. A., & Kendall, P. C. (2000). A preliminary study of the emotion understanding of youth referred for treatment of anxiety disorders. *Journal of Clinical Child Psychology*, 29, 319–327.
- Sroufe, L. A., & Rutter, M. (1984). The domain of developmental psychopathology. *Child Development*, 55, 17–29.
- Stansbury, K., & Gunnar, M. R. (1994). Adrenocortical activity and emotion regulation. *Monographs of the Society for Research in Child Development*, 59, 108–134.
- Steinmetz, J. E. (1994). Brain substrates of emotion and temperament. In: J. E. Bates, & T. D. Wachs (Eds.), *Temperament: individual differences at the interface of biology and behavior* (pp. 17–46). Washington, DC: American Psychological Association.
- Stifter, C. A., Spinrad, T. L., & Braungart-Rieker, J. M. (1999). Toward a developmental model of child compliance: the role of emotion regulation in infancy. *Child Development*, 70, 21–32.
- Stipek, D. (1995). The development of pride and shame in toddlers. In: J. P. Tangney, & K. W. Fischer (Eds.), *Self-conscious emotions: the psychology of shame, guilt, embarrassment, and pride* (pp. 237–253). New York: Guilford Press.
- Stipek, D. J., & DeCotis, K. M. (1988). Children's understanding of the implication of causal attributions for emotional experiences. *Child Development*, 59, 1601–1616.
- Strayer, J. (1986). Children's attributions regarding the situational determinants of emotion in self and others. *Developmental Psychology*, 22, 649–654.
- Taylor, D. A., & Harris, P. L. (1984). Knowledge of strategies for the expression of emotion among normal and maladjusted boys: a research note. *Journal of Child Psychology and Psychiatry*, 24, 141–145.
- Termine, N. T., & Izard, C. E. (1988). Infants' responses to their mothers' expressions of joy and sadness. *Developmental Psychology*, 24, 223–229.
- Thompson, R. A. (1987). Development of children's inferences of the emotions of others. *Developmental Psychology*, 23, 124–131.
- Thompson, R. A. (1994). Emotion regulation: a theme in search of definition. *Monographs of the Society for Research in Child Development*, 59, 24–52 (2–3; Serial No. 240).
- Thompson, R. A., & Calkins, S. D. (1996). The double-edged sword: emotional regulation for children at risk. *Development and Psychopathology*, 8, 163–182.
- Tolan, P. H., Guerra, N. G., & Kendall, P. C. (1995). A developmental-ecological perspective on antisocial behavior in children and adolescents: toward a unified risk and intervention framework. *Journal of Consulting and Clinical Psychology*, 63, 579–584.
- Underwood, M. K. (1997). Peer social status and children's understanding of the expression and control of positive and negative emotions. *Merrill-Palmer Quarterly*, 43, 610–634.
- Underwood, M. K., Coie, J. D., & Herbsman, C. R. (1992). Display rules for anger and aggression in school-age children. *Child Development*, 63, 366–380.
- Walden, T. A., & Smith, M. C. (1997). Emotion regulation. *Motivation & Emotion*, 21, 7–25.
- Walker, E. (1981). Emotion recognition in disturbed and normal children: a research note. *Journal of Child Psychology and Psychiatry*, 22, 263–268.

- Walker, E., Marwit, S. J., & Emory, E. (1980). A cross-sectional study of emotion recognition in schizophrenics. *Journal of Abnormal Psychology, 89*, 428–436.
- Walker, E. F., Grimes, K. E., Davis, D. M., & Smith, A. J. (1993). Childhood precursors of schizophrenia: facial expression of emotion. *American Journal of Psychiatry, 150*, 1654–1660.
- Weiner, B., & Graham, S. (1984). An attributional approach to emotional development. In: C. E. Izard, J. Kagan, & R. B. Zajonc (Eds.), *Emotions, cognitions, and behavior* (pp. 167–191). Cambridge: Cambridge Univ. Press.
- Weisz, J. R., McCarty, C. A., Eastman, K. L., Chaiyasit, W., & Suwanlert, S. (1997). Development psychopathology and culture: ten lessons from Thailand. In: S. S. Luthar, J. A. Burack, D. Cicchetti, & J. R. Weisz (Eds.), *Development psychopathology: perspectives on adjustment, risk, and disorder* (pp. 568–592). New York: Cambridge University Press.
- Weisz, J. R., Rothbaum, F. M., & Blackburn, T. F. (1984). Standing out and standing in: the psychology of control in America and Japan. *American Psychologist, 39*, 955–969.
- Weisz, J. R., Suwanlert, S., Chaiyasit, W., & Walter, B. (1987). Over- and undercontrolled referral problems among children and adolescents from Thailand and the United States: the *Wat* and *Wai* of cultural differences. *Journal of Consulting and Clinical Psychology, 55*, 719–726.
- Weisz, J. R., Suwanlert, S., Chaiyasit, W., Weiss, B., Achenbach, T., & Walter, B. (1987). Epidemiology of behavioral and emotional problems among Thai and American children: parent reports for ages 6–11. *Journal of the American Academy of Child and Adolescent Psychiatry, 26*, 890–897.
- Weisz, J. R., Suwanlert, S., Chaiyasit, W., Weiss, B., Walter, B., & Anderson, W. (1988). Thai and American perspectives on over- and undercontrolled child behavior problems: exploring the threshold model among parents, teachers, and psychologists. *Journal of Consulting and Clinical Psychology, 56*, 601–609.
- Wiggers, M., & Van Lieshout, C. F. M. (1985). Development of recognition of emotions: children's reliance on situational and facial expressive cues. *Developmental Psychology, 21*, 338–349.
- Wintre, M. G., Polivy, J., & Murray, M. A. (1990). Self-predictions of emotional response patterns: age, sex, and situational determinants. *Child Development, 61*, 1124–1133.
- Wintre, M. G., & Vallance, D. D. (1994). A developmental sequence in the comprehension of emotions: intensity, multiple emotions, and valence. *Developmental Psychology, 30*, 509–514.
- Zahn-Waxler, C., Cole, P. M., Welsh, J. D., & Fox, N. A. (1995). Psychophysiological correlates of empathy and prosocial behaviors in preschool children with behavior problems. *Development and Psychopathology, 7*, 27–48.
- Zahn-Waxler, C., Iannotti, R. J., Cummings, E. M., & Denham, S. (1990). Antecedents of problem behaviors in children and depressed mothers. *Development and Psychopathology, 2*, 271–291.
- Zahn-Waxler, C., Kochanska, G., Krupnick, J., & McKnew, D. (1990). Patterns of guilt in children of depressed and well mothers. *Developmental Psychology, 26*, 51–59.
- Zahn-Waxler, C., & Robinson, J. (1995). Empathy and guilt: early origins of feelings of responsibility. In: J. P. Tangney, & K. W. Fischer (Eds.), *Self-conscious emotions: the psychology of shame, guilt, embarrassment, and pride* (pp. 143–173). New York: Guilford Press.
- Zeman, J., & Garber, J. (1996). Display rules for anger, sadness, and pain: it depends on who is watching. *Child Development, 67*, 957–973.
- Zeman, J., Penza, S., Shipman, K., & Young, G. (1997). Preschoolers as functionalists: the impact of social context on emotion regulation. *Child Study Journal, 27*, 41–67.
- Zeman, J., & Shipman, K. (1997). Social-contextual influences on expectancies for managing anger and sadness: the transition from middle childhood to adolescence. *Developmental Psychology, 33*, 917–924.