



THE UNIVERSITY
of NORTH CAROLINA
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Co-Regulation From Birth Through Young Adulthood: A Practice Brief

Adult caregivers such as parents, teachers, coaches, and other mentors play a critical role in shaping and supporting self-regulation development from birth through young adulthood through an interactive process called “co-regulation.” This brief builds on reviews of the theoretical and intervention literature to provide caregivers and program administrators with guidelines for effective co-regulation support at each stage of development. The brief is based on work conducted by the Duke Center for Child and Family Policy for the Administration for Children and Families (ACF), described in a series of four reports referenced throughout the brief, which can be accessed online at <https://www.acf.hhs.gov/opre/research/project/toxic-stress-and-self-regulation-reports>.

Co-regulation: What is it and why is it important?

Self-regulation has become recognized for its foundational role in promoting wellbeing across the lifespan, including educational achievement and physical, emotional, social and economic health. Self-regulation can be defined as the act of managing thoughts and feelings to enable goal-directed actions, and includes a variety of behaviors necessary for success in school, relationships, and the workplace (Murray, Rosanbalm, Christopoulos, & Hamoudi, 2015: Foundations for Understanding Self-Regulation from an Applied Developmental Perspective, <http://www.acf.hhs.gov/programs/opre/resource/self-regulation-and-toxic-stress-foundations-for-understanding-self-regulation-from-an-applied-developmental-perspective>). Although it may sound like something internal to an individual, self-regulation develops through interaction with caregivers such as parents, teachers, coaches, and other mentors. Further, self-regulation development is dependent on predictable, responsive, and supportive environments. Because caregivers are vital to self-regulation development, teaching adults in caregiving roles to promote self-regulation can be powerful.



The supportive process between caring adults and children, youth, or young adults that fosters self-regulation development is called

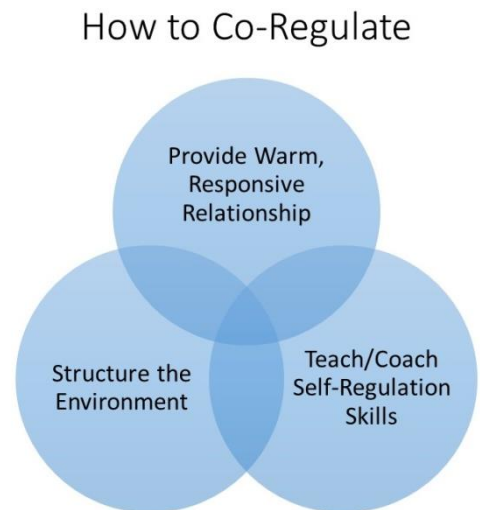
“co-regulation.” This term began as a description of adult support for infants, but is now used to describe an interactive process of regulatory support that can occur within the context of caring relationships across the lifespan. Co-regulation will look different at different ages as child capacity for self-regulation grows, but remains a critical resource across development. This brief describes co-regulation skills and strategies for caregivers at each stage from birth through young adulthood.

What caregiver behaviors contribute to co-regulation?

In this brief, the term “caregiver” is used to describe any adult who provides care and support to a child, youth, or young adult. This includes but is not limited to parents, guardians, teachers, child care providers, coaches, youth group leaders, and other mentors. Regardless of their role, a caregiver’s warmth, responsiveness, and sensitivity support self-regulation development and may buffer the effects of adverse childhood experiences. Effective co-regulation by a supportive caregiver will promote self-efficacy and allow children, youth, and young adults to feel secure enough to practice new skills and learn from mistakes.

There are three broad categories of support that caregivers can provide to children, youth, and young adults that will help them to develop foundational self-regulatory skills and expand these skills to meet increasingly complex regulatory needs as they grow (Murray et al., 2015):

- **Provide a warm, responsive relationship** by displaying care and affection; recognizing and responding to cues that signal needs and wants; and providing caring support in times of stress. Caregivers can build strong relationships with children, youth, and young adults by communicating, through words and actions, their interest in the young person’s world, respect for the young person as an individual, and commitment to caring for the young person no matter what (i.e., unconditional positive regard).
- **Structure the environment** to make self-regulation manageable, providing a buffer against environmental stressors. This means creating an environment that is physically and emotionally safe for children, youth, and young adults to explore and learn at their level of development without serious risk to their wellbeing. Consistent, predictable routines and expectations likewise promote a sense of security by providing clear goals for behavior regulation, in addition to well-defined logical consequences for negative behaviors.
- **Teach and coach self-regulation skills** through modeling, instruction, opportunities for practice, prompts for skill enactment, and reinforcement of each step towards successful use of skills. Like a coach on a sports team, caregivers should first teach skills, and then provide needed supports, or scaffolding, for self-regulation enactment in the moment.



What about caregiver self-regulation?

The first thing for caregivers such as parents, teachers, coaches, and other mentors to focus on is their *own* capacity for self-regulation. To co-regulate successfully, caregivers will need to:

- Pay attention to their own feelings and reactions during stressful interactions with a child, youth, or young adult.
- Pay attention to their own thoughts and beliefs about the behaviors of others.
- Use strategies to self-calm and respond effectively and compassionately. Caregivers greatly benefit when they take a moment for some deep breaths or self-talk. When a caregiver responds calmly to a child, youth, or young adult, it helps to keep the young person’s feelings from escalating and also models regulation skills.

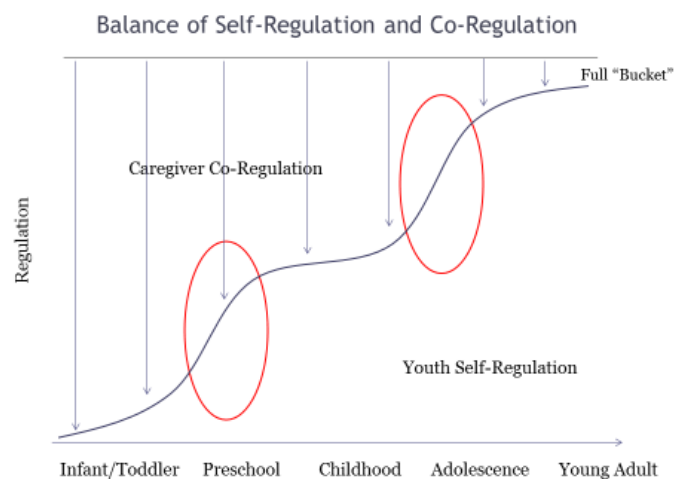
Self-regulation during a stressful interaction with a child, youth, or young adult is no easy task, particularly when there are multiple activities and stressors vying for a caregiver’s mental and emotional resources. Caregivers may need support, practice, and coaching from friends/family or professionals to build their own coping and calm-down skills, which in turn will aid them in promoting these skills for the children, youth, and young adults in their care.

How much co-regulation is needed?

Capacity for self-regulation develops over time, from infancy through young adulthood (and beyond). Consequently, the amount of co-regulation a child, youth, or young adult needs will vary as they grow. The graph below presents a theoretical model of the balance of a young person’s capacity for self-regulation and need for adult support. This is merely a conceptual depiction of normative growth in self-regulation capacity; the exact ratio will vary by individual and situation. One way of thinking about this ratio is that, for optimal functioning in the moment, children, youth, and young adults need to have their self-regulation “bucket” filled. Depending on developmental stage, environmental circumstances, and individual differences, young people themselves have the capacity to fill their self-regulation bucket to varying levels. To successfully manage their thoughts, feelings, and behaviors, they need caregivers to provide co-regulation that fills the remainder of the bucket.

As illustrated by the red ovals in the graph below, there are two clear developmental periods where child and youth abilities to self-regulate can increase dramatically due to corresponding changes in brain development. These are early childhood and early adolescence. During these periods, intervention and co-regulation support can capitalize on child and youth readiness to build and practice new self-regulation skills. Support in these developmental windows may be particularly well-timed to smooth life transitions, first into school and then into adulthood.

As a child’s ability to self-regulate increases, less caregiver co-regulation is required. For an infant, co-regulation support will encompass a large proportion of regulatory needs: babies need caregivers to feed them when they are hungry, help them sleep when they are tired, and give cuddles when they are overwhelmed. An older youth, on the other hand, may only need co-regulation support during complex life transitions or



when emotionally overwhelmed. To the extent that either a young person’s skills or caregiver support are limited, the “regulation bucket” may be only partially filled, which will directly affect that young person’s emotions, cognitions, and behavior. When regulation continually falls short, functional challenges will be evident, and may result in significant social-emotional, behavioral or physical health concerns.

Do all children, youth, and young adults require the same level of co-regulation support?

Though all children, youth, and young adults need co-regulation support, there are individual differences in self-regulation capacity and need for co-regulation support. These differences may be based on internal factors such as biology, temperament, and/or skill development. They may also result from environmental factors including experiences of stress and adversity. Children, youth, and young adults with self-regulation difficulties due to either internal or environmental factors may have more sensitized neurological responses to interpersonal and environmental stimuli, and may need greater levels of caregiver support, skill-building, and coaching. These young people may be more easily overwhelmed by physical sensations (e.g., sound, touch, sight) and by emotions, and are likely to have strong reactions when they find the environment overstimulating. Effective co-regulation, including the presence of a supportive caregiver in a calm environment, can provide safety and stability for these children, youth, and young adults, creating a space where they can begin to learn and enact self-regulatory skills. For more information on the links between stress, adversity, and self-regulation development, see the second report in this series: A Review of Ecological, Biological, and Developmental Studies of Self-Regulation and Stress, <http://www.acf.hhs.gov/opre/resource/self-regulation-and-toxic-stress-a-review-of-ecological-biological-and-developmental-studies-of-self-regulation-and-stress>.

Co-Regulation Support by Developmental Age Group

In general, as depicted in the graph on page 3, need for co-regulation declines with age. Along with this, the types of co-regulation that are most needed and beneficial shift across development. For instance, adults bear the responsibility to manage all aspects of the environment for young children. As children grow, they gain capacity to manage some aspects of the environment for themselves, thus the role of the adult shifts to supporting and monitoring environmental control. Similarly, skills instruction becomes significant in preschool, but diminishes in relevance over time if skills are successfully acquired and enacted. Again, as children move towards young adulthood, adult caregivers shift to a role of monitoring and supporting skill enactment. In contrast, maintenance of a warm caregiving relationship remains central to co-regulation across all age groups. The presence of a parent or other mentor who cares unconditionally is always supportive of self-regulation, particularly in times of stress.

Expanding on the early childhood co-regulation information presented in Promoting Self-Regulation in the First Five Years: A Practice Brief <http://www.acf.hhs.gov/programs/opre/resource/promoting-self-regulation-in-the-first-five-years> , the sections that follow describe common co-regulation supports that children, youth, and young adults will need at different developmental ages.

What co-regulation support do young children need?

As summarized in Murray et al. (2015), self-regulation begins to develop at birth and expands rapidly over the first five years of life. Co-regulation, likewise, should shift to complement this development.

In **infancy**, babies require adults to manage a large portion of their regulatory needs, from feeding to temperature control to management of environmental stimuli. Infants react physically to the sensory information around them, with little capacity to change their experience. They need adults who are sensitive to their cues and able to provide a soothing presence in times of distress.

Toddlers are beginning to build motor and language skills that allow them to control some aspects of their environment, like moving away from a loud noise or asking for something to eat. They continue to have strong emotions that far outweigh these emerging skills, however. In this developmental period, caregivers can begin to purposely teach and model skills like waiting (i.e., brief delay of gratification) and using simple words to communicate needs. Adults are still largely responsible for structuring a safe and manageable environment, as well as for providing comfort and reassurance when toddlers are upset.

During the **preschool years**, children experience rapid growth in areas of the brain associated with self-regulation, which makes them developmentally much more prepared to learn and use self-regulation skills. This is the perfect time for caregivers to actively teach and coach skills like emotion identification, problem-solving, perspective-taking, and calm-down strategies. Children will need considerable repetition, prompting, and practice in using these new skills. Likewise, caregiver modeling of these skills is important, as children watch adults closely to learn how they should behave. Co-regulation in this stage will include teaching and communicating clear rules and expectations, and using consistent natural or logical consequences provided firmly but calmly. As in earlier developmental periods, preschool children continue to need structured, predictable environments and warm, responsive caregivers that provide a supportive context in which to practice new skills.

What co-regulation support do elementary-aged children need?

In **elementary school**, children gain more control over their attention, emotions, and behavior. They have a growing ability to manage their impulses and delay gratification, and they become aware of their

Co-Regulation for Young Children

In Infancy:

- Provide warmth and nurturing
- Anticipate needs and respond to cues
- Provide structure and consistent routine
- Provide physical and emotional comfort when child is distressed or dysregulated: speak calmly and give affection
- Modify the environment to decrease demands and stress

In toddlerhood, in addition to above:

- Teach age-appropriate rules and expectations
- Label emotions; teach and coach use of words to express emotions
- Model waiting and self-calming strategies
- Redirect child attention to regulate behavior

In preschool-aged children, in addition to above:

- Teach and coach identification of solutions to simple problems
- Coach and incentivize rule-following and task completion
- Model, prompt, and reinforce self-calming strategies like taking a deep breath
- Provide external structure for calming down, including a calm-down space and materials
- Provide clear and consistent consequences, carried out in firm yet calm manner

own thinking processes, emotions, and decision-making. At the same time, behavioral expectations and social interactions become more complex in the school environment. This is a relatively stable period developmentally, which gives caregivers extensive opportunities to instruct and coach children in using self-regulatory skills. Ongoing co-regulation support across the elementary years will help skills crystalize and grow in sophistication over time in preparation for the increased demands of adolescence. Skills for caregivers to teach and practice with children during the elementary years include:

- Emotional literacy, including recognizing emotions and using words to express more complex feelings
- Emotion regulation:
 - Ignoring things that are mildly irritating, distracting, or frustrating
 - Calming down using strategies like deep breathing, relaxation, imagery, or positive self-talk
- Social flexibility, such as trying a friend’s idea or considering others’ perspectives
- Social skills, like being patient and taking turns
- Paying attention and staying focused
- Working independently
- Persistence with difficult tasks
- Problem-solving skills and flexible thinking

- Co-Regulation for Elementary-aged Children
- Continue to provide a warm, nurturing, supportive relationship
 - Assist in problem-solving more complex academic, behavioral, and social situations
 - Model conflict resolution strategies
 - Prompt and coach coping skills and calm-down strategies, including self-talk and relaxation
 - Teach and support organization and planning skills needed for academic success
 - Provide opportunities to make decisions and self-monitor behavior
 - Continue to provide clear rules, structure, and consequences in a calm manner

What co-regulation support do adolescents need?

In **adolescence**, as shown in the graph on page 3, brain architecture once again undergoes major changes, bringing both benefits and challenges for self-regulation. In early and mid-adolescence, brain systems that process emotions and seek rewards are more developed than the cognitive control systems responsible for good decision-making and future planning. This means that teens are biased towards choices that offer short-term reward rather than long-term benefit, and their emotions heavily influence their decisions. Given that poor decisions during adolescence can have long-term negative consequences, this is not the time for caregivers to step back from their supportive roles; co-regulation support during this developmental period is crucial.

Though adolescents are developmentally separating from caregivers and seeking more independence, maintenance of a warm and accepting relationship with a caring adult is as important as ever. Adolescents will need caregivers who can listen supportively in times of strong emotion, provide space and support for youth to calm-down in times of conflict, and coach coping skills for a multitude of stressful situations. Likewise, though adolescents do need opportunities for independent decision-making and action, they have equal need for caregivers to monitor their actions, protect them from dangerous situations, and support responsible choices. Skills for caregivers to teach and coach across adolescence include:

- Awareness of and attention to emotions
- Strategies to tolerate and manage normal levels of stress/distress
- Strategies for seeking help when stress is unmanageable or the context is dangerous
- Effective organization, time management, and task completion skills
- Setting longer-term goals and self-monitoring to achieve them
- Problem-solving complex life situations
 - Effective decision-making “in the moment”
 - Anticipating challenges and problem-solving in advance
- Decision-making with a future perspective
- Compassion for self and others

- Co-Regulation for Adolescents
- Provide a warm, responsive relationship
 - Provide support and empathy in times of intense emotion
 - Model, monitor, and coach more sophisticated self-regulation skills across different contexts
 - Monitor and limit opportunities for risk-taking behavior
 - Provide opportunities to make decisions and self-monitor behavior in less risky situations
 - Give time and space to calm down in times of conflict
 - Monitor and prompt use of organizational and planning skills for successful task completion
 - Continue clear rules, boundaries, and consequences to incentivize good choices

What co-regulation support do young adults need?

As adolescents mature into young adults, life transitions with increased responsibilities will create new demands on their self-regulation skills. At the same time, societal demands and consequences reflect an expectation of maturity. Across this span of emerging independence, co-regulation continues to be a critical support for responsible, goal-oriented behavior, effective decision-making and long-term wellbeing. For young adults, co-regulation becomes one specific aspect of the broader “social support” that they need. Co-regulation becomes necessary when a young adult is struggling with managing their thoughts, feelings, and/or behaviors effectively. In this context, the caregiver intentionally takes a “mentor” type of role, guiding the young adult and supporting skill development and enactment. Skills for caregivers to support and scaffold in young adulthood include:

- Interpersonal and communication skills for healthy relationships
- Decision-making that supports health, wellbeing, and long-term goals
- Job skills such as planning, organization, prioritization, time management, and persistence
- Self-monitoring and self-reward for progress towards goals
- Stress management and strategies to tolerate uncomfortable emotions
- Strategies for calming down before responding in a stressful or emotionally intense situation (e.g., take a deep breath rather than reacting in the “heat of the moment”)

- Co-Regulation for Young Adults
- Provide an ongoing warm, supportive relationship
 - Provide comfort and empathy during times of strong emotion; prompt and support coping strategies
 - Support long-term goal achievement by encouraging effective planning, awareness of consequences, and task completion activities
 - Share perspective and provide coaching for complex problem-solving and decision-making
 - Ultimately, allow space for the young adult to make his or her own decisions and experience the consequences of those decisions

What do we know about co-regulation interventions across development?

Despite the ongoing need for co-regulation support across development from birth through young adulthood, the proportion of self-regulation interventions that target co-regulation as a mechanism of change declines dramatically across this age range. A recent review of 312 studies of interventions to promote self-regulation in children, youth, and young adults (Murray, Rosanbalm, & Christopoulos, 2016: A Comprehensive Review of Self-Regulation Interventions from Birth through Young Adulthood, <http://www.acf.hhs.gov/opre/resource/self-regulation-and-toxic-stress-report-3>) found that all infant/toddler interventions and more than half of interventions for preschool-aged children employed a co-regulation component. By elementary school, however, only a third of interventions for child self-regulation included a focus on caregiver co-regulation. This number fell to 20% in middle school, 5% in high school, and 0% in young adulthood, which indicates a missed opportunity to support youth and young adults as they enter more complex environments requiring increasingly sophisticated skills.

Research shows significant benefit from targeting caregivers such as parents, teachers, coaches, and other mentors in interventions that support co-regulation. When evaluated against a comparison group, co-regulation interventions produce significant positive effects across a broad range of outcomes. Parents show improvement in co-regulation skills, attachment and/or relationship with their children, positive behavioral management skills, and knowledge of appropriate developmental expectations. Furthermore, parents report improvement in their own wellbeing in areas like mental health and social support. When teachers are targeted for co-regulation skill development, they likewise show improvements in their classroom climate as well as their co-regulation and self-regulation skills. As noted, these findings are based primarily on studies of co-regulation for caregivers of infant to preschool-aged children, with much less known about how co-regulation interventions work for older youth. The suggestions for co-regulation for older youth in this brief are therefore based on a combination of research evidence and a strong theoretical model.

What are the key considerations for enhancing co-regulation across development?

Self-regulation is a critical developmental task for children, youth, and young adults, with long-term impact across health and wellbeing indicators. Co-regulation is a key component for fostering this development, thus interventions for self-regulation should also focus on regulatory skill-building for caregivers such as parents, teachers, coaches, and other mentors. Given the universal need for and benefits of co-regulation support, a public health approach may be ideal for building awareness and reaching a broad audience. Interventions will be most scalable if they are delivered in settings already frequented by children, youth, and families, such as doctors' offices, child care centers, schools, afterschool programs, mentoring programs, and extracurricular programs. Based on our theoretical model and a review of the intervention literature, our suggestions for supporting co-regulation across development are as follows:

1. **Provide easily-accessible information to parents and guardians about self-regulation development and caregiver co-regulation specific to each developmental stage from birth through young adulthood.** Parent education can proactively promote awareness of co-regulation, while also working to change existing norms and knowledge through widespread, shared information and language. This information could be provided to parents as tip sheets, informal discussion, and/or more formal informational seminars in family-friendly settings. Information could highlight the three key components of co-regulation at each developmental stage:

- a. **A warm, responsive relationship** where children, youth, and young adults feel secure and cared for
- b. **Environmental structure** that makes self-regulation manageable and buffers against excessive stress
- c. **Skill instruction and coaching** to scaffold self-regulation enactment

Resources and informational materials on these topics may be already available through well-established parenting programs and human services agencies.

2. **For parents in high-stress situations and environments, deliver interventions with demonstrated effects on parental self-regulation and co-regulation.** In families with risk factors, including teen parents, poverty, and mental health or substance use concerns, targeted interventions show promise for impacting parent co-regulation capacity and skills. Given variability in outcomes, programs should be selected carefully. For a list of interventions by age group, see the Report 3 appendix: Effect Size Outcomes by Intervention and Developmental Groups, http://www.acf.hhs.gov/sites/default/files/opre/appendix_c_final_b508.pdf.
3. **For caregivers such as educators, mentors, and staff of child- and youth-serving organizations, provide training in effective co-regulation skills.** The goal of training is to help caregivers understand their roles in supporting self-regulation, both through the structure and content of their interactions with children, youth, and young adults. Once staff have been trained in co-regulation, they can also serve as coaches and role models of co-regulation for parents and guardians, expanding the impact across contexts. Training for caregivers can address topics including:
 - a. Building a positive relationship with each child, youth, or young adult
 - b. Structuring the environment to reduce regulatory demands and support skill enactment
 - c. Communicating clear rules, expectations, and consequences
 - d. Instructing, monitoring, and coaching specific, age-appropriate self-regulation skills
 - e. Incorporating activities to practice self-regulation skills

There are existing training programs and interventions for teachers and staff that target co-regulation topics, also listed in the Report 3 appendix, http://www.acf.hhs.gov/sites/default/files/opre/appendix_c_final_b508.pdf. These tend to focus on younger children, but could be expanded upon or modified, as needed, to meet the needs of professionals working with older children, youth, and young adults.

4. **Identify ways to support staff of child-, youth-, and family-serving organizations in their own self-regulation capacity.** Caregivers will only be effective at co-regulation if they can successfully

self-regulate. Staff supports may include mindfulness instruction, reflective supervision, and opportunities for personal “time outs” when needed.

Summary

For children, youth, and young adults, development of self-regulation is dependent on predictable, responsive, and supportive caregivers and environments. Through an interactive process called “co-regulation,” adult caregivers such as parents, teachers, coaches, and other mentors play a critical role in shaping and supporting self-regulation development from birth through young adulthood. Co-regulation involves three types of caregiver support: a warm relationship, environmental structure, and skills instruction and coaching. These components will look different at different ages as child capacity for self-regulation grows, but co-regulation remains a critical resource for wellbeing into young adulthood. Training and interventions to promote co-regulation can produce significant, substantive changes in parent-child relationships, parenting skills, classroom climate, and caregivers’ own self-regulation. Expansion of effective and consistent co-regulation across child, youth, and young adult settings may form a foundation for strong self-regulation development at a community level. Because stronger self-regulation predicts higher income, better financial planning, lower rates of substance use and violence, and decreased long-term health costs, investment in caregiver co-regulation can help us to build healthier communities for our families.

For more information on how self-regulation interventions could be applied in programs supported by ACF, visit Report 4: Implications for Programs and Practice, <http://www.acf.hhs.gov/opre/resource/self-regulation-and-toxic-stress-implications-for-programs-and-practice>.

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