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The Role of Irritability in the Treatment of Behavior Disorders: A Review of Theory, Research, and a Proposed Framework

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Abstract

Research provides strong evidence that the symptoms of Oppositional Defiant Disorder (ODD) are comprised of at least two dimensions: irritability and defiance. Given that these two dimensions have distinct etiologies and long-term risk profiles, they may also warrant different treatment approaches. In particular, impaired emotion regulation plays a central role in the irritable dimension of ODD. As such, this subgroup of youth and their families may benefit from greater consideration of and attention to emotion-focused strategies than is standard in traditional Behavioral Parent Training (BPT) approaches. In support of this hypothesis, this review will: 1) Examine the etiological models guiding the theoretical approach to standard BPT; 2) Evaluate theory and research on emotion socialization broadly and its role in the etiology and maintenance of irritability in children with BDs; 3) Propose an emotion socialization based etiological model for the irritable dimension of child oppositionality and 4) Argue for the use of emotion-focused parent training in the treatment of such youth. Clinical implications, gaps in the current state of the literature, and future directions for research will also be discussed.

Keywords

oppositional defiant disorder; irritability; treatment; dimensions; emotion socialization

Behavior disorders (BDs) are the second most common cause of child mental health referrals (Merikangas, Nakamura, & Kessler, 2009), affecting 113 million youth globally (Polanczyk, Salum, Sugaya, Caye, & Rohde, 2015). Early onset (3 to 8 years old) BDs, including attention deficit hyperactivity disorder (ADHD), oppositional defiant disorder (ODD), and conduct disorder (CD), predict delinquency in adolescence, antisocial behavior in adulthood, as well as alcohol and substance use, educational underachievement, employment instability, and chronic illness (Burke, Rowe, & Boylan, 2014; Nock, Kazdin, Hiripi, & Kessler, 2007). In turn, untreated BDs yield an excess of \$70,000 in education, health, and criminal justice costs in seven years alone or up to a ten-fold increase before the age of 30 (e.g., Pelham, Foster, & Robb, 2007; Piquero, Farrington, Welsh, Tremblay, & Jennings, 2009; Scott, Knapp, Henderson, & Maughan, 2001).

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Currently, no other treatment has been found to be more effective in treating early-onset BDs than Behavioral Parent Training (BPT; Chorpita & Daleiden, 2009; Lundahl, Risser, & Lovejoy, 2006; Piquero et al., 2009). However, as will subsequently be discussed, there is clear evidence that BPT potency varies significantly and not all families benefit equally from this treatment. One promising direction for improving treatment outcomes for all families is to consider the dimensionality underlying behavior disorders, particularly the dimensions of oppositionality and their unique correlates. To this point, this review first examines the guiding etiological models of BDs and how they have shaped the theoretical approach underlying BPT. Next, the theory of emotion socialization and the mounting evidence of its role in the development of BDs will be reviewed. Given that emotion-focused parent training was developed in response to the role of emotion socialization in the development of BDs, this treatment will be presented along with a critical evaluation of its empirical support. Third, the wealth of evidence suggesting unique dimensions of child oppositionality will be presented, along with an in-depth evaluation of the unique risk factors and longitudinal outcomes associated with the irritable dimension. Irritability—defined broadly as proneness to anger relative to peers (Vidal-Ribas, Brotman, Valdivieso, Leibenluft, & Stringaris, 2016)—is a typical human emotion with normative developmental manifestations. Within the DSM-V (American Psychiatric Association, 2013), irritability is a diagnostic criterion for more than a dozen common psychological conditions in youth (e.g. depression, ODD, generalized anxiety), the main criterion of the newly added Disruptive Mood Dysregulation Disorder, and associated with many more diagnoses (e.g. ADHD, autism spectrum disorder, PTSD; see Dickstein, 2015). Building upon this evidence, an etiological model based on theory and data for emotion socialization will be presented for the irritable dimension of child oppositionality and an argument for the use of emotion-focused parent training in the treatment of such youth will be proposed. This review will conclude by highlighting clinical implications, gaps in the current state of the literature, and future directions for research. Given that irritability is associated with a host of worsened functional outcomes across the lifespan, even when controlling for baseline psychopathology (e.g. Dougherty et al., 2013; Ezpeleta, Granero, Osa, Trepát, & Domènech, 2016), improved understanding of the irritable dimension of child oppositionality is required to improvement treatment and functional outcomes for this vulnerable population.

Etiology and Treatment of Early-Onset BDs

A number of etiological models have been proposed for early-onset BDs (Kaehler, Jacobs, & Jones, 2016). All have been heavily influenced by Patterson's (1982) seminal work on the role of punitive parenting in the "coercive cycle," as well as extensions of his work which highlight the transactional aspects of parent-child interactions implicated in early-onset BDs (Dodge et al., 2009; Moffitt et al., 2011; Shaw & Bell, 1993). Briefly, the coercive cycle describes a pattern of parent-child interaction in which the escalation of negative child behaviors (e.g. tantruming louder when a parent refuses to buy a child a candy bar) is reinforced by a desired outcome (e.g. parent "gives in" and buys the candy to end the child's outburst). The parent is immediately negatively reinforced as the child's aversive behavior ends or at least wanes. However, each time the parent attempts to (re)gain control, the child's behavior escalates as does the likelihood of harsh and punitive parenting (Kaehler et

al., 2016). This cycle is posited to exacerbate a child's genetic and temperamental predisposition for developing a BD (Greene & Doyle, 1999; McMahon & Forehand, 2003; Patterson, 2005). For example, when combined with the coercive cycle, greater temperamental activity (preferred level of physical activity) in a child is associated with comorbid ODD and ADHD whereas heightened temperamental emotionality (tendency to show distress) is associated with comorbid ODD and internalizing disorders (Stringaris, Maughan, & Goodman, 2010).

Building upon theory and research on the coercive cycle, the standard of care treatment for ADHD, ODD, and CD is BPT. These treatments aim to target parenting behaviors implicated in the coercive cycles of parent-child interaction and, in turn, improve child behavior (Kaehler et al., 2016). Such programs include *Community Parent Education* (Cunningham, Bremner, & Boyle, 1995), *Defiant Children* (Barkley, 2013), *Helping the Noncompliant Child* (McMahon & Forehand, 2003), *Incredible Years* (Webster-Stratton, 1981), and *Parent-child Interaction Training* (Eyberg, 1988), as well as *Parent Management Training – Oregon Model* (for a review, see Dishion, Forgatch, Chamberlain, & Pelham, 2016) and *Triple P-Positive Parenting Program* (Sanders, 1999). Core to each of these programs is the underlying tenet that treating child BDs requires modification of the child's social environment via principles of operant conditioning (i.e., parental response to child behavior increases/decreases the likelihood of the behavior in the future). Treating all early-onset BDs with one approach that targets dimensions of behavior (e.g. aggression, noncompliance), rather than specific disorders is highly practical, given reticence to diagnose young children, as well as the comorbidity and overlapping symptomatology that characterizes behavior disorders (Keenan & Wakschlag, 2002; Waschbusch, 2002). Such an approach has proven efficacious, as no treatment has been found to be more effective in treating early-onset BDs than BPT (Chorpita & Daleiden, 2009; Lundahl et al., 2006; Piquero et al., 2009). That said, a quarter to a third of children fail to benefit from BPT and the effect sizes for those who do are only small to moderate and wane post-treatment (Lundahl et al., 2006; Piquero et al., 2016; Scott & Dadds, 2009). Thus, efforts to improve the efficacy of BPT persist, including consideration of a more emotion-focused BPT approach.

Emotion-Focused Parent Training and Role of Parent Emotion Socialization in ODD

Emotion-focused parent training was developed in response to mounting evidence for the significant impact of emotion socialization (ES) on children's emotional functioning and behavior problems (Havighurst et al., 2013; Southam-Gerow & Kendall, 2002). ES posits that parents shape their children's understanding, expression, and regulation of emotions via: (a) parents' own expression and regulation of emotion; (b) parents' reactions to children's expression of emotions; and (c) parents' coaching and discussion of children's emotions (Eisenberg, Cumberland, & Spinrad, 1998). Supportive ES behaviors include validating and supporting emotional expression, modeling appropriate expression, and coaching the child through identifying the cause and managing the expression of emotion. Alternatively, unsupportive ES behaviors include punishing or minimizing of children's expressed

emotions, modeling high levels of negative or dysregulated emotions, and avoiding discussion of emotion with children.

Gottman and colleagues demonstrated that ES behaviors are shaped by the caregiver's thoughts and feelings about their own emotions and those of their children—which they termed Parental Meta-Emotion Philosophy (PMEP; Gottman, Katz, & Hooven, 1996). As such, caregivers with an emotion-coaching PMEP are aware of their own emotions, label, validate, and teach their children about emotions, and are able to effectively coach their children in generating strategies for handling emotions (Gottman, Katz, & Hooven, 1997; Gottman et al., 1996). Alternatively, caregivers with an emotion-dismissing PMEP are less aware of their own emotions, offer punitive or critical responses to their child's emotional expressions, particularly negative emotions, and convey implicitly or explicitly that the child's emotions are unimportant.

Over two decades of research has now provided overwhelming evidence of the impact of PMEP and ES on youth mental and physical health, peer relationships, and academic achievement from infancy to adolescence (e.g. Katz, Maliken, & Stettler, 2012; Wong, McElwain, & Halberstadt, 2009). Specific to early-onset BDs, a number of caregiver ES behaviors have been linked to child behavior problems. First, high levels of caregiver expressed negative emotions appear strongly predictive of child emotion dysregulation and disruptive behavior, while caregiver emotion coaching is associated with fewer child disruptive behaviors (Duncombe, Havighurst, Holland, & Frankling, 2012). Furthermore, parenting that involves frequent negative emotion expression, less awareness of children's emotions, rejection or dismissal of children's emotions, or diminished coaching of children's emotions has demonstrated associations with poorer child emotion regulation, increased child aggression, negative peer interaction, and greater externalizing behaviors (Denham et al., 2000; Katz & Windecker-Nelson, 2004; Ramsden & Hubbard, 2002). Finally, a recent meta-analysis demonstrated significant, negative associations between parental ES behaviors and concurrent and longitudinal child conduct problems (Johnson, Hawes, Eisenberg, Kohlhoff, & Dudeney, 2017). Moderator analyses indicated this association was stronger with younger children and when focused on socialization of negative —rather than positive — emotions.

In response to this work, various lines of research have examined the added value of treatments or treatment components that more explicitly address emotion regulation in children with behavior problems. *Collaborative Problem Solving* (CPS; Greene & Ablon, 2005; Greene, Ablon, & Goring, 2003), for example, was developed in order to more explicitly create opportunities for parents to identify and remediate the unique contributors to challenging behaviors. Impaired emotion regulation may be one such factor for some children and, in turn, the role of emotion regulation would play a more central focus of treatment for their families than for children for whom emotion regulation is not implicated or at least implicated less centrally in their behavioral disturbances. Other lines of research have stemmed from the hypothesis that a focus on impaired emotion regulation in particular is important for all children with problem behavior and their families. *Tuning Into Kids* (TIK; Havighurst & Harley, 2007), for example, aims to help parents notice, understand, and respond more effectively to emotion in themselves and their child, particularly in the context

of behavior management (Gottman & DeClaire, 1997; Havighurst & Kehoe, 2017). Finally, others have examined the efficacy of enhancing standard BPT with more emotion-focused components (Chronis-Tuscano et al., 2016; Salmon, Dittman, Sanders, Burson, & Hammington, 2014). For example, Salmon and colleagues created an emotion enhanced version of the behavioral parent training program *Triple P*, in which parents were encouraged to label children's emotions and causes, engage in conversations about past emotions with their child, and coach their child in effective emotional responding (Salmon et al., 2014). Of note, research examining TIK and emotion enhanced BPT have primarily been conducted with Caucasian families of pre-school through school-age children, drawn from clinical and community samples in the United States and abroad (e.g., Australia, New Zealand).

Findings both within and between these lines of research have been mixed. For example, while TIK yielded similar benefits as BPT on average, TIK gains were obtained for older children and children with more dysregulated parents in particular (e.g. Duncombe et al., 2016; Havighurst, Duncombe, et al., 2015; Havighurst, Wilson, Harley, Prior, & Kehoe, 2010). Similarly, while some work suggests CPS yields equivalent outcomes as standard BPT (Ollendick et al., 2016), other findings suggest it may be optimal for children with comorbid ODD and a mood disorder (Greene et al., 2004). In other words, the added value of emotion-focused parenting programs may not be found in studies examining "if" such content is beneficial but rather "for whom." As such, we turn now to the link between irritability and emotion dysregulation in order to consider further clues for whom emotion focused BPT may be most useful.

Linking Irritability and Emotion Dysregulation in Oppositional Youth

Research on child oppositionality suggests that it likely consists of one affective dimension and either one or two behavioral dimensions (Burke, Hipwell, & Loeber, 2010; Ezpeleta, Granero, de la Osa, Penelo, & Domènech, 2012; Stringaris & Goodman, 2009a): irritability (e.g., frequent temper outbursts and anger, easily annoyed), headstrong (e.g. frequent arguing with adults, blaming others for mistakes, taking no notice of rules, annoying others on purpose), and hurtful (e.g., frequent spiteful behavior). Based on parent and teacher report of over 18,000 youth from ages 5-16, irritability was found to be the only dimension associated with concurrent and longitudinal emotional disorders, while the headstrong dimension was most strongly associated with ADHD and non-aggressive offending (Stringaris & Goodman, 2009b) and the only predictor of later ADHD and CD (Stringaris & Goodman, 2009a). Finally, the hurtful dimension was uniquely associated with current and future aggressive offending, suggesting it may be linked to more callous, unemotional traits (Stringaris & Goodman, 2009a). The unique concurrent and predictive validity of each of the three dimensions of child oppositionality has been validated by further research, suggesting the heterogeneity of childhood oppositionality represents distinct risk profiles in children (Aebi, Plattner, Metzke, Bessler, & Steinhausen, 2013; Mikolajewski, Taylor, & Iacono, 2017).

While there is no consensus in the literature as to whether the headstrong and hurtful dimensions operate as one behavioral dimension or two, multiple research groups have

consistently replicated the existence of a distinct irritable dimension (Burke & Loeber, 2016). First, a compelling body of literature suggests that the irritable dimension is associated with distinct genetic and familial history patterns. For example, genetic analyses and twin studies, reveal significant correlations between irritability and depression both concurrently and longitudinally, while the headstrong/hurtful dimension is correlated with delinquency and substance use (Stringaris, Zavos, Leibenluft, Maughan, & Eley, 2012). Consistent with these patterns, the irritable dimension is uniquely associated with a parental history of depression and suicidality, while headstrong is uniquely associated with a parental history of childhood ADHD symptoms (Krieger et al., 2013).

Building upon genetic and family history data, children on the irritable dimension also evidence unique temperamental and physiological profiles. For example, temperamental emotionality (i.e. easily upset, intense reactions when upset, often fussy, etc.) at age three is distinctly associated with the irritable dimension at age seven (Stringaris et al., 2010). Irritable children present with physiological hyper-reactivity to stress and perceived threats (Beauchaine, Klein, Crowell, Derbidge, & Gatzke-Kopp, 2009; Stieben et al., 2007) — the opposite of other children with BDs who evidence attenuated physiological reactivity and threat response (Frick, 2012). Furthermore, lower heart rate variability is observed in youth with BD's who demonstrate predominately reactive aggression (Schoorl, Rijn, Wied, Goozen, & Swaab, 2016). In turn, irritability in youth is uniquely associated with teacher's perceptions of reactive aggression (Evans, Pederson, Fite, Blossom, & Cooley, 2016). Given that heart rate variability is often conceptualized as a measure of self-regulation, these findings support the notion that more irritable children are prone to reactive aggression as a result of compromises in their ability to regulate anger (e.g., Appelhans & Luecken, 2006; Mikolajewski et al., 2017; Stringaris & Goodman, 2009b). Furthermore, these observed temperamental and physiological differences are consistent with behavioral findings. While irritability is associated with teacher report of physical victimization and symptoms of withdrawal/depression, defiant behavior alone is associated with proactive aggression and hyperactive-impulsive behavior (Evans et al., 2016). Taken together, these findings may elucidate why irritable youth are more vulnerable to trajectories of mood dysregulation (e.g., anger, dysphoria, suicidality) in contrast to other children with BDs who are more prone to adolescent aggression and conduct problems (Drabick & Gadow, 2012; Okado & Bierman, 2015; Stringaris & Goodman, 2009a, 2009b).

The consistency of these patterns has led a World Health Organization task force to recommend the addition of a specifier to indicate whether ODD presents with chronic irritability and anger in the upcoming edition of the International Classification of Disease (Lochman et al., 2015). The task force argues this is a more evidence-based alternative to the creation of the new Disruptive Mood Dysregulation Disorder, as the majority of children presenting with severe irritability and anger already meet diagnostic criteria for ODD (American Psychiatric Association, 2013; Leibenluft, 2011). However, it is critical to note that while the irritable specifier is only included with the primary diagnosis of ODD in ICD-11, the body of research supporting this recommendation was conducted with a broad range of children and adolescents and not limited to children with an ODD diagnosis (e.g., Aebi et al., 2016; Kolko & Pardini, 2010; Stringaris & Goodman, 2009b). Thus, this modification does not necessarily account for the role of irritability in CD or ADHD.

Moreover, a growing body of literature suggests that the link between irritability and later mood dysregulation is limited to children who experience very specific risks, primarily low parental warmth and the absence of positive parental emotion socialization (Fruzzetti, Shenk, & Hoffman, 2005; Katz & Gottman, 1997; Okado & Bierman, 2015). For example, young children with more irritable symptoms are at increasingly greater risk for depression, suicidality and reactive anger in adolescence with every year they are exposed to low parental warmth (Okado & Bierman, 2015). Of note, parental warmth does not increase the risk for adolescent conduct problems among young children characterized by early, high levels of overt aggression, suggesting the role of the caregiver may be particularly relevant to the irritable dimension of oppositionality (Okado & Bierman, 2015).

Indeed, such findings are consistent with the aforementioned “coercive cycle” (Patterson, 1982) posited to be central to the etiology of BDs in general, as well as Scaramella and Leve’s (2004) Early Childhood Coercion Model (ECCM) in particular, which posits that a central task of early childhood is learning to regulate emotions autonomously, primarily through emotion socialization via parent-child interactions. Briefly, emotion regulation is defined as the internal and external processes involved in initiating, maintaining, and modulating the occurrence, intensity, and expression of emotions (Thompson, 1994). Children with difficulty regulating emotions tend to be higher in emotional reactivity and, in turn, are more prone to reactive anger, irritability, frequent temper tantrums, and difficulty calming down (Kim-Spoon, Cicchetti, & Rogosch, 2013; Shields & Cicchetti, 1998; Zeman, Cassano, Perry-Parrish, & Stegall, 2006). Not surprisingly, youth on the irritable dimension evidence higher levels of emotional reactivity and impaired emotion regulation, resulting in high levels of irritability, reactive aggression, and impulsive behavior in instances of strong emotion (Mikolajewski et al., 2017; Zeman et al., 2006).

However, there appears to be a “zone of optimal arousal” in which children can experience enough emotion to activate the regulatory system but not so much emotion that the system is overwhelmed (Calkins, Graziano, & Keane, 2007; Gottman et al., 1997; Kim-Spoon et al., 2013). As a function of the main interactive processes discussed to this point, emotionally reactive children, who require lower levels of stimulation to produce strong negative emotional reactions, may have a much smaller “optimal zone” as they are posited to have more difficulty attaining autonomous emotion regulation for two reasons. First, as reviewed above, their stronger and more frequent negative emotions may overtax their already comparatively weaker emotion regulation systems (e.g. Beauchaine, 2015; Kim-Spoon et al., 2013; Mikolajewski et al., 2017). Second, their negative emotional reactivity may elicit harsher parenting – a cycle strikingly similar to the one implicated in the etiology and maintenance of early-onset BDs (e.g. Fruzzetti et al., 2005; Karraker & Coleman, 2006; Kiff, Lengua, & Zalewski, 2011). BD children higher on the irritable dimension may not only overwhelm the capabilities of their own developing regulatory systems, but their caregivers as well. Hence, more specific emotion-focused parenting strategies may be critical for this vulnerable subgroup in particular (Johnson, 2015).

Irritability, Emotion Regulation, & Emotion-Focused Parenting

Given their high levels of negative emotionality and resulting difficulty with emotion regulation, youth higher on the irritable dimension are arguably in greatest need of adaptive ES to help them develop emotion regulation skills and, in turn, manage their emotional reactivity. However, the very traits that put them in greatest need also may make them least likely to receive supportive ES from parents, as their strong and frequent negative reactions elicit even stronger negative emotional reactions from caregivers (Karraker & Coleman, 2006; Kiff et al., 2011). Furthermore, children characterized by higher levels of irritability may be “differentially susceptible” to the effects of ES (Belsky, 1997; also see Belsky & Pluess, 2009 for a review). For example, unsupportive parental ES behaviors are uniquely associated with child conduct problem severity, over and above the general affective quality of the parent-child relationship (e.g. warm and mutually responsive), caregiver depression, and parent discipline techniques (Johnson, 2015). This association appears to be moderated, however, by children’s emotional reactivity suggesting highly reactive children are more negatively impacted by unsupportive ES than their less reactive counterparts. While unsupportive ES appears to have particularly harmful effects on children marked by irritability, the impact of positive caregiver ES behaviors on this subgroup is much less clear (Lukenheimer, Shields, & Cortina, 2007; Raval & Martini, 2011; Tao, Zhou, & Wang, 2010). That said, a study of treatment-seeking families of children presenting with oppositional behavior demonstrated that greater parental emotion coaching was associated with stronger child emotion regulation skills and fewer externalizing behaviors *only* when children were high in negative emotionality (Dunsmore, Booker, & Ollendick, 2013).

Given that emotion socialization appears to be of particular importance for irritable children, researchers may benefit from looking to the literatures on other treatment approaches that have been adapted to account for particular mechanisms posited to underlie equifinality within the same disorder or category of disorders. For example, just as a heterogeneous array of children present for treatment due to behavioral symptoms of noncompliance, couples seeking therapy due to high level of discord have arrived at this outcome for a multitude of reasons. For dyads in which at least one member has chronic difficulties regulating emotions, this deficit likely plays a large role in the couple’s distress. As such, traditional cognitive behavioral couples therapy has been adapted to incorporate dialectical behavioral therapy theory and skills in order to directly target emotion regulation and the role of strong emotions in relationship dynamics for these couples (Kirby & Baucom, 2007a, 2007b). Similarly, children presenting with oppositional behavior largely characterized by irritability and reactive aggression, may benefit more from a treatment that directly targets the apparent driving force of their pathology – impaired emotion regulation. As such, these youth may be the answer to the question of “for whom” are emotion-focused treatments more beneficial. Programs such as TIK may teach parents how to provide irritable children with much needed emotion coaching and to better empathize with their child’s heightened emotional reactions. Combined with explicit coaching of parent’s own emotion regulation strategies, this approach may prove more effective in reducing these families’ vulnerability for falling into the coercive cycle implicated in the development of emotion dysregulation and BDs.

Using a treatment focused on emotion rather than behavior as a first line of treatment for irritable children may also better address their long-term risk for internalizing disorders. Although not directly conducted with young children with behavior disorders, related lines of research provide clues of how emotion-related talk and coaching can improve child outcomes. Emotion talk involves: 1) parental labeling of emotions, 2) explanation of the context (e.g., *She's sad because she lost her toy*) and behavioral indicators of emotions (e.g., *She looks sad because she is crying*), and 3) linking emotions to children's own experiences (e.g. *You were sad when you stubbed your toe*). Among typically developing children (Grazzani & Ornaghi, 2011), emotion talk is associated with a range of positive outcomes, including empathic response to distress, prosocial behavior, later ability to regulate negative emotions and increased emotion understanding in preschoolers, which in turn is associated with a reduction in behavior problems (e.g; Brownell, Svetlova, Anderson, Nichols, & Drummond, 2013; Farrant, Maybery, & Fletcher, 2013.) Of note, toddlers with early behavior problems from high demographic-risk families have been shown to benefit the most from maternal emotion talk (Brophy-Herb et al., 2015). In BPT, parents could be more explicitly taught not only to remove attention from lower levels of problem behavior, but also skills to navigate the child's emotions that occur in the context of these behaviors. For example, for a child who is more naturally reactive, a younger sibling taking his toys may cause the child to lash out and hit the sibling out of anger and frustration. The child needs to learn this behavior is unacceptable and thus, the parent may use time out, consistent with BPT. Limiting talking during such moments of high arousal is recommended; however, discussing past negative emotions with children once they have calmed is critical to the development of emotional competency (Salmon & Reese, 2016). In fact, conversations about emotions after family or sibling interactions at age three are predictive of children's ability to identify the emotions of others at age six (Dunn, Brown, & Beardsall, 1991). Skilled clinicians with flexibility are likely to educate parents in coaching their child's emotions and many families will naturally do so on their own. Yet, given the long-term risk of depression and anxiety associated with the irritable dimension (Barker & Salekin, 2012; Burke et al., 2010; Stringaris & Goodman, 2009a) and the demonstrated differential impact of caregiver ES on these youth, a treatment approach more explicitly focused on helping caregivers accept and respond adaptively to these children's expressed emotions may proffer greater long-term benefits.

Clinical Implications

In order to adapt treatment accordingly, clinicians first must identify those children presenting with high levels of irritability symptoms. This may be done by simply tallying the irritable symptoms endorsed by caregivers on well-accepted and widely available diagnostic tools such as the Diagnostic Interview of Children and Adolescents for Parents of Preschool Children (Ezpeleta, la Osa, Granero, Domènech, & Reich, 2011) or the Mini-Neuropsychiatric Interview (Sheehan et al., 1998). Although limited, the three irritable symptoms included in the current DSM-5 diagnostic criteria (i.e., loses temper, touchy-annoyed, angry-resentful) do appear to have significant concurrent and predictive validity for treatment seeking families (Evans et al., 2017; Ezpeleta, Granero, Osa, Trepato, & Domènech, 2016).

That said, future work is needed to clarify if and how the presentation of irritability varies by child age and whether there is a clinically-significant level of irritability beyond which a change in treatment approach is warranted. Furthermore, future research is warranted to guide clinicians in how to account for the transdiagnostic nature of irritability (e.g. depression, ODD, generalized anxiety) and comorbidity of the irritable dimension of oppositionality (e.g. ADHD, ODD, CD; American Psychiatric Association, 2013; Dickstein, 2015). While some children may meet criteria for ODD due to the presence of largely irritable symptoms, many will present with irritable symptoms and hurtful or headstrong behaviors. Currently, our diagnostic manuals are striving to capture irritability in its' extreme form. For example, the following draft diagnostic guidelines have been proposed for a chronic irritability-anger specifier of ODD for ICD-11 (Evans et al., 2017; p. 41):

This subtype is characterized by prevailing, persistent angry or irritable mood, including often being 'touchy' or easily annoyed, that is characteristic of the individual's functioning nearly every day and is observable across multiple settings or domains of functioning (e.g., home, school, social relationships) and is not restricted to the individual's relationship with his/her parents or guardians. The negative mood is often accompanied by regularly occurring severe temper outbursts that are grossly out of proportion in intensity or duration to the provocation.

This specifier aims to capture those youth with more severe and chronic irritability than the general irritable dimension of ODD. This is understandable given that the specifier is being proposed as an alternative to Disruptive Mood Dysregulation Disorder, the new disorder added in DSM-5 (American Psychiatric Association, 2013; Evans et al., 2017). If adopted, this specifier will not—and should not—be given to all youth with ODD with primarily irritable symptoms. However, it is critical to note that the research reviewed throughout this paper on the irritable dimension of ODD and its unique risk factors and longitudinal outcomes was based on the presence of *any* irritable symptoms regardless of severity. In Burke et al's clinical sample of boys, 36% of youth showed behavioral plus irritable symptoms, while 48% showed only behavioral symptoms and 16% showed low symptoms (Burke & Stepp, 2012). Compared to the behavioral symptom only group, boys with both irritable and behavioral symptoms had higher rates of depression, anxiety, and neuroticism in late adolescence and early adulthood. Similarly, in a latent class analysis of parent reports from a large community sample of Dutch children, 11-12% of children were characterized by defiance, 9-11% by irritability, and 5-8% by elevated defiance and irritability (Kuny et al., 2013). The irritable group had higher internalizing symptoms, the defiant group greater externalizing symptoms, and the mixed group was higher on both. Such findings indicate that the presence of irritability at all may be a risk factor and warrant treatment adaptation and this narrow focus on extreme irritability may ignore the clinical significance of lower level irritability.

Summary and Future Directions

In summary, theory and research to date suggest that an emotion-focused treatment may prove more effective than our current standard of care, BPT, for the treatment of youth with oppositional behavior and irritable symptoms, even when those symptoms are not severe

enough to warrant the specifier. However, there is great need for future research to examine if emotion-focused treatments are more effective for all children with oppositionality *and* any irritable symptoms *or* only those children with severe irritability. If the latter is indicated, we will need to identify how much irritability is required for a child to benefit more from an emotion-focused approach. Given that the irritable dimension is associated with an increased risk of internalizing disorders, future longitudinal research will be necessary to determine whether emotion-focused treatments proffer any improved outcomes among irritable youth both in the short and long-term. While current evidence suggests the two approaches result in similar reductions in oppositional behavior among children with disruptive behavior disorders broadly (Duncombe et al., 2016), longitudinal research should aim to investigate the effect of treatment type on long-term internalizing and externalizing symptoms. Given that unsupportive caregiver emotion socialization practices are associated with increased levels of child depressive symptomatology (Sanders, Zeman, Poon, & Miller, 2015), it is conceivable that an emotion-focused treatment could reduce unsupportive socialization practices in the home, thereby reducing irritable children's long-term risk of elevated internalizing symptoms.

The current review aims to encourage future research to examine the implications of the dimensions of oppositionality on treatment outcomes and to model how distinct etiological models for the dimensions may be proposed. Furthermore, while emotion socialization and emotion-focused parent training was the focus of the current review, this is not to say that this is the only novel treatment that holds promise for more successfully targeting a specific dimension. It will be critical for future empirical examination to directly examine whether baseline dimensions are associated with treatment response, particularly in randomized control trials of traditional BPT compared to novel treatments.

The National Institute of Mental Health's Research Domains Criteria (RDoC) initiative has encouraged a shift in focus from traditional diagnostic categories (American Psychiatric Association, 2013) to identifying the common dimensions that underlie the continuum of normal and abnormal functioning (Cuthbert & Insel, 2013). Irritability, defined by RDoC as an expression of frustrative non-reward in reaction to blocked goal attainment, is a transdiagnostic factor that cuts across a large number of psychological disorders (Cuthbert & Insel, 2013). It is a prime example of a common dimension being examined to enhance scientific understanding of shared etiology among childhood psychopathology (Avenevoli, Blader, & Leibenluft, 2015). However, it is critical we expand these efforts beyond identifying the biobehavioral and neural systems underlying irritability, to identifying evidence-based treatments or treatment adaptations that account for the demonstrated clinical-significance of irritability. Even when controlling for baseline psychopathology, irritability — when observed as early as preschool (Dougherty et al., 2013; Ezpeleta et al., 2016) — is associated with an array of negative functional outcomes across the lifespan, including lower financial and education attainment, poorer health in adulthood, and suicidal behavior (e.g. Copeland, Brotman, & Costello, 2015; Pickles et al., 2010; Stringaris, Cohen, Pine, & Leibenluft, 2009.) Thus, the need to enhance our understanding of how and when irritability warrants at least flexible use of standard BPT, if not a deviation, is imperative.

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