HHS Public Access

Author manuscript

Fam Relat. Author manuscript; available in PMC 2016 February 15.

Published in final edited form as:

Fam Relat. 2015 February 15; 64(1): 153–175. doi:10.1111/fare.12100.

Resilience as Regulation of Developmental and Family Processes

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Abstract

Resilience can be defined as establishing equilibrium subsequent to disturbances to a system caused by significant adversity. When families experience adversity or transitions, multiple regulatory processes may be involved in establishing equilibrium, including adaptability, regulation of negative affect, and effective problem-solving skills. The authors' resilience-as-regulation perspective integrates insights about the regulation of individual development with processes that regulate family systems. This middle-range theory of family resilience focuses on regulatory processes across levels that are involved in adaptation: whole-family systems such as routines and sense of coherence; coregulation of dyads involving emotion regulation, structuring, and reciprocal influences between social partners; and individual self-regulation. Insights about resilience-as-regulation are then applied to family-strengthening interventions that are designed to promote adaptation to adversity. Unresolved issues are discussed in relation to resilience-as-regulation in families, in particular how risk exposure is assessed, interrelations among family regulatory mechanisms, and how families scaffold the development of children's resilience.

Keywords

resilience; regulation; family systems; theory; human development

In this conceptual treatise, we propose a perspective on resilience that integrates insights about the regulation of individual development, embedded in a developmental psychopathology framework (e.g., Davies & Cicchetti, 2004; Greenberg, 2006), with processes that regulate family systems. Our overall purpose is to advance a theory of resilience that focuses on multilevel analyses in the family as well as the dynamics of adaptation (see Lich, Ginexi, Osgood, & Mabry, 2013; Masten, 2007). One aim is to describe how resilience in childhood and adolescence may be a product of key regulatory processes at the level of the family, dyad (i.e., coregulation), and individual (i.e., self-regulation).A second purpose is to elucidate systems processes involved in regulation across these levels. Our third aim is to articulate how an understanding of regulatory processes within families may inform family-strengthening interventions that are designed to promote adaptation to adversity and stress. We conclude with a discussion of several unresolved issues related to resilience in the context of regulatory processes in the family.

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A Family Perspective on Resilience as Regulation

Regulatory processes may take two broad forms (see Cox & Paley, 1997). The first is adaptive self-stabilization, in which coordinated microlevel changes compensate for changes in the environment and maintain equilibrium with respect to previously established set points. These regulatory processes are a form of maintenance. When applied to the family, specific examples include processes in the home environment that maintain the family's sense of identity and stability (Patterson, 2002b), such as maintaining family traditions and daily routines. Another example is enforcing rules that maintain the family's values and expectations of family members' behavior in social situations. Thus, in the case of families, adaptive self-stabilization involves adjustments within the family system as well as between the family and the external environment (see Figure 1). In this dynamic and continuous process, behaviors such as family routines, open communication, effective problem solving, and emotional support can be both regulating (i.e., a mechanism of regulation) and regulated (i.e., an outcome of regulation).

Although maintenance of what is familiar and comfortable may be functional in many circumstances (Patterson, 2002b), intolerance for change (i.e., inflexibility) may be maladaptive when families encounter significant life transitions or non-normative threats (Cox & Paley, 1997). Adjustment to these major stressors may require adaptive self-organization, a second type of regulatory process that involves reorganization of the system in response to external forces acting on internal constraints. In this case, new equilibrium set points or patterns emerge as an adaptation to changed circumstances. As with adaptive self-stabilization, changes that result from adaptive self-organization may occur in the family's relation to the environment, or within the family system. For example, one family member's maladaptive response to a stressor in terms of threat appraisal and physiological arousal (e.g., Evans & Kim, 2013; Luecken, Appelhans, Kraft, & Brown, 2006), or emotion regulation and coping style (Folkman & Moskowitz, 2004), may require significant changes in interpersonal flexibility or a renegotiation of roles within the family (see Table 1 for examples). These regulatory processes operate in feedback loops whereby, for example, one subsystem may be reducing variability in the system in response to a stressor (e.g., parents more closely monitor children's activities) whereas another is amplifying variability (e.g., a child's difficult behavior pushes parents to consider new rearing practices). In this way, subsystems or levels of the family both regulate and are regulated by one another (Cox & Paley, 1997).

Given these definitions of regulation, *resilience* can then be defined as adaptive self-stabilization and self-organization following disturbances to a system caused by significant adversity. In other words, when adversity is severe, chronic, or both, it can overwhelm the family's regulatory capacity and make the establishment of new equilibria and maintenance of functioning difficult. Thus, the process of maintaining functioning and/or thriving in the face of significant adversity constitutes resilience. In some literature, the term *resilient* has also been defined as a trait-like characteristic ascribed to individuals who have maintained functioning or thrived in the context of adversity, although *resiliency* more aptly is applied to this type of enduring attribute (Patterson, 2002a).

As P. A. Cowan, Cowan, and Schulz (1996) noted, it is not yet clear what a resilient family looks like. Some families that are considered resilient may have developed strong and reliable regulatory processes that aided them in responding to adversity. As implied by Figure 1, reestablishing equilibrium often involves adaptability, regulation of negative affect, and resolution of interpersonal conflicts, which in turn requires the effective communication and problem-solving skills that often characterize healthy families (Walsh, 2002). Not surprisingly, many of these same regulatory processes are central components of the stress response, including appraisal of the event, emotion regulation, and problem solving (Greenberg, 2006). Our definition of resilience also accords with how individuals' emotion regulation is viewed: in relation to context (e.g., family interactions) and in response to stress (Cole, Martin, & Dennis, 2004). It is still an open question as to how resilience should best be measured. For instance, achieving equilibrium or adapting to stress could be assessed in terms of normative standards of behavior, recovery of previous levels of functioning after catastrophic adversity or trauma (i.e., self-righting), or stress resistance that entails better-than-expected adaptation (Bonanno, 2004; Masten, 2007). However resilience is measured, the definition certainly involves regulatory processes which are strongly implicated in achieving equilibrium after adversity is experienced (Aldwin, Skinner, Zimmer-Gembeck, & Taylor, 2011; Masten, 2007; Sameroff & MacKenzie, 2003).

Our purpose is to synthesize insights about individuals' resilience with concepts related to how dynamic systems are regulated, especially family systems. Individual resilience perspectives focus on multilevel dynamics that include coregulation among individuals in relationships and family interactions (Masten, 2007). Dynamic systems perspectives are characterized by an emphasis on self-organization of systems, including their rigidity versus flexibility and relations among their multiple, hierarchically structured levels (Granic, 2005). A dynamic systems lens applied to families thus would emphasize adaptation to adversity that is emergent and configural – it is an evolving product of coregulatory processes among individuals, dyads, and the environment. Multiple regulatory processes in families have been mapped out, but these insights have not been systematically applied to resilience at the family level, at least not considering a dynamic systems perspective.

One attribute of a family systems perspective is that resilience is a complex, multilevel process (Masten, 2007). If one simply combined a given form of adversity at one of three levels of analysis (individual, dyadic, and family system) with two types of mediating mechanisms (vulnerability and protective factors) and three domains of outcome (individual, dyadic, and family system), there would be 18 types of family risk models (cf. P. A. Cowan et al., 1996). This schematic is further complicated if we recognize that (a) the dyadic level of analysis includes the marital, sibling, and parent – child subsystems; (b) multiple regulatory processes may be involved (see Figure 1 and Table 1 for examples); and (c) individual outcomes may be measured with biological, social, or psychological indices. An additional layer of complexity is added when macrosystemic influences are considered: Family resilience is embedded in contextual factors such as economic policies affecting families living in poverty, stigma, and persecution that affect gay and lesbian families (e.g., Green, 2012), and prejudice that affects minority families (e.g., Romero, Edwards, Fryberg, & Orduña, 2014). These stressful social conditions undermine the mental health of all family members (Meyer, 2007). This complexity in studying family resilience is consistent with the

theoretical frameworks informing research on children's resilience, which emphasize multiple levels of influence interacting transactionally over time (Luthar, Cicchetti, & Becker, 2000).

Another hallmark of a family systems approach to resilience is attention to the mechanisms by which protection or vulnerability operate. In this article, we argue that regulatory mechanisms in the family often mediate the effects of specific protective or vulnerability factors. Family processes may set in motion a developmental cascade such that effective child-rearing practices result in offspring being better prepared to cope with adversity. For instance, developmental research has emerged in the last decade showing that when families promote self-regulation, children are more skilled at effortful control, which in turn is associated with developmental competence and fewer behavior problems (Dishion & Connell, 2006; Eisenberg, Smith, Sadovsky, & Spinrad, 2004). Family regulatory processes also moderate the impact of stressors, as when marital support and effective problem-solving skills buffer parents from the deleterious effects of economic adversity (Conger & Conger, 2002).

Resilient families also might be distinguished by unique profiles of regulatory mechanisms. If equifinality characterizes resilience (Davies & Cicchetti, 2004), then different combinations of regulatory processes likely contribute to the family system's equilibrium subsequent to adversity. We could find only one related study in the literature, and it clustered families based on various protective factors at one point in time. Coyle et al. (2009) studied families with a parent who had an alcohol problem and found that "well-functioning families" had higher scores on allmeasures of family regulatory processes (e.g., communication, problem solving, cohesion, adaptable roles) as well as indices of effective child rearing. Although this study suggested that family and dyadic regulatory mechanisms co-occur, it did not disentangle cause and effect because resilience (the outcome) was defined in terms of its predictors – regulatory processes that were conceptualized as protective factors (for a discussion of such tautologies, see Luthar & Zelazo, 2003). Also, this study did not examine the dynamic interplay of regulatory mechanisms over time as they influence the family system's equilibrium. That is, if families achieve similar functional levels of equilibrium and self-organization by different regulatory pathways, a taxonomy of family regulatory processes might result that could be used to fine-tune interventions.

Regulatory Processes in the Family

Regulation is an integrative construct related to the healthy functioning of families and individuals within them. Given that the field lacks a middle-range theory that incorporates systems insights about regulation, family systems theory, and resilience processes, we provide an integrative framework (see Figure 1) that is organized by different levels of the family system (P. A. Cowan et al., 1996; Cox & Paley, 1997). Within each level of the family system, key regulatory mechanisms are identified that have been linked empirically to equilibrium or adaptation in the face of adversity. Considering that the measurement of resilience is still debated, nor have causal directions of influence between resilience and regulation been definitively established, we include prior research that investigates regulatory processes as predictors, moderators/ mediators, and outcomes of resilience.

Results from intervention programs may shed light on whether these regulatory processes are causally implicated in resilience (see below).

Family-Level Regulatory Processes

The Double ABCX and Circumplex Models

Two earlier family systems models have regulatory processes as their centerpiece: the circumplex model and the double ABCX model. Both identify adaptability as a key mechanism, suggesting that either model could be applied to family resilience. In this case, *adaptability* is defined as a trait-like ability to respond to change, such that some families may have a stronger baseline ability to adapt to change than others. However, only the double ABCX model (McCubbin & Patterson, 1983) was specifically meant to be applied to families' response to adversity. Among the family resources that could be used to resist crisis are several regulatory processes that include adaptability, organization, and coping strategies that are used to manage the demands of a situation. One example of family adaptability is role flexibility, or the ability to deploy strategies[1] that fit specific situational demands that may be outside the scope of what one "should" do. Coping strategies may be especially important to family resilience because they are strongly related to adaptation, depending upon whether problem-focused or escapist strategies are used, as well as emotion regulation (Folkman & Moskowitz, 2004). In addition, the ability to adapt the coping strategy to situational demands, which itself involves self-regulation, may be critical (Folkman & Moskowitz, 2004). Finally, appraisal mechanisms involved in the family's subjective definition of the stressor are a form of meaning making that can affect emotion regulation (Lazarus, 1999). In a reformulation of the double ABCX model, Patterson (2002b) argued that the appraisal process is critical to family resilience.

The circumplex model incorporates three family systems processes: cohesion, communication, and flexibility versus rigidity. Much research finds that balanced, flexible family systems are more functional (D. H. Olson, 2000), though there is a paucity of research that applies the circumplex model to resilience. In one example of a developmental cascade, family rigidity was indirectly associated with adolescents' suicidal ideation through its effect on adolescent problem-solving skills (Carris, Sheeber, & Howe, 1998). This study illustrated how two regulatory processes – family adaptability and individuals' problem solving – may be linked in the service of resilience. In short, it is not yet clear how well the circumplex model accounts for family resilience, in part because it is more descriptive of family types than explanatory of resilience processes and in part because a global, static snapshot is taken of family functioning rather than a dynamic motion picture of interacting family processes.

Family Cohesion Versus Family Coherence

Is family cohesion a regulatory process? Within the circumplex model, *cohesion* is defined in terms of emotional bonding and commitment, coalitions, and shared interests (D. H. Olson, 2000), none of which implies dynamic regulation. It would be helpful to know how a

[1]The phrase "ability to deploy strategies" helps to distinguish between "adaptability" as a trait of the person or family, and "adaptation" as a dynamic process of establishing equilibrium subsequent to adversity.

family trait such as cohesion contributes to resilience, if indeed it does: through social control mechanisms such as shared norms, modeling, and parental supervision (e.g., Houltberg, Henry, & Morris, 2012); emotional support; reduced family conflict; or collaborative problem solving.

A different systems concept, coherence, may be more applicable to understanding family resilience. Sense of coherence emerged out of Antonovsky's (1979) salutogenic model, which attempts to explain the origins of health or coping with stress. *Sense of coherence* (SOC) is the extent to which one sees the world as manageable, meaningful, and comprehensible. When people see problems as manageable, they are more likely to seek out resources such as social support, and when life is seen as meaningful, problems are more often actively confronted. SOC has been applied in several studies to families' adaptation to stress (see McCubbin, Thompson, Thompson, & Fromer, 1998). For instance, in two studies by Olsson et al. (Olsson & Hwang, 2002; Olsson, Larsman, & Hwang, 2008), SOC moderated the association between cumulative risk and the well-being of parents of children with an intellectual disability, and SOC also was directly related to measures of well-being and depression. The corpus of research to date thus suggests that family coherence may be an important contributor to family resilience.

Regulatory Processes and Family Resilience

The family systems literature related to resilience has recently moved from a static view of risk and protective factors to a more dynamic, process-oriented approach (P. A. Cowan et al., 1996). Research has focused on how family interactions may be protective stress regulators, especially those involving emotion regulation (Gunnar, 2006). Emotion regulation entails problem solving and cognitive reappraisal, both of which confer multiple benefits to physical health, psychological adjustment, and interpersonal functioning (for a review, see Aldao & Nolen-Hoeksema, 2012). Emotional inflexibility, including rumination and avoidance, contribute to maladjustment; whereas expressive flexibility – the ability to enhance or suppress emotional expression – predicts long-term resilience to cumulative life stress (Waugh, Thompson, & Gotlib, 2011; Westphal, Seivert, & Bonanno, 2010). The ability to assess a context and adapt emotional expression accordingly may be especially important to well-being and adaptation (Aldao & Nolen-Hoeksema, 2012). For instance, emotional flexibility in the context of whole-family discussions of conflict buffers children's regulatory abilities from the effects of negative parenting practices such as the criticism or dismissal of children's emotions (Lunkenheimer, Hollenstein, Wang, & Shields, 2012). For all of these reasons, Aldao and Nolen-Hoeksema (2012) suggested that emotion regulation interventions should help family members to accurately read contextual cues and then flexibly apply appropriate strategies.

Research on family conflict and problem solving illuminates how various forms of dys-regulation in the family may be interconnected. Cummings et al. (Cummings, Papp, & Kouros, 2009; Cummings & Schatz, 2012; Davies, Sturge-Apple, Cicchetti, & Cummings, 2007) have detailed how marital conflict may spill over into the parent – child relationship and also affect children's self-regulation and neurophysiological functioning. Higher levels of family conflict increase children's risk for sleep disturbances, health problems, and

behavior problems (for a review, see El-Sheikh & Erath, 2011). Some children are particularly vulnerable to family conflict because their autonomic nervous system makes them more susceptible to context and they have more difficulty marshaling an adaptive emotional or social response (El-Sheikh & Erath, 2011). Conger and Conger (2002) found that parents who were resilient in the face of economic adversity experienced less marital conflict and had better problem-solving skills, and their children were more resilient during developmental transitions if the parent – child relationship was characterized by less hostility. It is for these reasons that Walsh (2002) considered open emotional sharing and collaborative problem solving to be essential elements of family resilience. Because a well-functioning family is able to manage the frustrations of unmet wants and needs, family problem solving also is an element of many family strengthening programs (Vucinich, 1999).

Routines may be an underappreciated form of family regulation that influence individual and family health (Fiese & Winter, 2010). Family routines may serve a protective function by promoting relationship coherence and behavior monitoring (Spagnola & Fiese, 2007). For instance, family meals are predictive of adolescent well-being only when family relationships are strong (Meier&Musick, 2014). Fiese (2006) emphasized that flexible approaches to family time, such as meal times, are optimal for promoting healthier families and also suggested that families create family-level emotion regulation processes through their repetitive routines and rituals. Conversely, an emerging literature on family chaos indicates that higher levels of disorganization in the family contribute to impaired self-regulation in children. For example, studies have found that chaos in the home was indirectly related to later externalizing behaviors through children's limited inhibitory control (Hardaway, Wilson, Shaw, & Dishion, 2012). Furthermore, maternal executive function attenuated the link between maternal harsh parenting and child conduct problems, but only when households were not chaotic (Deater-Deckard, Wang, Chen, & Bell, 2012). All told, these studies indicate that the degree of predictability and organization in the family system may have proximal (and possibly bidirectional) effects on family members' self-regulation and, perhaps even more important, may buffer or amplify the effects of adversity on parents and their children.

Dyadic Coregulation

Sensitive Parenting

As noted earlier, maintaining or reestablishing equilibrium in the family subsequent to adversity often involves regulation of negative affect, resolution of interpersonal conflicts, and problem solving, each of which is central to coregulation of dyadic relationships. These coregulatory processes are elemental to sensitive, responsive parent – child relationships, which are salient forces in young children's adaptation to adversity (e.g., Gewirtz, Forgatch, &Wieling, 2008; Wyman et al., 1999; Yates, Egeland, & Sroufe, 2003). Of particular import is affect regulation in the parent – child dyad, which is consistently found to mediate the association between rearing practices and child outcomes (e.g., NICHD Early Child Care Research Network, 2004). Not surprisingly, parents' emotion coaching predicts better

emotion regulation – especially of anger – in children, which is in turn associated with lower levels of externalizing behaviors (Shortt, Stoolmiller, Smith-Shine, Eddy, & Sheeber, 2010).

Conversely, uninvolved or coercive rearing practices place children at high risk for maladaptive outcomes, especially in the face of stress (Matjasko, Grunden, & Ernst, 2007). For example, one study found that greater maltreatment risk in young mothers was associated with poorer self-regulation in their 3 year olds, which in turn predicted later preacademic and behavior problems at age 5 years (Schatz, Smith, Borkowski, Whitman, & Keogh, 2008). In another longitudinal study, intrusive parenting in toddlerhood inversely predicted effortful control a year later, which in turn mediated the association with later ego resiliency (Taylor, Eisenberg, Spinrad, & Widaman, 2013). Given that ego resiliency involves flexible problem solving as well as the ability to adapt to stress, the Taylor et al. (2013) study suggests that overcontrolling, inflexible rearing practices undermine children's ability to adapt to adversity.

Structuring

Parents also regulate their children's behavior through structuring. In an important way, *structuring* is an antonym for a chaotic family environment because it is defined as "parents' organization of children's environment to facilitate children's competence" (Grolnick & Pomerantz, 2009, p. 167). Specific manifestations of structuring include clear rules and expectations, predictable consequences for misbehavior, firm enforcement of expectations, and behavioral control (Grolnick & Pomerantz, 2009). Given that resilience typically is assessed in relation to competent functioning (Masten, 2007; Masten & Coatsworth, 1995), structuring that is neither lax nor intrusive should promote resilience because this form of social control and guidance, if internalized by children, results in better self-regulation. Multiple studies support the conclusion that parental structuring is related to resilience. For instance, Pettit, Bates, and Dodge (1997) found that supportive parenting – assessed as use of calm discussions, guidance, and reasoning – mitigated the effects of family adversity on later behavior problems. In adolescence, parental monitoring was an important protective factor for youth living in violent communities (Horowitz, McKay, & Marshall, 2005) and was linked to reductions in risky sexual behavior, substance use, and school problems (Lohman & Billings, 2008). Thus, the evidence strongly supports the conclusion that resilience is nurtured when parents effectively regulate emotions in the parent – child dyad as well as guide but do not coerce children.

Dyadic Synchrony

A related research agenda focuses on dyadic regulation from a systems perspective. One goal of this line of research, exemplified by the work of Lunkenheimer and colleagues, is to understand how self-regulation arises from reciprocal influences between the child and his or her social partners. Specifically, dysregulated parent – child interactions contribute to children's adjustment problems and behavior disorders by means of impaired emotion regulation (Diamond & Aspinwall, 2003; S. L. Olson&Lunkenheimer, 2009). In addition, dyadic rigidity versus flexibility in parent – child interactions predicts children's externalizing disorders (Hollenstein, Granic, Stoolmiller, & Snyder, 2004; Lunkenheimer, Olson, Hollenstein, Sameroff, & Winter, 2011). Conversely, dyadic synchrony between

young children and their parents facilitates the development of social skills (e.g., communicative competence), emotion regulation, and effectance (Harrist&Waugh, 2002), all of which have been implicated in resilience. These findings suggest that stress or adversity may dysregulate parent – child interactions (Cummings et al., 2009), which then compromise children's ability to self-regulate, manifested as depression and externalizing disorders.

Sibling Coregulation

An emerging literature on sibling relationships also illustrates dyadic coregulatory processes within the family context (McHale, Updegraff, & Whiteman, 2012), though studies in this area rarely focus on resilience. For example, Volling et al. (Bedford & Volling, 2004; Volling, McElwain, & Miller, 2002) described how parent regulation of the sibling relationship is gradually internalized so that older children become more responsible for the siblings' interpersonal regulation as well as their own emotional self-regulation. Feinberg et al.'s (2013) family systems model of sibling influences on problem behavior highlights the importance of other coregulatory processes. Siblings may learn that by escalating negative behavior, they can coerce their brother or sister into acceding to their demands, thus initiating coercive patterns with parents and teachers that contribute to antisocial behavior. Deviance training also occurs when siblings collude in opposition to parental authority, which reinforces each other's antisocial tendencies. Also, sibling negativity has evocative effects that contributes to parental stress, depression, and disengagement; and fuels harsh rearing practices, all of which undermine children's adjustment (Bullock & Dishion, 2002; Feinberg et al., 2013). Feinberg et al. (2013) developed the Siblings Are Special program to modify such sibling and parent-child regulatory process – emotion communication and regulation, self-control, problem solving, parent management of sibling conflict, and family norms related to differential treatment and fairness – and found that children developed more self-control and social competence, parents were more effective at managing sibling interactions (i.e., structuring), and sibling relationships became more positive.

Individual-Level Self-Regulation

Child and adolescent self-regulation primarily emerges from other regulation in the family (Blair & Raver, 2012; Galarce & Kawachi, 2013). In early life, regulation is externally mediated via caregivers: parents regulate behavior through coaching, monitoring, modelling of behavior, imposing sanctions for transgressions, and other control processes (Jessor, Donovan, & Costa, 1991). Such social controls do contribute to resilience. For instance, in a study of low-income families, Buckner, Mezzacappa, and Beardslee (2003) found that resilient youth (i.e., high emotional well-being and mental health), as compared to their nonresilient peers, were markedly different in terms of active parental monitoring and self-regulatory skills. In early childhood, other regulation gradually gives way to self-regulation, in part, through dyadic coregulation processes whereby parent and child regulate and are regulated by one another's affect, behavior, and physiology during face-to-face interactions. Parents may also engender self-regulation through autonomy support and mind-mindedness that promote executive functioning in children (Bernier, Carlson, & Whipple, 2010).

Other regulation may also foster conscious control of behavior, as dual-process theories postulate (Zelazo, Carlson, & Kesek, 2008). Dual-process theories assert that many maladaptive behaviors are the result of unconscious, automatic responses (Sherman et al., 2008), and that adaptive behaviors involving self-regulation require controlled responses that in many cases are learned from agents of socialization. Thus, regulatory processes in the family are strongly implicated in achieving equilibrium after adversity is experienced, in no small measure because of the dynamic interplay between coregulation in the parent – child dyad and children's developing self-regulation. In short, family-level coregulatory, transactional, and socializing process experienced during early childhood can either facilitate or hinder the development of self-regulation, and ultimately resilience. The quality of these experiences interacts with rapid cognitive advances associated with the capacity to internally mediate experience (e.g., inhibitory control, self-talk) to affect one's capacity for self-regulation.

Individuals' self-regulation is regarded as central to developmental competence in general (Haase, Heckhausen, & Wrosch, 2013) as well as across multiple spheres of behavioral (DeWall, Baumeister, Stillman, & Gailliot, 2007; Riggs et al., 2013) and physical health (Francis & Susman, 2009) development. Specific forms of impaired self-regulation such as executive dysfunction (Hofmann, Schmeichel, & Baddeley, 2012) may interfere with children's and adolescents' ability to adapt to the environment, thus leading to academic and social disturbances (Anderson, Anderson, Jacobs, & Smith, 2008) as well as various behavior and mental health disorders (Riggs & Greenberg, 2009). Conversely, self-regulation skills including effortful control (Eisenberg & Spinrad, 2004), executive function (Gardner, Dishion, & Connell, 2008; Martel et al., 2007), reactive control (Martel et al., 2007), and emotion regulation (Crowell, Skidmore, Rau, & Williams, 2013) are important factors for successful adaptation to adversity (W. Chen & Taylor, 2013). For example, regulatory skills serve as protective factors for children exposed to violence in low-income neighborhoods (Bruett, Steinberg, Rabinowitz, & Drabick, 2013) and for adolescents exposed to peer deviance (Gardner et al., 2008). In the context of high levels of family substance use and psychopathology in the community, Martel et al. (2007) found that resilient adolescents, as indicated by fewer problem behaviors and greater social competence, were characterized in childhood by moderate levels of reactive control, resourcefulness in adjusting self-control to the context, and executive functions related to cognitive and emotional control.

Given the importance of self-regulation to healthy development and successful adaptation to adversity (Heatherton&Wagner, 2011), intervention efforts have been directed at improving self-regulation (Fonagy & Target, 2002) and associated constructs such as executive function or effortful control (Riggs, Greenberg, Kusché, & Pentz, 2006). Evidence-based strategies for promoting self-regulation include school-based social-emotional learning curricula (e.g., Promoting Alternative THinking Strategies; Kusché & Greenberg, 1994) and mindfulness training (e.g., Tang, Yang, Leve, & Harold, 2012), among others (Boekaerts & Corno, 2005).

Family-Based Interventions to Optimize Regulation and Resilience

The validity of the resilience-as-regulation perspective can be assessed in part by examining the effects of family-based interventions. Is improved family functioning subsequent to adversity due to more effective regulation? As Greenberg (2006) noted, many preventive interventions focus on promoting processes related to executive function, which involves various forms of regulation such as inhibition, consequential thinking, problem-solving skills, and goal-directed behavior. At the level of family interactions, other regulatory skills that might be taught include conscious control of emotions and responses (Cummings & Schatz, 2012; Diamond & Aspinwall, 2003) and repairs in dyadic interactions, both of which are related to abuse potential (Skowron, Kozlowski, & Pincus, 2010) and the effects of marital conflict on children (Cummings et al., 2009). In a more general sense, interventions may be effective if they help families and individuals move from rigidity to flexibility (Granic, O'Hara, Pepler, & Lewis, 2007). To the extent that flexibility requires regulatory strategies to be employed in the face of adversity, then such interventions should promote resilience.

In the sections that follow, we first discuss interventions that are intended to prepare families for expectable transitions such as marriage, becoming a parent, or the first child entering school or becoming an adolescent. The presumption of many such interventions is that developmental change introduces the potential for disequilibrium and stress, which if it is chronic "can derail the functioning of a family system, with ripple effects to all members and their relationships" (Walsh, 2002, p. 131). These interventions typically focus on teaching regulatory skills that will help participants to reestablish equilibrium in the family system; stress inoculation or adaptive self-stabilization may be an emphasis. The second section concerns selective interventions targeted at high-risk families, with an emphasis on regulatory mechanisms that mitigate risk or promote protective factors.

This review of intervention programs is not comprehensive. Rather, it is meant to illustrate how regulatory mechanisms are incorporated into family strengthening programs. To be included in the sample of programs listed in Table 1, the family-based intervention had to focus on promoting regulatory skills and at least one outcome had to involve children's or adolescents' later functioning, ideally their ability to adapt. Not all were embedded in a resilience framework. For instance, only one half of the interventions explicitly measured adaptation or adjustment to stress as an outcome. Also, *exposure to adversity* was defined differently across programs. Several programs were provided to families regardless of their own risk status, under the presumption that adolescence is inherently challenging. These included Schinke, Fang, and Cole's (2009) substance-abuse prevention program for teen girls and their mothers, and Preparing for the Drug Free Years (see Table 1). Other programs were targeted at high-risk individuals, families, or neighborhoods, but these social address models were rarely translated into direct assessments of risk exposure (i.e., adversity). Finally, few of the interventions listed in Table 1 focused on the family system as a whole. Instead, marital or parent – child dyads were more often the focus, the exceptions being FOCUS, Preparing for the Drug Free Years, Parents Who Care, the Strengthening Families Program, New Beginnings, and I-FAST.

Inoculation and Family Transitions

Cowan and Cowan (C. Cowan & Cowan, 2012; P. A. Cowan & Cowan, 2003) have written eloquently about how research on major family transitions provides insights to guide resilience-promoting interventions. They observed that family transitions typically involve disequilibrium that may require reorganization of the self (e.g., sense of well-being, locus of control), revision of social roles, and renegotiated close relationships when conflict and dissatisfaction are common symptoms of such transitions. To promote adaptive self-stabilization, preventive interventions may help move families "closer to adaptive positions on their life trajectories" (P. A. Cowan & Cowan, 2003, p. 428) by teaching them how to cope with stress and regulate their emotions, how to problem solve more effectively (e.g., during conflicts), and how to balance autonomy granting with structured guidance in child rearing. Meaning making may be another form of regulation that is important to resilience (Walsh, 2002): It may account for differences between partners in how they navigate family transitions (P. A. Cowan & Cowan, 2003), which can fuel conflicts, and it also may contribute to maladaptive intergenerational patterns when families of origin have different ideas about what a "well-functioning" family does.

Inoculation should be an especially effective form of intervention to promote resilience in the face of expectable family transitions. Stress inoculation involves exposure to mild adversity in anticipation of similar challenges later in life (Daskalakis, Bagot, Parker, Vinkers, & de Kloet, 2013). Unlike the concept in medicine, however, where immunity is conferred, psychosocial inoculation promotes resistance to stress. For example, individuals who in one longitudinal study reported some lifetime adversity had better mental health and were more resilient to adverse events than people with either no history of adversity or high levels of adversity (Seery, Holman, & Silver, 2010). Other longitudinal research found that previous experience with moderate, controllable stress predicted a more successful transition to marriage as well as to parenthood, with effective problem-solving skills being a key mediating variable (Neff & Broady, 2011). In contrast, high, chronic adversity in the first two decades of life compromises physiological reactivity and emotion regulation, contributing to later problem behaviors (Lovallo, 2012). Often, exposure to mild stressors may be accompanied by direct instruction in coping, as when parents living in unsafe neighborhoods rehearse with their children how to avoid danger (Jarrett, 1999).

A number of interventions, with a focus on regulatory processes, have been devised to help families prepare for expectable family transitions. Feinberg, Jones, Kan, and Goslin (2010) randomized couples expecting their first child into a program focused on the coparenting relationship versus a control group. In the authors' view, the coparenting relationship serves a central regulatory function in the family because it is sensitive to parent attributes and also influences parent and child adjustment. In an example of adaptive self-stabilization, the intervention taught couples to coordinate their parenting and to manage conflict around child rearing. Significant effects were later observed on coparenting quality, parent mental health, effective rearing practices, and especially child self-regulatory behaviors. In one ofC. Cowan and P. A. Cowan's (2012) interventions, which began a year in advance of the oldest child's transition to kindergarten, parents were taught skills related to coping with stress, conflict resolution, and problem solving. Compared to a consultation control group, children

in the intervention group had higher school achievement, less aggression, and fewer symptoms of depression as a result of improved responsive parenting and decreased couple conflict. At a 10-year follow-up, the intervention group maintained higher levels of marital satisfaction and children's adaptation (C. P. Cowan, Cowan, & Barry, 2011).

Comprehensive programs to teach regulatory skills have been developed for parents of adolescents, with both the Family Check-Up (FCU) and Preparing for the Drug Free Years (PDFY) interventions demonstrating benefits at the individual, dyadic, and family systems levels. Among the regulatory processes targeted by PDFY are problem solving, effective disciplinary practices, emotion regulation, and resolving family conflict (Spoth, Redmond, & Shin, 1998). Significant intervention effects were found for each of these regulatory processes (Kosterman, Hawkins, Spoth, Haggerty, & Zhu, 1997; Park et al., 2000) and for teen substance use trajectories. The FCU uses a tiered approach to prevention: a universal classroom-based component, a family component that promotes skilled parenting, and an indicated treatment to teach family management skills. The FCU had a significant impact on adolescents' antisocial behavior and substance use, with these outcomes being mediated by changes in family conflict and parent monitoring (Connell, Dishion, Yasui, & Kavanagh, 2007; Van Ryzin & Dishion, 2012; Van Ryzin, Stormshak, & Dishion, 2012). Thus, the results from the FCU and PDFY illustrate one form of family resilience: changes in families' regulatory skills can alter the trajectory of adolescents' behavior such that they are more well adjusted than expected.

Communication and problem-solving skills typically are core components of couple relationship education that is intended to promote healthy marriages (Oliver & Margolin, 2009). Such interventions prepare couples making the transition to marriage, or they may be directed at high-risk couples to ameliorate stress and prevent divorce (Silliman, Stanley, Coffin, Markman, & Jordan, 2002). As a whole, the research on stress inoculation suggests that resilience in the face of family transitions might be promoted by earlier exposure to moderate, manageable stressors in conjunction with instruction in problem solving, communication, and emotion regulation.

Selective Interventions

If interventions for high-risk families succeed in promoting adaptive self-organization, one would expect ripple effects throughout the family system (Walsh, 2002) as new set points or patterns emerge. This presumption is supported by the evidence for multifinality in the outcomes listed in Table 1; interventions that alter one regulatory process may confer multiple benefits across the family system. This is especially true of programs that focus on emotion regulation. For example, home visitation program effects often are mediated by parents' emotional availability and sensitivity, which in turn promote emotion regulation and reduce behavior problems even among children who have been maltreated (Moss et al., 2011; Robinson, Emde, & Korfmacher, 1997). Two interventions developed for military families coping with post traumatic stress disorder (PTSD) also focused on teaching emotion regulation skills. Benefits accrued in terms of children's and adults' mental health, coping skills, relationship satisfaction, and family problem solving and communication (Fischer, Sherman, Han, & Owen, 2013; Lester et al., 2011). These programs for military families

illustrate another form of family resilience: Changes in individuals' regulatory skills can help families to recover previous levels of functioning (Bonanno, 2004).

Testing for mediation by the intervention's key mechanisms (MacKinnon, Kisbu-Sakarya, & Gottschall, 2013) is one criterion for establishing a causal relation between improved regulatory processes and enhanced resilience. Several of the programs listed in Table 1 conducted such analyses, particularly when the intervention focused on parents' use of limit setting or monitoring. For instance, the SAFE Children intervention – implemented at the transition to school – significantly increased parents' use of consistent caregiving and limit setting, with concomitant improvements in children's self-regulation (Gorman-Smith et al., 2007; Tolan, Gorman-Smith, Henry, & Schoeny, 2009). The New Beginnings Program (Wolchik, Schenck, & Sandler, 2009) was designed to promote children's resilience to their parents' impending divorce, in part by teaching parents effective discipline and conflict resolution skills. Program effects on children's behavior problems were mediated by mother – child relationship quality (Wolchik et al., 2009); benefits were maintained only when children had high self-regulatory skills (Hipke, Wolchik, Sandler, & Braver, 2002).

The GREAT Families program recruited families of high-risk adolescents, with a focus on parents' discipline and monitoring as well as family communication and support (Smith et al., 2004). The intervention group significantly improved in the targeted parenting practices, and these changes predicted lower levels of violence exposure in the families' high-risk neighborhoods (Matjasko, Vivolo-Kantor, Henry, Gorman-Smith, & Schoeny, 2013). Evaluations of interventions such as these indicate that when parents more effectively regulate their offspring's behavior through structuring and monitoring, their children's self-regulation and adjustment can improve. The results of such interventions also support the hypothesis that child-rearing practices are an important mediator of the effects of adversity on children (Gewirtz et al., 2008).

Unresolved Issues in Resilience as Regulation in the Family

Assessing Risk Exposure

What is unresolved in family resilience that might be addressed by a perspective that emphasizes regulatory processes? One issue relates to risk exposure. Rutter et al. (Luthar et al., 2000; Rutter, 2012) have argued that in many cases, individuals who were assumed to be resilient in fact were not exposed to adversity. One potential way to determine risk exposure is to assess various aspects of dysregulation, including physiological indicators (Blair & Raver, 2012; Obradović, 2012) such as the hypothalamic-pituitary-adrenal (HPA) axis and stress hormones, as well as more subtle affective dysregulation. For instance, Schwartz and Proctor (2000) found that the effect of violence victimization on negative social outcomes was mediated by emotion dysregulation. In terms of physiological indicators, Haggerty (2013) found that the effect of the Staying Connected to Your Teen program on later substance use was mediated by HPA axis regulation, reflecting coping with stress. Although such studies indicate that self-regulation contributes to resilience, it is unclear whether there is a veridical relation between the degree of adversity and the level of dysregulation. A recent latent profile analysis suggests that resilience may be defined in part by an *inverse* relation between risk and biomarkers. Brody et al. (2013) found that a resilient profile was

characterized by high cumulative socioeconomic status (SES) risk but low allostatic load and good adjustment in early adulthood. Perhaps resilient individuals had experienced stress inoculation, which has been shown to reduce physiological stress reactivity (Obradović, 2012). Such findings suggest that stress regulation should be viewed as vulnerability or protective factors rather than as measures of risk exposure (see Figure 1).

Risk exposure at the family level is more challenging to assess given that families consist of multiple subsystems, each of which may have particular vulnerability and protective factors as well as unique ways of manifesting adaptation (P. A. Cowan et al., 1996). Individuals' ratings of stress do not adequately represent the family's exposure to adversity because members may differ in their appraisal of the threat (Patterson, 2002a, 2002b), and complex temporal dynamics and tipping points are overlooked (Lich et al., 2013). One solution proposed by Lich et al. (2013) is to combine quantitative measures of risk and vulnerability/protective factors with qualitative diagrammatic frameworks that better capture system-level disequilibrium. A second approach is based on research into how stressors shape families' lives. Repetti, Wang, and Saxbe (2009) found that individuals' stress affected the family system in two primary ways, both of which reflected dysregulation: reduced social engagement and increased irritability. These barometers of family stress, measured with daily diaries, were reliably related to biomarkers at the individual level and had crossover effects on other family members. Self-reported family chaos is another promising way to assess family-system exposure to adversity. Family chaos is related to indicators of stress such as poverty, marital and job dissatisfaction, and depression but explains unique variance in family members' functioning such as children's inhibitory control (Brown, Ackerman, & Moore, 2013) and parents' responsiveness to children's emotions (Nelson, O'Brien, Blankson, Calkins, & Keane, 2009).

Crossover Effects

How are regulatory processes interrelated across family, dyadic, and individual systems, and how does resilience emerge from these linkages? This issue acknowledges that family resilience must be examined from a systems perspective because (a) resilience is a dynamic, developmental process and families are complex systems (Lich et al., 2013), implying that (b) there are multiple pathways to adaptation for individuals and families (Davies & Cicchetti, 2004).

Several examples of crossover effects can be highlighted in which different regulatory processes may become coupled to promote or impair adaptation. First, research finds that when parents are depressed (for a review, see Coyne, Downey, & Boergers, 1996), their affect regulation is compromised; they are more self-absorbed and thus disengaged from other family members; they are more demanding, inconsistent, unresponsive parents; there is more discord in the marital relationship; and family coherence is diminished. These regulatory systems may interact such that the mother's depression compromises the father's parenting behavior when marital conflict is high but not low (P. A. Cowan et al., 1996), or children may be buffered from parental depression when the spouse has good conflict resolution skills (Papp, 2012) and does not have mental health problems. Second, research on divorce's effects on children (Wolchik et al., 2009) implicates regulatory processes at

several levels including parental distress; reduced parental availability as a result of increased work involvement; family chaos due to changing homes, schools, and parent partners; and interparental conflict, which is bidirectionally related to parent stress. However, other regulatory processes help to protect children from the deleterious effects of divorce: a mother – child relationship characterized by warmth, positive communication, effective problem-solving skills, and low conflict; and children who are high in coping efficacy (Wolchik et al., 2009).

Research has not yet revealed whether there are tipping points when families encounter adversity. How many regulatory processes must be impaired before a family system is unable to self-right? Are some regulatory mechanisms in the family so central, such as effective emotion regulation and child rearing, that their use tips the balance in favor of resilience? In relation to cumulative risk models, P. A. Cowan et al. (1996) noted that a very high risk score may be nullified by a supportive family environment. In contrast, a low risk score may result in psychopathology for children who are vulnerable. To answer such questions, dynamic epigenetic models – rather than linear, additive approaches – will need to be used that assess regulatory processes across multiple systems in high- versus low-risk families.

Scaffolding of Self-Regulation

The third issue is more speculative. We begin with the observation that self-regulation develops progressively throughout childhood and adolescence as a product of parental scaffolding, or other regulation, and children's increased capacity for internalization of rules, self-talk, and inhibitory control (Aldwin et al., 2011; Galarce & Kawachi, 2013). Perhaps there is a parallel in resilience. For young children who are the most vulnerable to adversity, resilience may actually reside in the family system in the form of context protection (Jessor et al., 1991), recruitment of external resources, reframing (E. Chen, Miller, Lachman, Gruenewald, & Seeman, 2012), and other types of equilibration. Even when children are exposed to serious adversity such as violence, their self-regulatory skills may confer resilience if parents are supportive (Houltberg et al., 2012) and have effective communication and affect regulation skills (Upshur, 2011). This supportive scaffolding likely does not involve shielding children from adversity so much as helping them to understand and manage challenges. As Rutter (2012) said, "Protection resides not in evasion of the risk but in successful engagement with it" (p. 186). As development progresses within a healthy family environment, children internalize and master the skills that are necessary to adapt to adversity. This instruction in coping may be implicit, such as modeling, or it may be overt, such as inoculation and coaching (Brooks, 2005). Parents' preparation of their children for adversity may be one form of future-oriented coping (Folkman & Moskowitz, 2004) entailing proactive planning for later challenges. Additional research is needed to delineate the implicit and deliberate ways that families prepare their children to adapt to adversity.

Conclusions

We have defined *family resilience* in a way that emphasizes regulatory processes within dynamic systems: establishing equilibrium in a system due to perturbations caused by significant adversity. This definition is deceptively simple, however. Consider the proximal cause of disturbances to the family system. Adversity has been defined in terms of cumulative social risks (e.g., Evans & Kim, 2013), exposure to trauma (e.g., Fischer et al., 2013), and expectable family transitions (e.g., P. A. Cowan & Cowan, 2003), among other stressors (Patterson, 2002a). Whether a given stressor in fact results in a disturbance to the family system may depend on multiple processes including family members' appraisals (Patterson, 2002b) and previous experience with stress, especially in one's family of origin (Luecken et al., 2006). Earlier experiences with stress, the stress appraisal process, and a threat's intensity and chronicity also may amplify or modulate functioning of the autonomic nervous system, specifically allostatic load, which itself may mediate the relation between adversity and adaptation (e.g., El-Sheikh & Erath, 2011; Obradović, 2012). These complex processes related to adversity imply that family members may experience adversity in divergent ways, and that the risk side of the resilience equation requires multilevel systemic measures that are sensitive to tipping points (Lich et al., 2013).

Regulatory processes involving adaptive self-stabilization and adaptive self-organization establish equilibrium in the family system (Aldwin et al., 2011; Masten, 2007), but this also is a deceptively simple claim. Regulatory processes are operationalized differently across studies, making it difficult to compare findings or to identify which forms of regulation are central to resilience. Also, regulatory processes operate within a hierarchically organized family system (Cox & Paley, 1997). Each family member has a unique set of vulnerabilities and resources, each dyad has a unique relationship history and relational dynamic, and the family interacts with other social systems that may create spillover and buffering effects (P. A. Cowan et al., 1996). Biological mechanisms are increasingly recognized as critical to children's vulnerability (Evans & Kim, 2013; Heatherton & Wagner, 2011) and self-regulation, especially in the parent – child dyad (Blair & Raver, 2012; Galarce & Kawachi, 2013) and marital dyad (Cummings et al., 2009). However, research on biological mechanisms that contribute to resilience has not yet been well integrated into a family systems perspective that emphasizes probabilistic epigenesis over the life course (Cicchetti, 2013). In short, if regulatory processes are a linchpin of family resilience, then future studies will need to be multilevel and longitudinal and tap into the evolving dynamics of a complex system (for examples, see Davies et al., 2007; Evans & Kim, 2007; Hardaway et al., 2012).

A resilience-as-regulation perspective may characterize key aspects of a dynamic system's response to adversity – feedback loops, nonlinearities, and self-organization are notable (Lich et al., 2013) – but this focus on regulatory processes does omit constructs that likely are important to resilience. Notably, certain family resources contribute to resilience: optimism, confidence, perseverance, transcendence, financial security, and social support (Patterson, 2002a; Walsh, 2002). Patterson (2002a) argued that these strength-based family traits should be labeled as family "resiliency," to distinguish them from regulatory processes that contribute to family "resilience." However, some resources also are involved in regulating family systems: Secure internal working models may contribute to resilience by

means of emotion regulation (Shaver & Mikulincer, 2012), and social support contributes to family well-being by means of emotion regulation and problem solving (Armstrong, Birnie-Lefcovitch, & Ungar, 2005). We do not minimize the contribution of family strengths to resilience but instead emphasize that regulatory processes must be understood if dynamic concepts such as equilibrium, adaptive self-stabilization, and adaptive self-organization in the family system are inherent to family resilience.

Finally, a resilience-as-regulation framework has implications for family-strengthening interventions. Evaluations of interventions for at-risk families, as well as longitudinal research on resilience, have identified multiple pathways in which regulatory processes mediate the relation between adversity and adaptation. These mediational pathways often involve conflict resolution, emotion regulation, coping with stress, and effective disciplinary practices. Less common are interventions to enhance coparenting (but see Feinberg et al., 2013) or the marital relationship (but see C. P. Cowan et al., 2011) that later affect children's adaptation. Rarer still are interventions that explicitly target whole-family regulatory processes such as adaptability or routines versus chaos, although some interventions, such as the Strengthening Families Program (Kumpfer, Whiteside, Greene, & Allen, 2010), have assessed family organization as an outcome. Intervention trials that aim to promote family resilience by modifying regulatory processes could yield important insights about adaptation to adversity. First, if regulatory processes reestablish equilibrium in distressed families by myriad pathways, then interventions could be tailored to families' specific needs. In systems terms, regulatory processes represent distinct leverage points (Lich et al., 2013) to enhance family resilience. More generally, family-strengthening interventions address complex problems that are embedded in social context and that are epigenetic in nature. As such, interventions that target regulatory mechanisms in families could advance systems models in prevention science more generally (Granic et al., 2007; Lich et al., 2013) and resilience specifically (Rutter, 2012).

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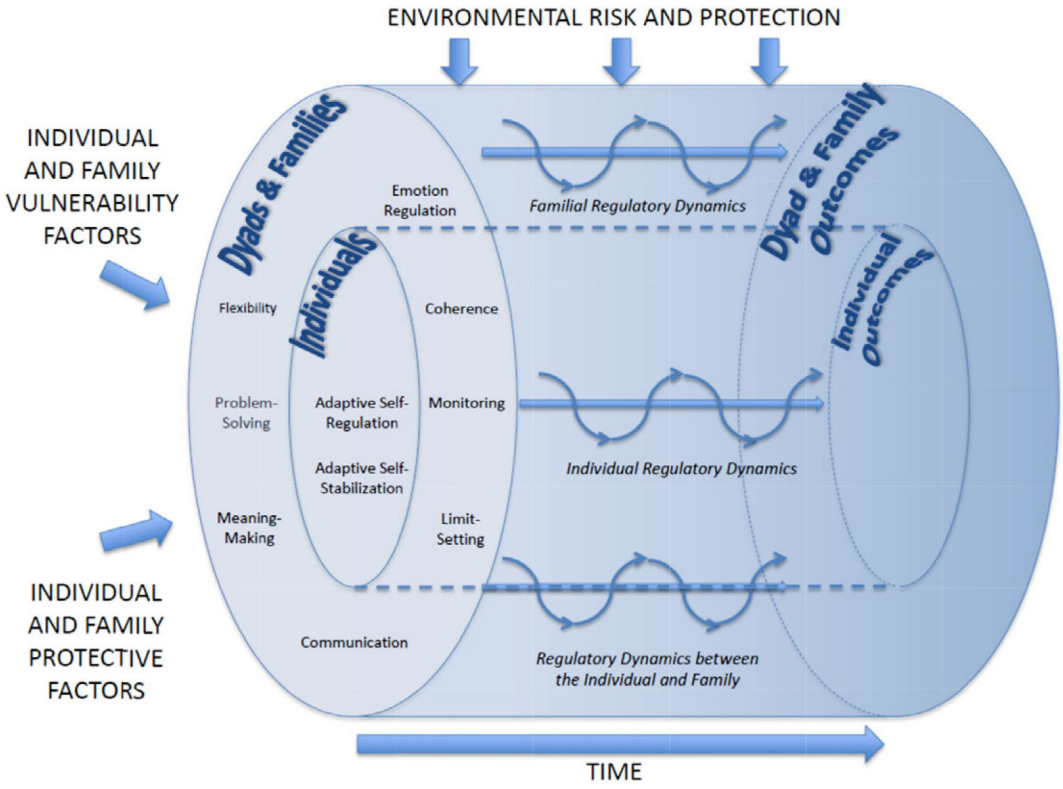

Figure 1.

Model of Resilience-as-Regulation Involving (A) Vulnerability, Risk, and Protective Factors at Different Levels of the Family; (B) Exposure to Environmental Risks (i.e., Adversity) and Resources across Time; and (C) Regulatory Dynamics across Levels of the Family that are Implicated in Family Resilience, as Measured by Individual and Family Adaptation.

Table 1

Examples of Family-Based Interventions to Promote Regulatory Processes

Regulatory Process	Level	Outcome	Intervention Program
Emotion Regulation	Infant	less disorganization	Moss et al. (2011)*Str*
	Child	fewer behavior problems	Moss et al. (2011)*Str* Robinson, Emde, & Korfmacher (1997)*Str* Triple-P (Sanders, 2008; Sanders et al., 2004)*Tr, Str* FOCUS (Lester et al., 2011)*Str*
	Teen	less substance use	Preparing for the Drug Free Years (Kosterman, Hawkins, Spoth, Haggerty, & Zhu, 1997; Spoth, Redmond, & Shin, 2001)*Tr* Parents Who Care (Haggerty, Skinner, MacKenzie, & Catalano, 2007)*Tr*
	Teen	less stress	Staying Connected with Your Teen (Haggerty, 2013)*Tr*
	Teen	less parent-youth conflict	Preparing for the Drug Free Years*Tr*
	Teen	family problem solving	REACH (Fischer, Sherman, Han, & Owen, 2013)*Str*
	Teen	family communication	REACH*Str*
	Parent	greater sensitivity	Moss et al. (2011)*Str* Robinson et al. (1997)*Str*
	Parent	less depression & anxiety	FOCUS*Str*
	Parent	coping with PTSD & quality of life	REACH*Str*
Communication	Child	self-regulation	Family Foundations (Feinberg, Jones, Kan, & Goslin, 2010)*Tr*
	Teen	lower violence exposure	GREAT Families (Matjasko, Vivolo-Kantor, Henry, Gorman-Smith, & Schoeny, 2013)*Tr*
	Parent	monitoring & discipline	GREAT Families*Tr* Strengthening Families Program (Kumpfer, Whiteside, Greene, & Allen, 2010; Spoth, Redmon, & Shin, 2001)*Tr*
	Family	organization	Strengthening Families Program*Tr*
Conflict; Problem Solving	Child	adjustment to school	C. P. Cowan, Cowan, & Barry (2011)*Tr*
	Child	coping skills	FOCUS*Str*
	Child	self-regulation	New Beginnings (Hipke, Wolchik, Sandler, & Braver, 2002)*Str*
	Child	less externalizing	New Beginnings (Wolchick, Schenck, & Sandler, 2009)*Str*
	Teen	less substance use	Preparing for the Drug Free Years (Park et al., 2000)*Tr* Family Check-Up (Connell, Dishion, Yasui, & Kavanagh, 2007; Van Ryzin, Stormshak, & Dishion, 2012)*Tr, Str*
	Teen	less antisocial behavior	Family Check-Up*Tr, Str*
	Teen	parent monitoring	Family Check-Up*Tr, Str*
	Family	marital satisfaction	Becoming a Family (P. A, Cowan & Cowan, 1990)*Tr*
	Family	parent-child relationship	C. P. Cowan et al. (2011)*Tr*
Flexibility	Child	less problem behavior	I-FAST (Lee et al., 2009)*Tr*
	Family	adaptability	I-FAST*Tr*
Meaning Making	Family	communication & support	Saltzman, Pynoos, Lester, Layne, & Beardslee (2013)*Str*

Regulatory Process	Level	Outcome	Intervention Program
Limit Setting; Structuring	Child	less aggression, externalizing	SAFE Children (Tolan, Gorman-Smith, Henry, & Schoeny, 2009)*Tr* Fast Track (Conduct Problems Prevention Group)*Str* DARE to be You (Mohajeri-Nelson, McPhee, Henry, & Swaim, in press)*Str* New Beginnings*Str*
	Child	greater attention	SAFEChildren*Tr*
	Child	self-regulation	New Beginnings (Hipke et al., 2002)*Str*
	Child	coping efficacy	New Beginnings (Wolchick et al., 2009)*Str*
	Teen	less substance use	Preparing for the Drug Free Years*Tr*
	Family	organization	SAFEChildren*Tr*
	Family	less parent – youth conflict	Preparing for the Drug Free Years*Tr*
Monitoring; Involvement	Teen	less substance use	Kristjansson, James, Allegrante, Sigfusdottir, & Helgason (2010)*Tr*
	Teen	problem-solving skills	Schinke, Fang, & Cole (2009)*Tr*
	Teen	knowledge of family rules	Schinke et al. (2009)*Tr*
	Family	parent – teen communication	Schinke et al. (2009)*Tr*

Tr = a program provided in advance of a family transition or developmental stage, without regard to families' exposure to adversity or current duress.

Str = a program provided to individuals and/or families under stress or experiencing adversity.