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REVIEW

Adversity and Emotional Functioning

Helen M. Milojevich[1] · **Kristen A. Lindquist**[2] · **Margaret A. Sheridan**[2]

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Abstract
Exposure to early adversity has been linked to variations in emotional functioning. To date, however, the precise nature of these variations has been difficult to pinpoint given widespread differences in the ways in which aspects of emotional functioning are defined and measured. Here, more consistent with models of emotional functioning in typically developing populations (e.g., Halberstadt et al., 2001), we propose defining emotional functioning as consisting of distinct domains of emotion expression, perception, knowledge, reactivity, and regulation. We argue that this framework is useful for guiding hypothesis generation about the specific impact of early adversity on children's emotional functioning. We operationalize the construct of emotional functioning, highlight what is currently known about the association between adversity exposure and each domain of emotional functioning, propose potential mechanisms for these associations, and set the stage for future research examining the development of emotional functioning in the context of early adversity.

Keywords Early adversity · Emotional functioning · Psychological construction · Maltreatment · DMAP · Parent socialization

Emotional functioning is a broad construct consisting of multiple domains that describes one's expression, perception, and conceptualization of emotions. Evidence (Machlin et al., 2019; Milojevich et al., 2019; Shablack et al., 2020) and theory (Shablack & Lindquist, 2019; Sheridan & McLaughlin, 2014) suggest that exposure to adversity during childhood shapes the development of emotional functioning. However, the body of evidence linking adversity to emotional functioning currently lacks a framework for integrating and interpreting the impact of early adversity on emotional functioning. In this review, we first use an affective science perspective to operationalize the construct of emotional functioning, building on prior work (Halberstadt et al., 2001). We then review what is currently known about how adversity exposure impacts each domain of emotional functioning and propose potential mechanisms for these associations. We close by setting the stage for future research examining the development of emotional functioning in the context of early adversity.

What is an Emotion?

Drawing on a psychological constructionist theory of emotion (Barrett, 2020; Clore & Ortony, 2008; Hoemann et al., 2020; Russell, 2003; Widen, 2013), we argue that emotional experiences are affective reactions that are made meaningful and categorized as specific emotions (e.g., anger, fear, and sadness) in a given context based on conceptual knowledge learned throughout childhood. Conceptual knowledge is the collection of semantic or episodic representations that an individual possesses about specific emotion categories (for review, Lindquist et al., 2015). Hence, a child may learn that one feels "angry" when they feel unpleasant, highly activated affect following a blocked goal, but that they feel "sad" when they feel unpleasant, highly activated affect following a loss or a failure. Accordingly, features of the developmental environment such as exposure to a range of emotional situations that allow a child to develop a rich cache of conceptual knowledge about emotions play a fundamental role

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✉ Helen M. Milojevich
helen-milojevich@ouhsc.edu

[1] Department of Pediatrics, University of Oklahoma Health Sciences Center, 1000 NE 13th Street, Nicholson Tower Suite 4976, OK 73104 Oklahoma City, USA

[2] Department of Psychology and Neuroscience, University of North Carolina At Chapel Hill, Chapel Hill, NC, USA

in shaping children's experience, expression, and perception of emotions in others.

This model stands in contrast to a "basic emotion" theory that infants are born with an innate ability to experience and perceive in others a set of discrete emotion categories such as anger, fear, disgust, sadness, and joy (Ekman et al., 1987; Izard, 1971; Tracy & Robins, 2008). Although basic emotion models allow for a role of learning in emotion (Ekman & Cordaro, 2011; Izard, 2011), they conceive of early environment and caregiver socialization as less fundamental to emotional functioning. Rather, in a psychological constructionist approach (Barrett, 2020; Clore & Ortony, 2008; Hoemann et al., 2020; Russell, 2003; Widen, 2013), the early environment is able to exert an effect on the development of emotion from the earliest moments of infancy. Across early infancy, caregivers scaffold the development of affective responses by shaping the infant's physical and social environment (Atzil et al., 2018; Lindquist et al., 2015; Shablack & Lindquist, 2019). For example, there is evidence that caregivers' tendency to use more emotion words in spoken discourse longitudinally predicts children's emotional functioning (e.g., greater emotion knowledge; Aznar & Tenebaum, 2013; emotion regulation efficacy; Speidel et al., 2020). Exposure to early environments that are marked by adversity should similarly impact the development of emotional functioning because they introduce the child to extreme emotional environments (e.g., in the case of violence exposure) or result in a lack of learning experiences about emotion for the child (e.g., in the case of neglect; McLaughlin et al., 2017).

Theories of Adversity

Much research examines the impact of early adversity on child development. These studies generally take one of two approaches. On the one hand, types of early adversity exposure are examined separately, with large bodies of work investigating child maltreatment, poverty, institutionalization, neighborhood violence, and other forms of adversity in insolation, despite findings that these forms of adversity co-occur at greater than chance levels. On the other hand, there are cumulative risk approaches in which all forms of adversity are summed to create a score indicating the total amount of adversity exposure children have experienced (Evans et al., 2013; Felitti et al., 1998). This approach acknowledges the fact that adversities are clustered by contextual variables so that co-occurrence is likely but ignores the possibility that types of adversities may differentially impact developmental processes or outcomes. A third approach that is recently gaining traction is to identify underlying dimensions of adversity exposure that allow researchers to identify the *degree* of exposure while also examining differential effects of certain classes of adversity on child development (Humphreys & Zeanah, 2015; Lawson et al., 2017; Sheridan & McLaughlin, 2014; McLaughlin et al., 2014).

One such "dimensional model" is the Dimensional Model of Adversity and Psychopathology (DMAP) proposed by Sheridan and McLaughlin (2014). This model posits a distinction among types of adversities, specifically between adversities characterized by a lack of early learning experiences, or deprivation, and those characterized by the presence of violence, or threat. Within DMAP, *deprivation* refers to the absence of species- and age-expectant cognitive and social inputs, whereas exposure to *threat* involves the presence of an atypical event in which a child experiences actual or threatened physical harm (McLaughlin et al., 2014; McLaughlin, Sheridan, Alves, et al. 2014; McLaughlin, Sheridan, & Lambert, 2014; Sheridan & McLaughlin, 2014; 2016). As such, deprivation is a central feature of neglect, institutionalization, and the lack of psychosocial stimulation that can occur in poverty, and threat is a central feature of physical abuse, sexual abuse, and community violence exposure. Although exposure to deprivation and threat may co-occur for children, these dimensions can be measured separately and, as has been demonstrated, have unique effects on developmental outcomes (Lambert et al., 2017; Machlin et al., 2019; McLaughlin et al., 2016; Miller et al., 2018; Milojevich et al., 2019; Sheridan et al., 2017, 2019).

Although very little research to date has explicitly applied DMAP to examining the full range of emotional functioning proposed herein, we propose that it may be a particularly fruitful framework for examining emotional functioning following early life adversity. In the subsequent sections, we propose a framework for examining emotional functioning in the presence of early adversity and review the existing findings. For each finding, we specify which type of adversity was examined with the caveat that most studies investigate a single form of adversity (e.g., child maltreatment) in isolation and thus make comparisons across adversity types or across degrees of exposure on a given form of emotional functioning difficult. We end our review with a discussion of how DMAP may be a useful framework for generating hypotheses to test the differential effect of adversity type on specific domains of children's emotional functioning.

The Impact of Early Adversity on Emotional Functioning

Extensive scientific theorizing has focused on defining and operationalizing optimal emotional function. Here, we rely on conceptualizations of emotional functioning from developmental theories (e.g., Bohnert et al., 2003; Curby et al., 2015; Denham et al., 2003; Domitrovich et al., 2017; Mathews et al., 2016; Oberle, 2018) and psychological constructionist theories of emotion (Atzil et al., 2018;

Hoemann et al., 2020; Lindquist et al., 2015; Shablack & Lindquist, 2019). In particular, we draw from models that have referred to children's emotional or affective "competence" (Denham, 1998; Halberstadt et al., 2001; Saarni, 1999) because like a constructionist approach, these models assume that emotional abilities develop in large part due to experience and caregiver input. These competence models typically include a broad range of processes related to inferring emotional states, understanding causes and consequences of emotions, modulating, appraising, and expressing emotion, the utilization of emotion to guide decisions and behaviors, experiencing varied and well-differentiated emotions, and communication of emotions (Denham, 1998; Halberstadt et al., 2001; Lindquist & Barrett, 2008; Saarni, 1999; Salovey & Mayer, 1990).[1] Such models typically assume that emotional abilities range from maladaptive to average to highly adaptative.

Building off this foundational groundwork (e.g., Halberstadt et al., 2001; Saarni, 1999), we conceptualize five domains of emotional functioning that collectively contribute to normative socio-emotional functioning and that are each empirically impacted by early life adversity (Table 1). We refer to emotional *functioning* rather than emotional *competence* because research on early adversity has often focused on deficits associated with exposure rather than conceptualizing development in the context of adversity as a form of adaptation (Cicchetti, 2013). Our focus is on identifying how adversity-exposed children are functioning, what impacts their functioning, and how to bolster their strengths while reducing maladaptive responses to promote resilience, well-being, and health.

Our five domains of emotional functioning not only build in part on three fundamental processes first proposed by Halberstadt and colleagues (2001); Fig. 1, but also incorporate domains that are most frequently studied in adversity-exposed children. Although the Affective Social Competence model proposed by Halberstadt and colleagues (2001) has been influential in informing studies of emotional functioning in normative populations, empirical studies in adversity-exposed children focus most frequently on the individual domains of emotion expression, perception, knowledge, reactivity, and regulation. Moreover, constructs such as "experiencing emotion" may obscure mechanisms and ultimately be too broad to guide hypothesis generation. Our goal is to utilize existing emotion theory to carefully define these five domains and use these definitions to (1) inform more precise measurement of each domain, (2) identify which aspects of emotional functioning are altered in adversity and how these aspects are altered, and (3) reveal new directions for future research to complement and extend existing findings on the role of early life adversity in emotional functioning.

[1] Still other constructs of emotion exist (e.g., emotional clarity, emotion awareness, and emotion abstraction; Boden et al., 2013; Nook et al., 2018; Rieffe et al., 2008).

Emotion Expression

Emotion expression refers to the facial, bodily, and vocal behaviors associated with emotional experiences (Russell et al., 2003) and is most often measured via observations of children's emotional behaviors (e.g., level of perceived positive affect in facial, bodily, or vocal behaviors). One of the most common methods for assessing emotion expression in infants or children is through observations of naturalistic settings (in the home, at school) or laboratory-based tasks designed to elicit emotions (Camras et al., 1990; Hernández et al., 2016; Quas et al., 2000). These play or laboratory-based tasks are usually video-recorded and coded by researchers using established coding schemes (e.g., the Facial Action Coding System; Ekman & Friesen, 1978).

It is clear that some aspects of emotion expression are present at birth and are relatively automatic. Indeed, infants produce positive and negative facial expressions from birth (Malatesta et al., 1989) and their vocal acoustics signal arousal (Russell et al., 2003). However, it is less clear that children (or even adults) automatically and reliably produce discrete and specific facial configurations for certain emotions (Barrett et al., 2019). Rather, children appear to learn to produce specific facial movements to express discrete emotions (e.g., anger v. sadness v. fear) as a means of communicating their feelings. The earliest trajectory of this process likely begins with parent–infant mimicry. For example, parents who make more infant-directed facial movements have infants who engage in more mimicry (Markova & Legerstee, 2006). Indeed, parental behavior (e.g., joint attention and conversations) and children's emotion expression are strongly linked in early childhood (Chaplin et al., 2005; Halberstadt, 1986; Malatesta & Haviland, 1982; Morris et al., 2011). Overall, it appears that parents help teach their children when and how to express emotions, as well as which emotions are contextually appropriate to express.

Expression and Adversity Virtually no studies investigate the links between early adversity exposure and emotion expression. One study by Camras et al. (1990) observed 3–7-year-old maltreated and non-maltreated children and their mothers during a laboratory play session and multiple home visits. Across the observations, children's facial and non-facial (e.g., physical aggression and physical affection) behaviors were coded to determine rates of emotion expression. Overall, maltreated and non-maltreated children did not differ in their observed expression of emotion. Mothers in the two groups also did not differ in emotion expression. Conversely, studies utilizing other expression modalities

Table 1 Definitions of emotional functioning domains

Domain	Definition	Measurement
Expression	The facial, bodily, and vocal behaviors associated with emotional experiences	• Observations of naturalistic settings[a] and laboratory-based tasks. Coded via established coding schemes (e.g., the Facial Action Coding System[b]) • Although less common, parent-report and other questionnaire measures exist[c] • Emphasis on facial expressions thought to be representative of specific emotion categories consistent with the basic emotion literature[b] • Little attention paid to measuring other modalities (i.e., vocal or bodily expressions) or multiple modalities simultaneously
Perception	The ability to reasonably infer the emotional expressions of others using facial, vocal, and bodily cues	• Most commonly, present children with a set of pictures via paper or computer in which unknown or known people (typically adults, but sometimes children) are making facial movements thought to be associated with discrete emotion categories, such as anger or happiness[d] • Children are asked to infer the emotion displayed by naming it or selecting an emotion from a list of options • Responses are scored for accuracy in identifying the intended emotion expression
Knowledge	The set of information that a person knows about individual emotion categories and beliefs about how emotions work	• Assessed with self-report, or at times, behaviorally • Ex: present children with a set of emotional stories and ask them to name which emotion they think the protagonist is experiencing,[e] or which facial configuration they think "matches" the emotional situation[f] • Other assessments include asking children to name all the different feelings they can think of,[g] define a set of emotion words,[h] or describe the cause and/or consequence of an emotion[i]
Reactivity	The experience of emotions (a) in response to a wide array of stimuli (i.e., emotion sensitivity), (b) strongly or intensely (i.e., emotion intensity), and (c) for a prolonged period of time before returning to baseline level of arousal (i.e., emotion persistence)	• Measured via behavioral, questionnaire, peripheral physiological, and neuroimaging measures • Behavioral measures identify a change in an observed behavior when exposed to an evocative v. neutral stimulus • Self-report questionnaires (or often in the case of children, parent- or other-report questionnaires) ask individuals to report how strongly they experience emotions, under what contexts, and how persistently[j] • Peripheral physiological measures assess the change in an objective measure of physiological responding (e.g., heart rate) when exposed to an evocative v. neural stimulus • Neuroimaging studies examine the change in neural activation in brain structures, such as the amygdala, in response to evocative v. neutral stimuli
Regulation	The internal and external processes involved in initiating, maintaining, and modulating the occurrence, intensity, and expression of emotions Explicit/conscious: a conscious or deliberate desire to change an emotion Implicit/automatic: occurs outside of conscious desire to change one's emotions and engages limited control processes	• Measurement of emotion regulation varies widely depending on the form of regulation under study • More explicit and controlled forms of emotion regulation are typically measured via self- or other-report (e.g., parent-report Emotion Regulation Checklist[k]) • Other measures include presenting children with vignettes depicting emotional situations and asking children to name regulation strategies that the protagonist could use,[l] asking children to self-report on emotional events and the types of regulations strategies that they used to deal with their emotions,[m] observations of children's emotional reactions in play or laboratory-based tasks,[o] or directing children to engage in strategies such as distancing from emotional images[p] • Behavioral tasks may obscure the distinction among emotion expression, reactivity, and regulation as these tasks are constrained to behavior rather than thoughts or physiological responses

[a]Camras et al., 1990; Hernández et al., 2016; Quas et al., 2000. [b]Ekman & Friesen, 1978. [c]Kerns et al., 2014; Penza-Clyve & Zeman, 2002; Perwien et al., 2008. [d]Pollak et al., 2000. [e]Schultz et al., 2001. [f]Sullivan et al., 2008. [g]Miller et al., 2005. [h]Nook et al., 2020. [i]Pons et al., 2003. [j]Nock et al., 2008. [k]Shields & Cicchetti, 1997. [l]Cole et al., 2009. [m]Milojevich, Levine, Cathcart, & Quas, 2018; Milojevich, Russell, & Quas, 2018. [o]Rubin et al., 1995. [p]Silvers et al., 2012

have found differences between children exposed to adversity and those without exposure (DeJonghe et al., 2005; Stivanin et al., 2015). For example, compared to non-exposed infants, infants exposed to domestic violence express more facial configurations associated with distress during situations of adult verbal conflict (DeJonghe et al., 2005).

Taken together, the few findings on emotion expression suggest that differences between adversity-exposed and non-exposed children may be context-dependent to an extent, such that differences may emerge in high-stress or threatening contexts, but not under more normative conditions. Given the very limited findings in this domain, much remains unknown about how adversity exposure may relate to children's expressions of emotions, for example, if and which types of adversity impact emotional expression.

Emotion Perception

Equally important to being able to produce emotional expressions is the ability to reasonably infer the meaning of facial, vocal, and bodily cues of emotion expressed by others. Here, we refer to this ability as *emotion perception* (Pollak & Sinha, 2002; this is often called emotion recognition, but that term infers no role of the perceiver in the process and there are multiple sources of top-down control involved in understanding the meaning of facial muscle movements; Barrett et al., 2019; Lindquist, 2013; Hassin et al., 2013). Infants show preferential attention to expressive faces (Hoehl et al., 2008) and may be able to differentiate facial movements on the basis of valence (see Shablack & Lindquist, 2019; although see Ruba et al., 2020). Over age 2–7, children become increasingly adept in their ability to infer the meaning of others' emotional expressions (Gao & Maurer, 2009; Herba et al., 2006; Montirosso et al., 2010; Shablack & Lindquist, 2019; Tonks et al., 2007; Widen & Russell, 2008). Moreover, emotion perception becomes more refined throughout adolescence, with research indicating that the neural substrates involved in the processing of emotional cues are not adult-like until early adolescence (Batty & Taylor, 2006).

Parents' own beliefs about the importance of emotion socialization, their acknowledgement and instruction regarding children's emotions, and their own emotion perception predict children's subsequent emotion perception (Castro et al., 2015). For example, parents' belief in the importance of guiding children's emotional development is associated with 4- to 10-year-old children's superior emotion perception (Cole et al., 2009; Dunsmore & Karn, 2001; Dunsmore et al., 2009). Similarly, parents who verbally label emotions for their children and are better at inferring the emotional state of others have children who show better emotion perception at an earlier age (Castro et al., 2015). Together, these findings suggest that caregiver socialization is important in children's development of the emotion categories that guide perception of emotions on others' faces.

Perception and Adversity Emotion perception is perhaps the most widely studied emotion domain with regard to children exposed to early adversity, although findings vary and are generally not consistent (Table 2). Much of the research on emotion perception has specifically focused on children exposed to maltreatment. Studies that have combined maltreatment subtypes into one broad maltreatment group generally find mixed results, as do findings in other forms of adversity, such as poverty and interparental conflict (Table 2). However, there is increasing evidence for distinct differences in emotion perception based on type of adversity exposure, including from large and representative samples (Dunn et al., 2018). These studies show that children of abusive parents show preferential expertise with the category of anger (Pollak et al., 2000, 2009), perhaps because they have learned through experience that adults' aggressive facial behaviors are predictive of threat. In contrast, lack of caregiver input in situations involving neglect is associated with children's failure to differentiate normally among discrete emotions in facial expressions, potentially due to a lack of exposure to a wide range of learning experiences about emotions (Pollak et al., 2000).

Importantly, many experimental tasks utilized in emotion perception studies are entangled in a basic emotion perspective (for review, Ruba & Pollak, 2020). They implicitly assume that discrete emotion categories can be reliably communicated by specific facial-muscle movements. However, empirical findings largely do not support this perspective and instead suggest that how individuals express emotions varies considerably across contexts, cultures, and even across individuals within a single event (for review, Barret et al., 2019). As such, researchers in the field of early adversity need to move beyond assessing children's "recognition" of static images of posed, highly caricatured facial configurations. Indeed, Ruba & Pollak (2020) advocate that researchers turn away from the gold standard, readily available stimuli sets of posed facial images and instead examine "how children learn to understand and use the variable emotion signals they encounter in their everyday environments or how children learn to understand meaningful gradations in the intensity of emotions". These more naturalistic approaches (Castro et al., 2018; Sears et al., 2014; Shuster et al., 2020) may provide clearer insights into the full range of variability in human emotion and how adversity relates to the perception of emotions in others.

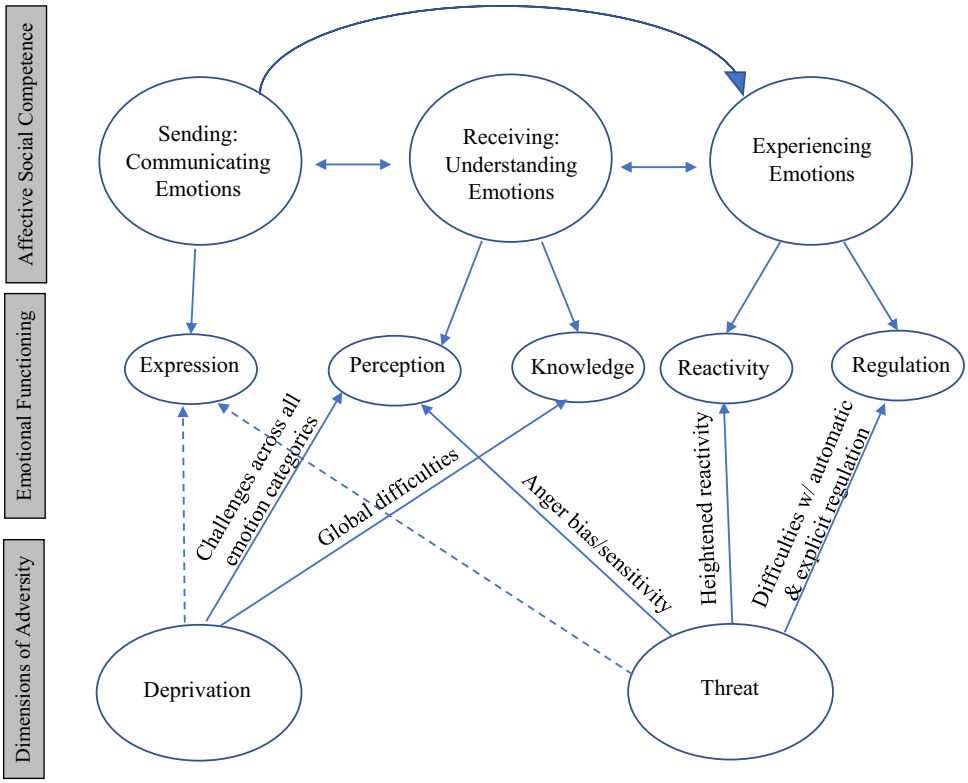

Fig. 1 Linking emotional functioning to emotional and adversity theories. *Note. Dashed lines indicate potential pathways linking deprivation and threat to domains of emotional functioning. Direct tests of these pathways are needed

Emotion Knowledge

Emotion knowledge consists of the set of information that a person knows about individual emotion categories and beliefs about how emotions work (Izard et al., 2001; Southam-Gerow & Kendall, 2002; Trentacosta & Fine, 2010). Emotion knowledge develops across childhood and continues into adolescence, and it is likely that even adults continue to update and refine their emotion knowledge across the lifespan (see MacCormack et al., 2020). For example, with age, children come to understand in a more nuanced manner the causes of specific emotions, that internal emotional experience and outward expression do not necessarily correspond with one another, and that emotional reactions can be changed and controlled (Bennett & Galpert, 1992; Campos et al., 1989; Nook et al., 2020; Saarni, 1979). Even children's understanding of the meaning of emotion categories such as "anger," "joy," and "sadness" increases linearly through age 11 (Nook et al., 2020). Children's understanding of emotion categories also becomes more abstract with age. Whereas young children understand emotion categories in terms of the situations and physiological sensations associated with that category, older children and adolescents have increasingly abstract representations that involve the causes and characteristics of emotion categories (Nook et al., 2020).

As with emotion perception, joint discussions between children and parents promote emotion knowledge by helping children to learn the features that define each category (e.g., the causes and consequences of emotion; Bretherton et al., 1986; Denham, 1986; Dunn et al., 1987). Moreover, parents who discuss emotions more with their children and are more supportive of their children's emotional expressions have children with better emotion knowledge (Denham & Kochanoff, 2002; Halberstadt & Eaton, 2002; Perez Rivera & Dunsmore, 2011).

Emotion Knowledge and Adversity Although the extant literature is sparse, most studies suggest that adversity exposure is linked with reductions in emotion knowledge (Fries & Pollak, 2004; Pears & Fisher, 2005; Perlman et al., 2008; Sullivan et al., 2008; Winer & Thompson, 2013; although see Tarullo et al., 2007, for an exception). For example, in young children, maltreatment is associated with less specific emotion knowledge, even when accounting for age, intelligence, and executive function (Pears & Fisher, 2005). Specifically, when shown puppets acting out various emotional situations, the maltreated children were more likely to incorrectly infer the emotion being experienced by the main character. Similarly, children exposed to maltreatment relative to non-maltreated peers interpreted positive, equivocal, and negative events as being equally plausible causes of facial expressions consistent with sadness and anger (Perlman et al., 2008).

These differences in the content of emotion knowledge could stem from the increased presence of negative learning experiences (e.g., anger or rage in a parent can follow

Table 2 Summary of previous literature on emotion perception in adversity-exposed children

	Total sample size	Age range	Emotion perception task	Outcome measure	Findings
Child maltreatment (subtypes combined)					
Ardizzi et al. (2015)	$N=62$	4–12 years	Forced-choice facial expressions of emotion task. Participants identified adults' facial expressions of emotions choosing one of the four proposed labels (i.e., anger, fear, joy, and sadness) — 64 total trials	Tendency rate, false alarms, accuracy	Maltreatment associated with bias for anger expressions
Camras et al. (1988)	$N=40$	3–7 years	20 brief stories: 12 pure and 8 masked emotion stories (2 per emotion), happy, surprised, angry, disgusted, afraid, or sad	Accuracy	Maltreatment-exposed children less accurate across all emotions relative to non-exposed children
Camras et al. (1983)	$N=34$	3–6 years	12 brief stories: happy, surprised, angry, disgusted, afraid, or sad	Accuracy	Maltreatment-exposed children less accurate across all emotions relative to non-maltreated
Camras et al. (1990)	$N=40$	3–7 years	20 emotion stories; children had to match emotional expressions to the emotion being described in the story	Accuracy	Maltreatment associated with less accuracy in recognizing pure and masked emotional expressions
Koizumi and Takagishi (2014)	$N=129$	6–17 years	Participants look at pictures of human eyes and to choose the emotion that best fits the picture (positive, negative, and neutral emotions assessed)	Accuracy	Maltreated children less accurate at positive emotion perception. No differences for negative emotions
Leist and Dadds (2009)	$N=23$	16–18 years	Happy, sad, angry, fearful, disgusted, and neutral expressions displayed; a total of 36 presentations. Participant indicated the most appropriate emotion for each face	Accuracy	Maltreatment was predictive of superior perception of fear and sadness
Masten et al. (2008)	$N=46$	8–15 years	Facial expressions ranged from happy to neutral to fearful	Reaction time; accuracy	Maltreated children show heightened ability to identify fearful faces, evidenced by faster reaction times relative to controls
Pears and Fisher (2005)	$N=91$	3–5 years	Children were shown four drawings of faces depicting happy, sad, angry, and scared emotions	Accuracy	Maltreatment was associated with worse emotion perception capabilities, even when accounting for age, intelligence, and executive function

Table 2 (continued)

	Total sample size	Age range	Emotion perception task	Outcome measure	Findings
Shenk et al. (2015)	$N=106$	14–19 years (girls only)	Dynamic Affect Recognition and Evaluation task: video started with a neutral facial expression and transitioned into an expression of 1 of 6 emotions: happiness, sadness, fear, surprise, disgust, or anger	Accuracy and latency	CM status not related to the latency of affect perception. CM group less accurate in recognizing fear; marginal effect for anger. No diffs by mal subtype
Physical abuse					
During and McMahon (1991)	$N=46$	2.5–9.5 years	2 sets (child vs. adult) of photographs of 6 emotional expressions (happiness, sadness, anger, fear, surprise, and disgust)	Accuracy	PA children scored lower on accuracy relative to non-PA children
Pollak et al. (2000) — Study 1	$N=48$	3–5 years	25 vignettes (happiness, sadness, disgust, fear, and anger). Child shown 3 photos of models exhibiting different facial expressions (the correct expression and two distractors) and asked to point to the face appropriate for the protagonist in the story	Accuracy; bias	PA children displayed a response bias for angry facial expressions
Pollak et al. (2000) — Study 2	$N=48$	3–5 years	Stimuli were 42 photos of facial expressions (anger, happiness, sadness, fear, disgust, and neutrality). Each child was shown 2 photos of models posing emotional expressions. Child indicated whether the two models were expressing the same or different feelings	Accuracy, similarity ratings	PA children and controls perceived more distinction between anger and other negative emotional expressions than did PN children
Pollak and Kistler (2002)	$N=40$	9 years	Morphed images: happiness to fearfulness, happiness to sadness, anger to fearfulness, and anger to sadness. Participants indicated which emotion the face most resembled by touching one of two labels that appeared beneath the image on the touch monitor	Perceptual threshold	Controls tended to under-identify anger, whereas the abused children over-identified anger
Pollak and Sinha (2002)	$N=47$	8–10 years	Four each of angry, happy, sad, and fearful facial images. Morphs from neutral to clear depiction of given emotion	Sensitivity and bias to each emotion	Physically abused children accurately identified facial displays of anger on the basis of less sensory input than did controls

Table 2 (continued)

	Total sample size	Age range	Emotion perception task	Outcome measure	Findings
Shackman and Pollak (2005)	$N=63$	7–12 years	Facial emotional expressions of mother vs. control presented with vocal emotional expressions. Children asked to report what adult was feeling (angry, sad, happy)	Accuracy	PA children processed anger more accurately than controls. Groups did not differ for happiness or sadness. PA children identified anger more and sadness less frequently when produced by their own mothers
Neglect					
Pollak et al. (2000) — Study 1	$N=48$	3–5 years	25 vignettes (happiness, sadness, disgust, fear, and anger). Child shown 3 photos different facial expressions (the correct expression and two distractors) and asked to point to the face appropriate for the protagonist in the story	Accuracy; bias	PN children had more difficulty discriminating emotional expressions than did control or PA children
Pollak et al. (2000) — Study 2	$N=48$	3–5 years	Stimuli were 42 photos of facial expressions (anger, happiness, sadness, fear, disgust, and neutrality). Each child was shown 2 photos of models posing emotional expressions. Child indicated whether the two models were expressing the same or different feelings	Accuracy, similarity ratings	PN children perceived less distinction between angry, sad, and fearful expressions than did controls
Other forms of adversity					
Fries and Pollak (2004)	$N=39$	4.5 years	One task required children to identify photographs of facial expressions of emotion. A second task required children to match facial expressions to an emotional situation	Accuracy, sensitivity and response bias	PI children correctly identified fewer facial expressions of emotion than controls. PI children used more liberal criteria for selecting angry faces than comparison children
Raver et al. (2015)	$N=1,025$	6–58 months	Assessment of Children's Emotion Scale (ACES): photos of children making faces that either clearly depict an emotion (joy, sadness, anger, or fear) or demonstrate no emotion at all are shown. Children are asked to indicate if the child in the picture is feeling happy, sad, mad, scared, or is not feeling anything at all across eight trials	Accuracy	Exposure to greater levels of interparental conflict, more household chaos, and more years in poverty predicted poorer perception of negative emotion

Table 2 (continued)

	Total sample size	Age range	Emotion perception task	Outcome measure	Findings
Population-based sample of adversity-exposed children					
Dunn et al. (2018)	$N = 6{,}506$	8.5 years	Faces subtest of the Diagnostic Assessment of Non-Verbal Accuracy: 24 pictures of child faces (high vs. low intensity) 4 different emotions	Inaccuracy (total and per emotion)	No differences between exposed and non-exposed children in emotion perception

PA, physical abuse; *PN*, physical neglect; *PI*, previously institutionalized

an apparently equivocal event so children do not understand the normative causes of anger) or the absence of learning experiences (e.g., a lack of emotion socialization and scaffolding around emotion knowledge). Consistent with the latter possibility, a study by Sullivan and colleagues (Sullivan et al., 2010) suggests that exposure to neglect may be more predictive of a paucity of emotion knowledge than exposure to abuse; moreover, abuse may not predict emotion knowledge after accounting for neglect. More studies are needed to examine the role of adversity type on children's emotion knowledge. In addition, currently, all studies of early adversity exposure and emotion knowledge are limited to young children (i.e., 8 years of age or younger); therefore, little is known about how adversity relates to emotion knowledge later in development or whether the relations vary across time.

Emotion Reactivity

Emotion reactivity refers to the experience of emotions (a) in response to a wide array of stimuli (i.e., emotion sensitivity), (b) strongly or intensely (i.e., emotion intensity), and (c) for a prolonged period of time before returning to baseline level of arousal (i.e., emotion persistence; Nock et al., 2008). Emotion reactivity is an often overlooked aspect of children's emotional functioning (see Denham et al., 2003; Saarni, 1999) and is often confounded with regulation in studies of emotion (Zelkowitz & Cole, 2016). However, it is possible to separate behaviors indicating the experience of emotions from behaviors intended to obtain soothing even in infancy (Ursache et al., 2013). Moreover, initial developmental work conceptualized emotional reactivity as temperamental (Kagan & Snidman, 1991) and therefore not as strongly impacted by environmental inputs as the other domains of emotional functioning. However, evidence from epigenetic studies and preclinical studies in animals indicate that early life impacts emotional reactivity (Davis et al., 2011; Gunnar, et al., 2015). Additionally, in children, emotion reactivity is associated with both early environment and caregiver socialization (Busso et al., 2016; McLaughlin, Busso, Duys, et al., 2014; McLaughlin, Sheridan, Alves, et al. 2014; McLaughlin, Sheridan, & Lambert, 2014). In fact, much of what we think we know about emotion (dys) regulation in adversity-exposed children may be evidence of alterations in reactivity (see Lavi et al., 2019, for recent meta-analytic findings on this subject).

Emotion reactivity is present at birth (Gunnar & Quevedo, 2007) and varies due to parenting behaviors over the course of early childhood (Atzil et al., 2018; Davis & Granger, 2009; Laurent et al., 2012; Rosenblum et al., 2002). Findings suggest that emotion reactivity may be relatively stable once children enter the pre-teen years through late adolescence

(Silvers et al., 2012). However, there is also some indication the early adolescence is a period of heightened emotion reactivity, potentially due to hormonal changes occurring with puberty (Dahl & Gunnar, 2009).

Reactivity and Adversity Findings suggest that adversity-exposed children have stronger emotions and are prone to more intense reactions than their non-adversity exposed counterparts (Cooley-Quille et al., 2001; Haskett et al., 2012; Lavi et al., 2019; Lind et al., 2014; Maschi et al., 2008; Shackman & Pollak, 2014). For example, in a study comparing physically abused and non-abused boys, Shackman & Pollak (2014) found that in response to a frustration task, abused children experienced more negative affect relative to non-abused children both during the task and during recovery. Thus, the abused children demonstrated more emotion intensity (experiencing strong, intense emotions) and persistence (experiencing prolonged reactivity before returning to baseline level of arousal). Similarly, exposure to violence has been linked to greater self-reports of anger and negative affect in response to minimal provocations (Maschi et al., 2008). Finally, neuroimaging studies confirm that children exposed to adversity demonstrate greater neural activation in response to negative affectively evocative stimuli in brain regions associated with autonomic reactivity and unpleasant affect (e.g., amygdala; Hein & Monk, 2017; McCrory et al., 2013; McLaughlin, Peverill, Gold, et al., 2015; McLaughlin, Sheridan, Tibu, et al., 2015). Together, these results indicate that exposure to adversity is associated with greater emotion reactivity. However, as with other emotional domains, many studies have examined one form of adversity in isolation without accounting for the effects of other forms of adversity. As such, more work is needed comparing across adversity types to better understand how (and which) adversity exposure is linked to differences in emotion reactivity.

Emotion Regulation

The construct of emotion regulation has been used to include a vast array of biological, social, behavioral, and cognitive processes (Garnefski et al., 2001). We adhere to Thompson's classical definition of *emotion regulation* as the "internal and external processes involved in initiating, maintaining, and modulating the occurrence, intensity, and expression of emotions" (1994, p. 27). Emotion regulation has perhaps the slowest developmental trajectory of any emotional functioning domain, with advances continuing well into adolescence (Calkins & Bell, 1999; Silvers et al., 2012; Zeman & Shipman, 1997). Early in life, caregivers help regulate infants' affective states via physical contact, the sound of their voice, and other interpersonal strategies (Atzil et al., 2018). Infants themselves demonstrate some basic regulation processes during the first years of life, largely in the form of extrinsic behavioral strategies aimed at reducing negative sensations and increasing positive feelings (Zeman et al., 2006). Throughout early childhood, caregivers continue providing social support and begin to teach children explicit strategies for emotion regulation such as cognitive control strategies or situation selection and modification (Dunsmore et al., 2013; Morris et al., 2007). As children age, they tend to rely less on their caregivers to initiate regulation and instead increasingly self-regulate via more sophisticated strategies, such as cognitive reappraisal (Eisenberg & Morris, 2002; McRae et al., 2012).

Parenting behaviors are also related to implicit forms of emotion regulation (Chen et al., 2020; Gee et al., 2013; Kopala-Sibley et al., 2018). Implicit regulation is typically conceived of behavioralllly as a child's ability to inhibit attention to irrelevant emotional stimuli or neurally as greater connectivity between the amygdala and prefrontal regions such as the ventromedial prefrontal cortex (Gyurak et al., 2011), which may reflect greater contextualization of affective states. Of note, these forms of implicit emotion regulation, unlike explicit forms of emotion regulation, are not thought to involve intentional, motivated efforts to regulate one's emotions. They are thus not measurable through self-report and when assessed through most observational or other-report means, are confounded with reactivity. Methods that measure physiology or neuroimaging can target specific physiological markers or brain activation associated with regulatory processes, but these are infrequently used in the literature. We suggest that the best practice when reviewing other-report data is to consider such findings as a combination of regulation and reactivity.

Regulation and Adversity The majority of studies on children's regulation in adversity-exposed samples use the parent-report Emotion Regulation Checklist (ERC; Shields & Cicchetti, 1997) and are incredibly consistent: regardless of age or gender, adversity exposure predicts poorer emotion regulation (Chang et al., 2003; Ellis et al., 2014; Kim & Cicchetti, 2010; Hébert et al., 2018; Kim-Spoon et al., 2013). However, this measure suffers from the same challenges as all other-report measures of children's emotional functioning, in that it assesses behavior as reported by an observer and cannot account for children's perceptions or get "under the skin" to determine whether emotional function is a product of reactivity or regulation (or both) or narrow in on which emotion regulation strategies children might be using if they are using any (Table 3).

To address some of these constraints, researchers have turned to self-report measures—asking children to directly report on their use of explicit, controlled regulation strategies. Findings from these studies indicate that adversity-exposed children tend to use less adaptive regulation

Table 3 Distinguishing emotion reactivity from emotion regulation

Challenges assessing reactivity and regulation
1. Emotional reactivity interacts with and limits the effectiveness of emotion regulation[a]
2. Behavioral and questionnaire measures are particularly prone to conflating these domains
3. Children often lack the linguistic skills or emotional awareness to accurately report on reactivity and regulation[b]
4. Reliance on reports by others (typically parents) to understand the nature of children's emotional functioning[c]
a. Regulation items such as "exhibits wide mood swings" or "can recover quickly from episodes of upset or distress" closely align with classic definitions of reactivity[d]
5. "Implicit emotion regulation" further confounds the measurement of reactivity vs. regulation
a. Unless measures are employed that can weigh in on whether behavior or self-reported emotional intensity are a product of relatively increased arousal or not[e]

[a]Poon et al., 2016. [b]Cole et al., 2004. [c]Emotion Regulation Checklist (ERC); Shields & Cicchetti, 1997. [d]Nock et al., 2008. [e]Etkin, 2011; Gyurak et al., 2011; for review, Mauss et al., 2007; although see Buhle et al., 2010, for evidence that this effect may not be specific to emotion regulation

strategies, such as disengagement, expressive suppression, and rumination more frequently, and use effective strategies, including cognitive reappraisal, less often than non-exposed children (Amone-P'Olaket al., 2007; Boyes et al., 2016; Epstein-Ngo et al., 2013; Gruhn & Compas, 2020; Maughan & Cicchetti, 2002; Milojevich, Levine, Cathcart, & Quas, 2018; Milojevich, Russell, & Quas, 2018; Robinson et al., 2009; Shields et al., 1994). Interestingly, at least one study suggests that adversity-exposed children are capable of utilizing adaptive regulation strategies, such as cognitive reappraisal, in a manner similar to non-exposed children if directly instructed to do so (McLaughlin, Peverill, Gold, et al., 2015; McLaughlin, Sheridan, Tibu, et al., 2015). Thus, adversity exposure may not affect children's general ability to use regulation strategies but may limit children's regulation strategy repertoires (Lougheed & Hollenstein, 2012), leading them to rely more heavily on disengagement, avoidance, rumination, and suppression (Epstein-Ngo et al., 2013; Gruhn & Compas, 2020; Maughan & Cicchetti, 2002; Milojevich, Levine, Cathcart, & Quas, 2018; Milojevich, Russell, & Quas, 2018; Robinson et al., 2009; Shields et al., 1994). Chronic use of such strategies is consistently linked to poorer mental and physical health in children and adults (Aldao et al., 2010, 2016; Cisler et al., 2010; Compas et al., 2017; Gross & Jazaieri, 2014; Schäfer et al., 2017; Silk et al., 2003), although they may be adaptive in the moment in an adverse environment.

To date, most studies on early adversity exposure and emotion regulation examine children exposed to maltreatment, with less research considering other types of adversity or comparing across exposure types. However, Milojevich and colleagues (Milojevich et al., 2019) recently examined regulation strategies as potential mediators linking exposure to abuse and neglect in early life to symptoms of psychopathology in adolescence. Findings indicated that more exposure to physical abuse, but not neglect, predicted greater use of avoidant regulation strategies in adolescence. In contrast, neglect was unrelated to adolescent regulation strategy use after controlling for exposure to threat. These findings suggest that exposure to intense affective contexts might set the stage for long-term challenges in adaptive emotion regulation.

Studies also indicate that adversity exposure is associated with differences in implicit forms of emotion regulation (Lambert et al., 2017; Machlin et al., 2019; Marusak et al., 2015; McLaughlin et al., 2016; Sheridan et al., 2019; Tottenham et al., 2010). For example, exposure to violence has been selectively linked to automatic emotion regulation deficits, specifically difficulty adaptively inhibiting attention to irrelevant emotional information in adolescents (Lambert et al., 2017). Finally, adversity-exposed children exhibit more adult-like ventromedial prefrontal cortex-amygdala connectivity at earlier ages (Gee et al., 2013). Collectively, these findings indicate that adversity-exposed children, perhaps particularly children exposed to threat, have difficulty regulating responses to evocative stimuli, which may put them at risk for subsequent behavioral problems and psychopathology.

Mechanisms of Adversity Exposure and Emotional Functioning Associations

The available evidence consistently points to deficits or changes in emotional functioning as a result of exposure to early adversity. A remaining question is "why"? Understanding the mechanisms by which early adversity leads to differences in emotional functioning has important implications for prevention and intervention efforts. To date, the study of early life stress and adversity has often operated (explicitly, or at times, implicitly) from a socialization or social learning perspective (for review, Lavi et al., 2019), attributing the deficits in emotional functioning in adversity-exposed children specifically to the ways in which parents in adverse contexts socialize their children around emotions.

In families characterized by adversity, caregivers may model responses to emotions that are non-normative and may also change the nature and degree of explicit emotion socialization that is provided to children. Both should have important implications for children's emotional functioning. For example, children exposed to maltreatment tend to have parents who display ineffective regulation strategies (Criss et al., 2016), produce less prototypical expressions of emotions (Camras et al., 1988), report greater expression of negative emotions (Raver & Spagnola, 2002), and have difficulties inferring the emotions of others (Balge & Milner, 2000). More broadly, in high adversity contexts, parents often fail to teach their children effective ways to reduce distress and negative feelings and instead are more likely to invalidate their children's feelings or neglect them in emotional situations (Shipman et al., 2007).

In these approaches, it is assumed that the effect of adversity exposure on children's emotional functioning is fully mediated by parental socialization. Yet it is likely, albeit relatively understudied, that features of adversity itself have a direct effect on emotional functioning. For example, a child growing up with significant exposure to community violence experiences a high incidence of threat that may shape their emotional development through basic learning mechanisms (e.g., McLaughlin et al., 2017), separate from their parental socialization. These exposures could be conceptualized as salient learning experiences that cause children to develop emotional repertoires that are relatively adaptive in a threatening context (e.g., earlier development of fear learning; Machlin et al., 2019) but that produce maladaptive emotional responses in a non-threatening context (e.g., generalization of fear learning to non-threatening affective stimuli).

Beyond assessing parental socialization, DMAP is a useful framework for generating hypotheses about the differential effect of early adversity type on specific domains of emotional functioning. For instance, it is possible that exposure to threat impacts emotion reactivity and automatic emotion regulation, whereas exposure to deprivation impacts emotion knowledge and explicit emotion regulation. It is also possible that these dimensions interact, such that the presence of both results in particular emotional phenotypes. For instance, children with high emotional reactivity are capable of high regulation if they experience positive parenting behavior (Ursache et al., 2014), suggesting that children who experience threat and deprivation might be particularly at risk for developing emotional profiles characterized by high reactivity and poor emotion understanding and regulation. Dimensional models, such as DMAP, when considered in combination with the early socialization environment hold promise for identifying specific mechanistic hypotheses for future research.

Implications and Recommendations

Although much research has documented the impact of adversity exposure on emotional outcomes, this research to date has been largely atheoretical. Herein we conceptualize emotional experiences as constructed over the course of early development, as the product of basic affective reactions and learned situated meaning (Hoemann et al., 2020; Lindquist et al., 2015; Shablack & Lindquist, 2019). We also suggest that adverse experiences in childhood might be best understood as a product of the dimensions of threat and deprivation exposure (Sheridan & McLaughlin, 2014, 2016). Very little research has explicitly applied these models to understanding the development of emotional functioning in the face of adversity and we look forward to several important next steps in research on this topic.

Future Research Should Refine Constructs of Emotional Functioning Our first recommendation for future research is that it refines and validates its operationalizations of emotional functioning. Although previous research has uncovered deficits in emotional functioning for children exposed to early adversity, the specificity of this association is underdescribed in part because there has been a general lack of precision in measurement and construct definitions that have obscured the exact nature of these deficits. In turn, this has limited progress in identifying differential associations based on adversity type or precisely measuring the role of each emotional domain on children's long-term functioning and well-being. The use of emotional functioning, a multifaceted construct consisting of emotion expression, perception, knowledge, reactivity, and regulation, can help address these ambiguities and lead to more mechanistic understandings of the impact of adversity on emotion.

Dimensional Models Yield Specific Hypotheses Dimensional models like DMAP may be combined with the construct of emotional functioning to create a fruitful framework for testing the differential associations between types of adversity exposure and children's emotional functioning. Specifically, we hypothesize that exposure to threat (e.g., physical abuse) is associated specifically with emotion reactivity and regulation. Conceptually, iterative exposure to threatening experiences during development will facilitate the neural, behavioral, and physiological responses to subsequent threats. We would expect this to result in a system which is biased toward rapidly detecting threats that mounts a robust response to perceived threats and dampens this response gradually. Consistent with this hypothesis, threat exposure, but not other forms of adversity, has been linked to heightened emotion reactivity (Busso et al., 2016; Machlin et al.,

2019; McLaughlin, Busso, Duys, et al., 2014; McLaughlin, Sheridan, Alves, et al. 2014; McLaughlin, Sheridan, & Lambert, 2014) as well as deficits in both automatic and explicit emotion regulation (Lambert et al., 2017; McLaughlin et al., 2016; Miller et al., 2018; Milojevich et al., 2019; Sheridan et al., 2017, 2019). Exposure to threat is also predictive of a bias and sensitivity toward expressions of anger (During & McMahon, 1991; Pollak & Kistler, 2002; Pollak & Sinha, 2002; Pollak et al., 2000, 2009). In addition, findings from DeJonghe and colleagues (DeJonghe et al., 2005) suggest that threat may be predictive of children's emotion expression, such that children exposed to violence express higher levels of negative affect and distress during frightening or stressful events. In sum, evidence thus far is consistent with the hypothesis that there is a specific relationship between threatening forms of adversity exposure and several domains of emotional functioning (expression, perception, reactivity, and regulation).

Because much of the work on threat exposure is completed in families where children are exposed to maltreatment, future work is needed to disambiguate threat exposure from parental modeling and other forms of emotion socialization which are known to co-occur with maltreatment. Studies which focus on only maltreated children, for example, have shown that with a group equated for threat exposure, parental modeling was predictive of emotion regulation in children (Milojevich & Haskett, 2018), pointing to the potential importance of emotion socialization in this link. Almost no studies have examined the relative contributions of parent socialization, deprivation, and threat in the same samples. The one study to our knowledge that did test relative contributions found that threat and parental socialization (in the form of parents' own emotion regulation difficulties) were associated with poorer explicit emotion regulation in children. However, once parental socialization, threat, and deprivation were introduced simultaneously into models, results indicated that parental socialization, but not deprivation or threat, continued to predict children's explicit emotion regulation abilities (Milojevich et al., 2020). These results suggest that parental socialization of emotion is a robust predictor of emotion regulation in children exposed to early adversity. Whether these same associations hold in other emotional functioning domains or when including other forms of parent socialization (e.g., modeling and parent–child conversations) remains to be investigated. Finally, future work could examine the association between community violence and emotional functioning. Within a dimensional model, direct exposure to community violence in childhood constitutes a threat exposure and would be linked with similar deficits to those already described. However, community violence exposure is much less likely to be linked with deficits in parental emotion socialization and may thus be a useful case for examining the dissociation of threat and deprivation.

In contrast to threat, deprivation is conceptualized within DMAP as a lack of normative learning opportunities. Studies directly testing DMAP have largely focused on the impact of this reduction in scaffolded learning on cognitive outcomes (McLaughlin et al., 2017; Miller et al., 2018; Sheridan et al., 2017; Sheridan et al., 2019). However, prior evidence has linked deprivation in the form of neglect to more global deficits in emotion perception (Pollak et al., 2000), perhaps because children exposed to deprivation lack input from caregivers that scaffolds their understanding of the meaning of emotional facial behaviors. Additionally, a study by Sullivan and colleagues (2010) found that exposure to deprivation in the form of neglect may be more predictive of emotion knowledge than exposure to threat (e.g., abuse), perhaps because of impoverished opportunities for learning about emotions from caregivers. It is likely that exposure to deprivation will be selectively associated with deficits in emotion knowledge and utilization of cognitively complex emotion regulation techniques such as reappraisal because these aspects of emotion function are strongly linked with complex cognitive function (Ochsner et al., 2004; Silvers et al., 2012), known to be selectively impacted by deprivation. In addition, it is likely that deprivation will shape aspects of emotional functioning that require explicit and implicit input from caregivers, such as culturally normative perception and expression of emotions. However, we would expect these deficits to be relatively mild and similar across emotion categories since the limited learning experiences would not be specific to certain types of emotions (e.g., those most likely experienced in the presence of threat).

Concluding Comments

Children exposed to adversity are at increased risk for a whole host of negative outcomes, including high rates of psychopathology and poor health (Busso et al., 2016; Flaherty et al., 2006; Humphreys & Zeanah, 2015; Kim & Cicchetti, 2010; Lambert et al., 2017; Miller et al., 2018; Sheridan et al., 2017). Disruptions in emotional functioning, a multifaceted construct consisting of emotion expression, perception, knowledge, reactivity, and regulation, may be one pathway through which early adversity comes to have this impact. Measuring all five domains of emotional functioning consistently and precisely may help pinpoint which domains are most strongly associated with certain dimension of adversity and with specific outcomes of interest. By measuring the domains in concert, we can begin to tease apart differential associations and more carefully tailor interventions to address the exact nature of children's emotional difficulties.

While current research has coupled adversity exposure with poor emotional functioning, we propose a theory-driven approach that links specific dimensions of adversity to specific domains of emotional functioning resulting in a more mechanistic understanding of how adversity impacts future health and yielding novel and clearer targets for research and intervention.

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