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Using both a scoping review of the literature and a targeted program scan to inform approaches for caring adults

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- **Amanda Cruce, LCSW** – Ms. Cruce is a consultant with the Capacity Building Center (CBC) who also works as a community social worker, as a teacher for undergrad social work students, and as a foster parent and youth mentor. In her CBC consultant role, she advocates for family and youth engagement in all aspects of child welfare and LGBTQ youth and families.
- **Arlene S. Jones** – Mrs. Jones is a CBCS family consultant who has lived experience in both the child welfare and homeless systems. Her professional experiences include having worked as a child welfare caseworker, a youth housing specialist, and a Court Appointed Special Advocate where she helped families work toward permanency. Mrs. Jones is also a trainer, consultant, and curriculum developer for the Ohio Child Welfare Training Program.
- **Junlei Li, PhD** – Dr. Li is a senior lecturer and co-chair of the Human Development and Education Program at the Harvard Graduate School of Education. His research and practice focus on understanding and supporting the work of helpers—those who serve children and families on the frontlines of education and social services. He developed the "Simple Interactions" approach to help identify what ordinary people do extraordinarily well with children in everyday moments and made that the basis for promoting positive system change.
- **Katie Rosanbalm, PhD** – Dr. Rosanbalm's work focuses on program implementation and evaluation in the areas of early childhood systems, self-regulation development, child welfare, and trauma-sensitive schools. She has conducted longitudinal evaluations of child welfare reform, early childhood Systems of Care, and prevention/intervention programs for mental health and education and co-led previous work in this self-regulation series.
- **Kristine Gunningham, LSW** – Ms. Gunningham is a CBC consultant who works as a therapist to improve the lives of youth living in out of home placement. She has worked in child welfare for over five years including through direct clinical practice, group facilitation, trauma -informed care, advocacy, and program development and also has personal experience in foster care.
- **Velma McBride Murry, PhD** - Dr. Murry holds the Lois Autrey Betts Chair, Education and Human Development and is a University Professor in Departments of Health Policy and Human & Organizational Development, Vanderbilt School of Medicine and Peabody College. She has conducted research on African American parents and youth for over a decade and identified protective factors that deter emotional problems and risk engagement in youth. Using this information, she designed and implemented family-based preventive interventions programs that have demonstrated enhancement of parenting and family processes as well as youth's intrapersonal protective processes. Dr. Murry's work reflects critical and innovative thinking to guide research, health policy, and practice.

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Overview

This report builds from a body of work supported by the Office of Planning, Research, and Evaluation (OPRE) in the Administration for Children and Families (ACF), U.S. Department of Health and Human Services that describes how self-regulation can be applied as a framework for promoting health and well-being for youth, with particular value for those who have experienced an accumulation of acute and chronic stressors. The [Self-Regulation and Toxic Stress series](#) includes four inter-related reports, including seven key principles of self-regulation development, a literature review of the relationship between toxic stress and self-regulation, a review of the self-regulation intervention literature from birth through young adulthood, and an application of key findings to a range of ACF programs including those serving children in the child welfare system. In addition, the series includes multiple practice-oriented resources for different age groups and special topics (e.g., communicating about adolescent self-regulation, research gaps, application to native communities) as well as short videos. One of the critical research gaps identified in the foundational self-regulation work was a lack of effective self-regulation interventions for adolescents, particularly interventions that engage adults in a process called ‘co-regulation’, which includes Caring, Consistent, & Responsive Relationships; Co-Creation of Supportive Environments; and Intentional and Developmentally-Informed Day-to-Day Interactions.

Stakeholder and experts highlighted the relevance and need for such an approach for older youth in foster care. In March 2019, the Children’s Bureau (CB) and OPRE convened a day-long meeting of national experts—including researchers, practitioners, and youth with foster care experience—to discuss how the child welfare system can support the self-regulation development of older youth in and those transitioning out of foster care (see [Meeting Summary](#)). In August 2019, an affinity group meeting at the Child Welfare Evaluation Summit was also held on this topic. The affinity group was a mechanism to bring together a diverse collection of individuals to further explore the topic of co-regulation and how interventions could be installed in the child welfare system. The discussion validated the importance of the relationships that key adults in the lives of youth in foster care have for supporting a range of developmental tasks. These roles include child welfare workers and foster parents, as well as relatives and other caring adults of youth in foster care. The meeting also highlighted the need for a strengths-based approach for this work.

Finally, there are current efforts within the child welfare system to support older youth such as normalcy, prudent parenting, and relational permanency that are well-aligned with co-regulation, as well as intervention approaches such as trauma-informed care (TIC) and mentoring where co-regulation supports could be integrated. However, in order to fully identify opportunities for building co-regulation for youth in foster care, a comprehensive review of the literature is needed.


Primary research questions

Our review sought to provide an overview of the available research evidence relevant to the following research questions examining co-regulation for older youth in or transitioning out of foster care:

1. What developmental skills and competencies are addressed in the literature in relation to co-regulation?
2. How is co-regulation addressed in research and practice with regard to our theoretical model?
3. In what contexts is co-regulation being applied and by whom?

Purpose

Older youth in or transitioning out of foster care have been identified as a specific population for whom evidence-based interventions are limited and need is great. They often experience significant challenges to self-regulation related to maltreatment, disrupted relationships, and other traumatic experiences that may occur before and during foster care. This can make it more difficult to successfully transition to adulthood, including completing an education, securing and maintaining a job, financially supporting and managing independent living, and for some,



caring for a child. In addition, there are numerous institutional challenges within the child welfare system that make it more difficult for adults to provide co-regulation – for example, placement instability, congregate care, institutional racism, and negative biases and beliefs about youth in foster care. At the same time, many youth who have been in and transitioned out of foster care demonstrate resilience and unique strengths that may not be recognized or utilized by system stakeholders. There are individual, family, and community factors, including culturally based assets that have been shown to promote positive youth development, that could be leveraged as co-regulation supports.

Given the apparent need and relevance of co-regulation for older youth in or transitioning out of foster care, we wanted to examine both the existing literature and current practices to provide guidance for the child welfare system in strengthening co-regulation supports. This project therefore aimed to:

- provide a foundational resource that summarizes the state of the field;
- identify a research agenda to address any gaps;
- and apply what is learned to practice within the child welfare system for older youth in foster care.

The intended audience for this report is researchers interested in child welfare and application of self-regulation approaches to practices and programs for older youth as well as federal staff and administrators at ACF and CB who are responsible for generating and applying knowledge to enhance federally-funded programs for youth in foster care. This report serves as the source documentation for other resources and materials that will be most useful for policymakers, practitioners, and administrators and directors of child welfare programs and other programs serving youth in foster care, including a planned series of tip sheets. In addition, the Executive Summary of this report is a stand-alone document summarizing relevant findings and recommendations for a broad audience.

Key findings and highlights

- Although all youth need systematic and intentional co-regulation for positive development, older youth in foster care need additional support given their life experiences of adversity and trauma as well as challenges to self-regulation development created by the child welfare system (e.g., placement instability, reduced opportunity for normality, and institutional racism). The need for co-regulation support may be even greater for youth in foster care with marginalized identities (e.g., Black, LGBTQ).
- The published literature relevant to co-regulation for older youth in foster care is emerging, and what is known is primarily based on descriptive work. This literature reflects clear recognition and value of relationships for supporting positive youth development and indicates that caring and consistent adults and peers in many different roles can provide co-regulation support, which does not require a therapeutic context or a specific program.
- There are nonetheless many gaps, including limited focus on co-creating supportive environments and on using intentional, developmentally informed day-to-day interactions to promote self-regulation skills, the other key domains of co-regulation. In addition, there are many contexts in which co-regulation is not being studied, which appears to have potential benefit. There are significant gaps in both the literature and existing programs on co-regulation approaches for youth of color and special populations (e.g., youth who are parents, LGBTQ youth, youth with disabilities) and how co-regulation approaches may need to be tailored for these groups.
- Some additional insight on co-regulation practice was gained from examining existing programs, which includes approaches for building the capacity of adults serving in a co-regulator role that were not found in the literature.



Methods

This project includes four components that are described in separate chapters in this report:

- **Theoretical foundation:** In order to inform a more systematic review of the literature and facilitate interpretation of results across all methods, we applied our theoretical model of co-regulation to older youth in or transitioning out of foster care and identified challenges and opportunities to address within this context.
- **Scoping review:** We conducted a scoping review of the co-regulation literature for youth aged 14-24 years with foster care experience. Similar to a systematic review, a scoping review utilizes comprehensive and structured search and extraction to capture and synthesize relevant information in a reproducible manner. Consistent with recommended procedures, we developed search terms and inclusion criteria based on an exploratory scan of the literature and input from consultants. Using four databases, we screened 46 articles included for synthesis. Subsequently, we applied a deductively derived coding system to articles to address research questions and modified codes as themes emerged during review. Finally, we reviewed preliminary results with our consultants to contextualize findings and refine our data charting and summary.
- **Targeted program scan:** We then conducted a targeted program scan, with the aim of addressing specific areas identified as gaps in the published literature. We reviewed programs from seven evidence-based clearinghouses as well as those recommended by project consultants and ACF collaborators. After determining if a program was consistent with co-regulation, we assessed the co-regulation domains and approaches utilized and identified additional practice elements.
- **Integration of findings:** Following the program scan, results were integrated with the scoping review to generate key findings, identify a future research agenda, and make recommendations for practice.


Recommendations

Strengthen co-regulation practices within the child welfare system by:

- Encouraging programs, administrators, and practitioners who work with older youth in foster care to further implement all core components of co-regulation by: 1) increasing the intentionality of adult relationships with youth, including attunement to youth development and individual needs, trauma sensitivity, and cultural responsiveness; 2) working collaboratively with youth to create supportive environments and routines including peers and mentors who promote a sense of positive identity and belonging; and 3) promoting skills and competencies within day-to-day interactions and through opportunities for normalcy, particularly with regard to emotion regulation and stress management.
- Integrating principles of co-regulation practice into existing programs serving older youth in foster care, especially those supporting employment, career readiness, and healthy relationships.
- Providing training for staff and care providers in a variety of roles around co-regulation, including skills training related to co-regulation practice, psychoeducation about youth's co-regulation needs, and supports for building self-regulation capacity in those in a co-regulator role.

Strengthen evidence on co-regulation for older youth in foster care by:

- Addressing specific gaps, including: 1) co-regulation needs of special populations such as youth with disabilities, youth who identify as LGBTQ, and youth who are parents, as well as youth of color who are significantly overrepresented in the child welfare system (Black and American Indian/Alaska Native); 2) how peer support can be leveraged to promote co-regulation; and 3) opportunities for co-regulation supports within the context of employment/career readiness programs as well as healthy relationship programs.

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- Conducting rigorous evaluation of specific co-regulation training strategies, practices, and programs including outcomes related to physiological stress reactivity and risk behaviors.
 - Incorporating youth voice and practice-based knowledge to enhance intervention approaches.

Glossary

Self-regulation: The act of managing cognition and emotion to enable goal-directed actions, such as organizing behavior, controlling impulses, and solving problems constructively.

Co-regulation: The supportive process by which caring adults and peers promote positive youth development through Caring, Consistent, & Responsive Relationships; the Co-Creation of Supportive Environments; and Intentional and Developmentally-Informed Day-to-Day Interactions.

Scoping review: A type of research synthesis that aims to address broad questions about key concepts and characteristics of a defined area of literature and identifies types of evidence or knowledge gaps across studies with a range of designs and methods to inform practice, policymaking, and research.

Program scan: A review of existing programs and practices conducted with the aim of filling gaps in peer reviewed research.



Executive Summary

Caregivers and other caring adults support positive youth development in a number of ways, and this is true for adolescents as well as younger children.¹ Adolescents are more likely to accomplish developmental tasks related to identity, independence, and future planning when they have strong relationships with caring adults and are less likely to become engaged in risk behaviors.² Warm, responsive caregiving has specifically been associated with the development of self-regulation skills,³ which are foundational for managing thoughts and feelings. Self-regulation also underlies a range of functioning across domains, including mental and physical health, academic achievement, and socio-economic success.⁴ In practical terms for adolescents, this includes coping with stress and intense emotions, planning and achieving goals, and making healthy decisions. Such skills support the transition to adulthood which involves completing an education, securing and maintaining a job, financially supporting themselves, managing independent living, and for some, parenting a child.

All youth need support in developing self-regulation skills, but older youth in or transitioning out of foster care often have greater needs for support due to a variety of chronic and acute stressors experienced before and after their entry into foster care.⁵ These experiences include poverty, maltreatment, disrupted relationships, institutional racism, and exposure to negative biases and beliefs.⁶ Exposure to such stressors are even greater for youth of color, particularly Black and American Indian/Alaska Native (AI/AN) youth.⁷ In addition, youth who identify as lesbian, gay, bisexual, transgender, queer and questioning (LGBTQ), who have disabilities, or who are parents themselves also experience increased stressors. These stress experiences create self-regulation challenges for youth despite considerable resilience and unique strengths.⁸


Given that many youth with foster care experience have less access to consistent, caring relationships with adults with whom they can experience a sense of security and belonging,⁹ a broader range of relational supports may be needed, including involving more adults in different roles. There are existing policies and initiatives within the child welfare system that provide opportunities for such supports, including the normalcy standard, the construct of relational permanency (defined by youth themselves as having someone they can turn to for support),¹⁰ and trauma-informed care. In addition, the system has promoted several different mentoring models that support relationships between youth and non-parental adults or near-aged peers. Despite the limitations and challenges of each of these opportunities, they provide an important foundation that could be leveraged to strengthen positive youth development supports for youth in or transitioning out of foster care.

This project aimed to provide a summary of the state of the field that can inform policy, practice, and research by examining the current literature and selected programs focused on adult and peer support of older youth in or transitioning out of foster care. It was guided by our understanding of *co-regulation*, the supportive process by which caring adults and peers promote positive youth development. We found that:

- Several aspects of co-regulation have been examined in the literature for a range of competencies and self-regulation skills, with evidence that co-regulation may be a valuable approach for supporting older youth in foster care.
- A wide variety of co-regulation approaches are being studied and delivered by individuals in many roles. The most common approach focuses on building intentional relationships with youth and adults or near-aged peers.
- There are important limitations and gaps in how co-regulation is being applied, particularly with regard to 1) co-creating supportive environments and providing developmentally informed day to day interactions, 2) application to employment and career readiness, and 3) examination with youth of color and those from special populations such as LGBTQ and youth with disabilities.

Recommendations to advance application of co-regulation in this context include:

- Using of a set of principles of practice
- Strengthening supports within the child welfare system
- Strengthening evidence on co-regulation through further research



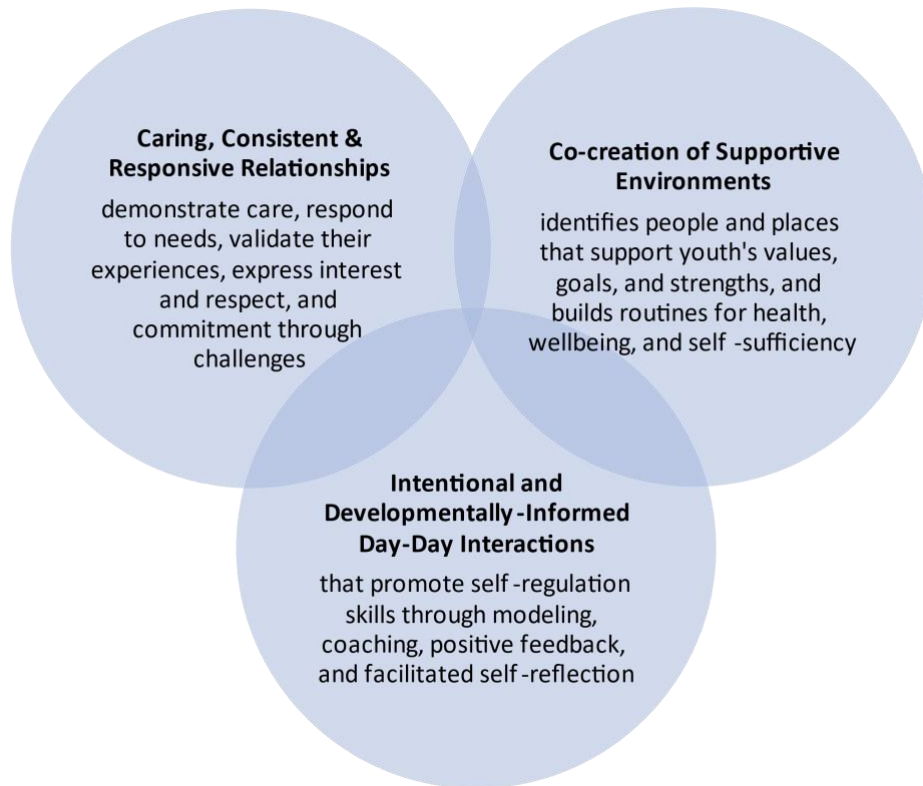
The current work builds on The [Self-Regulation and Toxic Stress series](#) supported by the Office of Planning, Research, and Evaluation (OPRE) in the Administration for Children and Families (ACF). That work describes how a self-regulation framework can be applied for promoting health and well-being for youth across development, particularly for children and youth who experience chronic stress and adversity. It was also informed by input from a range of stakeholders convened by ACF and the Children’s Bureau (CB) [see [Meeting Summary](#)] and by an affinity group at the Children’s Bureau at the Child Welfare Evaluation Summit in 2019. The present work was commissioned by OPRE to Child Trends and conducted in 2020-2021.

Co-regulation Involves More than Just Relationships

Caring adults and peers promote positive youth development through co-regulation, a process which is well-grounded in developmental science and ecological systems theory¹¹ and aligns well with intervention components identified as effective for children and youth in foster care.¹² According to the Self-Regulation Promotion model,¹³ there are three critical components of co-regulation that create the greatest impact when combined in caring adults’ interactions with youth (see Figure ES 1):

- **Caring, Consistent, & Responsive Relationships** include demonstrating care and affection in a culturally responsive manner; recognizing and responding to cues that signal needs and preferences; providing support in times of stress; accepting and validating their experiences, expressing interest in the young person’s world, respecting them as an individual, and committing to a relationship with them regardless of the young person’s needs and behaviors.
- **Co-Creation of Supportive Environments** means creating an environment in collaboration with the youth that is physically and emotionally safe and supportive. It involves identifying those people and places that support the youth’s values and goals; identifying work that matches their strengths; and building routines to promote health, wellbeing, and self-sufficiency. This may include reasonable limit setting and consequences that do not jeopardize a youth’s relationships or the stability of their living arrangement.
- **Intentional and Developmentally-Informed Day-to-Day Interactions** promote self-regulation skills and positive youth development through modeling, prompting, positive feedback and facilitating self-reflection. This occurs in everyday interactions as learning opportunities arise. Such support takes into consideration the youth’s unique developmental and social-emotional needs in the moment, which may involve providing space for the youth’s emotions rather than offering immediate directions or solutions. This type of “coaching” may include encouraging youth to anticipate and plan for challenges as well as reflecting on what they have learned in a manner that supports their development of a sense of agency and competence.

Figure ES 1. Domains of Co-Regulation




Effective co-regulation also requires that caring adults and peers themselves have the capacity to self-regulate.¹⁴ This enables them to pay attention to their own thoughts, feelings, and reactions during stressful interactions with a youth and using strategies to self-calm and respond effectively and compassionately. Caring adults may need support, practice, and coaching from friends, family, or professionals to build their own coping and self-regulation skills.¹⁵ This may be especially important for child welfare professionals who experience high rates of burnout and secondary trauma¹⁶ and for foster parents who often feel unprepared and ineffective in managing developmental and behavioral challenges of youth.¹⁷

A Review of Literature and Programs

A Scoping Literature Review. Given the framework of co-regulation for older youth is new for the child welfare field, we started with a scoping literature review that characterizes an emerging area of literature, including types of evidence and identified gaps. We used search terms and inclusion/exclusion criteria based on the Self-Regulation Promotion model as well as an exploratory review of program clearinghouses relevant to youth in foster care. Four separate databases were then searched for empirical articles that were:

- Published in peer-reviewed journals or were government or program reports or issue papers;
- Quantitative or qualitative work (excluding reviews or small case studies);
- Focused on youth aged 14-24 years, or the adults who worked with them;
- Relevant to the U.S. child welfare system;
- Including a specific co-regulation action OR the self-regulation of the adults and peers supporting youth;
- And addressing a specific self-regulation or related skill.



Targeted program scan. We then conducted a targeted program scan of eight evidence-based clearinghouses to address specific gaps in the research literature and ensure our results were informed by practice-based knowledge.

Synthesis and application. We integrated the findings of the literature review and program scan to address the following questions:

- What developmental skills and competencies are addressed in the literature in relation to co-regulation?
- How is co-regulation addressed in research and practice with regard to our theoretical model? That is, which key domains are addressed and what approaches are being used?
- In what contexts is co-regulation being applied and by whom?

Findings were shared with our Children’s Bureau consultants and academic experts to apply what was learned to practice and identify a future research agenda.

Findings Highlight Limitations and Gaps in the Co-Regulation Literature

The literature on co-regulation in older youth in foster care is emerging and has several important gaps

Based on 1108 articles screened in our scoping literature review, we identified 46 that met our criteria. We then coded these articles to address our research questions. These articles were primarily exploratory or descriptive in their approach, utilizing qualitative data. About 1/3 were program evaluations, with only five of those studies including outcome data. Almost all the articles were published in the last 20 years, with nearly half published since 2015.


It is clear that co-regulation for older youth in foster care is an emergent area for which more theoretically informed and rigorous research is needed. In particular, there is a lack of co-regulation related research that focuses on special populations (e.g., youth identifying as LGBTQ, those with disabilities and those who are parenting) and meaningfully addresses the needs of youth from racially and ethnically diverse backgrounds. Surprisingly, only 15% of the 46 studies addressed trauma and adversity in a manner that informed co-regulation needs or approaches.

In addition, there were clear gaps in the literature reviewed on employment and career readiness, healthy relationships and dating, and co-regulator self-regulation or capacity to provide co-regulation that we examined with a targeted program scan. Of the 94 programs we reviewed, 31 addressed these specific gap areas. These programs reflected co-regulation approaches that were largely similar to what was seen in the literature, with a few exceptions. Ten programs were found that addressed healthy relationships and five that addressed employment and career readiness. In addition, 21 programs addressed Caregiver Training to increase the capacity of adults to provide co-regulation.

The co-regulation literature addresses a range of youth competencies and self-regulation skills, but with opportunities for further application

A broad range of developmental competencies and self-regulation skills were addressed in the co-regulation literature, the most common of which were future orientation, identity-based motivation, and emotion regulation. However, there was a relative lack of attention to skills that seem particularly salient for many youth with foster care experience such as stress management and resilience. In contrast to the comprehensive set of skills we expect is needed for successful transition to adulthood, most articles addressed fewer than two of the youth self-regulation skills for which we coded.

In general, articles addressed many developmentally relevant competencies, particularly educational success and identity development. However, there was a notable lack of literature examining the developmentally relevant



competences of employment and career readiness, healthy relationships, and parenting, all of which are important for youth in foster care. In addition, although self-regulation is clearly relevant to each of the gap areas, it does not appear to have been integrated into study research questions and theoretical models for building competencies in these areas.

The relationship domain of co-regulation is addressed often in the literature

The primary focus of the literature we reviewed was on the co-regulation domain of Caring, Consistent, & Responsive Relationships, with 89% of the 46 articles addressing this domain, often in combination with one of the other two domains. Far fewer articles addressed the domains of Co-Creation of Supportive Environments (39%) and Intentional and Developmentally-Informed Day-to-Day Interactions (28%). Only 5 articles addressed all three domains as recommended by the Self-Regulation Promotion model (see Figure ES1). Just two articles described complete integration of co-regulation practices: Storer et al.'s Connected Foster Teen and Caregiver Relationship model and Patterson et al.'s competencies for resource parents for traumatized teens in out of home care.¹⁸ The lack of examples of integrating all three co-regulation domains suggests potential for building on the strong foundation of relationships in this field by further emphasizing ways to collaborate with older youth in co-creating supportive environments and to build their skills within intentional day-to-day interactions.

Consistent with this finding, the most common co-regulation approach identified in the 46 studies was creating intentional adult relationships (57%), providing support from individuals with lived experience in foster care (34%), and relationships with near-aged peers (29%). Caregiver training was identified as promoting relationships as well as co-creating a supportive environment but was relatively infrequent (23%). Approaches promoting youth skills sometimes included support within day-to-day interactions. Peer-focused programs in particular promoted cultivating a positive self-narrative. Figure ES2 depicts the youth support approaches by co-regulation domain and related construct.

Adults and peers provide co-regulation in a wide range of roles and settings

A wide range of adults and peers were described as providing support to older youth in foster care, but the most common within the 46 articles reviewed were mentors (33%) and foster parents (24%). Other roles identified in at least five articles include peers, mental health providers, residential staff, kinship caregivers, other family members, other program staff or vocational workers, and child welfare professionals. Very few articles address co-regulation that could be provided by an extra-curricular advisor, teacher, or employer. Settings aligned with roles, and commonly included colleges and independent living skills programs, but co-regulation was also applied in many other community and residential programs. Overall, our review suggests that co-regulation for older adolescents in foster care does not require a specific setting or role, and a therapeutic context is certainly not required.

ES Table 1. Youth support approaches

Youth Support Approaches	# of Articles Containing Each Co-Regulation Domains and Related Constructs							Exemplar Practices
	# of Articles	Relationships	Co-creation	Day -to-Day	Peer Co-regulation	Co-regulator	Self-Regulation	
Intentional adult relationship	20	10+	5-9	5-9	5-9			Express genuine interest; stay engaged despite challenges; accept youth for who they are but also focus on potential; believe in them; be trustworthy, reliable, and responsive; help connect youth to resources and navigate systems
Support from individuals with lived experience	12	10+	<5	1-4	5-9			Offer understanding through shared experiences; model success or persistence in the face of adversity
Near-age peer support	10	10+	1-4	1-4	5-9			Provide a sense of belonging; offer understanding and acceptance; model successful future pathways and how to navigate different challenges
Caregiver training*	8	5-9	5-9	1-4			1-4	Respond to youth needs with flexibility and support; establish expectations and routines for safety and security; provide guidance for the future; use effective de-escalation strategies grounded in strong understanding of youth development
Youth skills support	8	5-9	1-4	5-9	1-4		1-4	Use behavior modeling; provide in the moment feedback and problem-solving support; help youth apply skills to new challenges; teach skills rather than do it for them; offer patience when youth make mistakes
Cultivating positive self-narrative	7	5-9	1-4	1-4	5-9			Help youth recognize assets; help youth gain perspective on their experiences; reframe adversity as building resilience
Environmental systems	6	1-4	5-9	1-4	1-4		1-4	Work with youth to establish routines and environments that support their goals; encourage youth to monitor progress toward goals
Behavior Management	3	1-4	1-4	1-4			1-4	Provide clear expectations for behavior; provide positive reinforcement; support youth in self-reflection and problem solving when behavior does not meet expectations; focus on teaching vs. punishing;

Note. No approach was identified in eleven articles; thus, this table is based on 35 articles only. Multiple approaches may be identified in one article.

*Only 2 of these articles focused on parents; the others focused on staff in congregate care facilities



The capacity of adults for co-regulation is addressed in the existing programs we scanned but not in the literature we reviewed

In contrast to the lack of articles identified that examined adults' capacity for co-regulation, numerous caregiver training programs addressing this were found in the targeted program review. These programs were highly variable in structure and modality, with some involving only online trainings, others delivered through in-person workshops, some that focus on building knowledge and skills, and others that focus on providing social and resource support. Key approaches used were teaching co-regulation skills, providing psycho-education, building a support network, and strengthening adult's own self-regulation by increasing awareness of emotions and identification of personal needs, practicing self-care and stress reduction strategies, and obtaining social support or respite care as well as other resources. However, these programs also had some limitations. Most focused on parenting and did not extend to other caring adults or service providers. In addition, few addressed how caring adults could promote youth development through day-to-day interactions. Co-regulator capacity building was also not connected in an intentional way to youth skills or to strategies for supporting and responding to youth behavior.

Recommendations for Practice, Policy, and Research

Utilize Principles of Practice

Due to the diversity of contexts and roles in which co-regulation can occur, a traditional program intervention approach may not be as useful. Furthermore, given the lack of evidence for specific co-regulation actions, we have proposed a set of Principles of Practice, based on the articles and programs reviewed as well as theory and the broader literature:

- **Increase intentionality of relationships with youth;** that is, stay engaged over time despite challenges that arise. Interact in genuine and consistent ways that promote trust for youth's long-term benefit.
- **Focus on youth strengths and resilience** to help them recognize their assets and build a positive self-narrative and self-identity that is aligned with their personal and cultural values and beliefs.
- **Provide normative opportunities for youth experiences that promote development of skills and competencies,** making decisions to address individual youth's needs and to balance safety with opportunity for growth.
- **Meet youth "where they are" developmentally,** understanding their likely need for greater co-regulation support than expected for their age and the possibility of uneven development of skills and competencies.
- **Be attuned to youth's needs in the moment** given their unique history and current context and adapt strategies based on youth's responses (rather than trying to make the youth change); at times this might simply involve "holding space" rather than trying to "fix things."
- **Approach youth in a culturally-responsive manner** that acknowledges and respects their lived experiences and values. For caring adults who do not share youth's cultural experiences, humility and authenticity will be helpful in providing co-regulation supports.
- **Approach youth from a trauma-informed framework** with flexibility and understanding, particularly when they may be dysregulated in response to a trauma trigger.
- **Work collaboratively with youth to help them create routines and environments** that will support their goals, values, and well-being.

- **Connect youth to supportive peers**, including foster care alumni who can model pathways of “success,” provide a sense of belonging, and help de-stigmatize foster care.
- **Intentionally promote youth skills and competencies within day-to-day situations** in the context of strong positive relationships:
 - Model, prompt, and support youth in practicing self-regulation, especially using healthy strategies for coping with stress and managing difficult emotions to support healthy relationships.
 - Help youth self-reflect on their experiences to gain perspective and strengthen decision-making.
 - Provide opportunities for youth to learn from their “mistakes” with developmentally appropriate consequences that focus on teaching rather than punishing or shaming.
 - Provide and support opportunities for youth to pursue their interests, talents, hopes and dreams and to learn life skills, especially related to employment.

Strengthen supports for co-regulation within the child welfare system

The child welfare system has clear guidance for promoting placement stability and other regulations intended to support the best interests of children and youth, many of which align with co-regulation. However, youth’s experiences across states and jurisdictions vary, and it is likely that many youth would benefit from more systematic and intentional co-regulation supports. Program administrators, policymakers, and funders are encouraged to:

- Review child welfare policies to identify areas where specific changes could further support co-regulation, considering the costs of more intensive services and placements as well as the need to prioritize placement stability.
- Prioritize placement decisions that support long-term relationships with adults that youth identify as having meaningful connections with, as well as to maintain stability in school settings and connections with peers.
- Support youth’s connections with siblings, parents, and other kin, while providing supports for building co-regulation capacities among kinship caregivers.
- Explore opportunities for integrating co-regulation into existing programs serving older youth in foster care, especially those supporting employment and career readiness as well as healthy relationships.

Program administrators and practitioners who work with older youth in foster care can strengthen co-regulation supports by:

- Systematically implementing all core components of co-regulation as summarized in Figure ES1.
- Providing training for staff and care providers in a variety of roles around co-regulation, including skills training related to co-regulation practice, psychoeducation about youth’s co-regulation needs, and supports for building self-regulation capacity in those in a co-regulator role, including case managers.

Strengthen evidence on co-regulation for older youth in foster care

To advance research that would inform intervention design and development, we suggest the following:

- Address specific gaps in existing research, including:
 - Co-regulation needs and approaches for special populations such as youth with disabilities, youth who identify as LGBTQ, and youth who are parents;

- Culturally relevant approaches for youth of color who are significantly overrepresented in the child welfare system (Black and American Indian/Alaska Native) that considers their assets and challenges including systemic racism;
 - How peer co-regulation can be leveraged to promote youth development beyond mentoring within educational settings; and
 - Opportunities for co-regulation supports within the context of employment/career readiness programs as well as healthy relationship programs.
- Identify and evaluate specific co-regulation practices that can be utilized in day-to-day interactions with youth and that are experienced as meaningful and relevant for key adaptive outcomes.
 - Identify and evaluate specific co-regulation practices to help youth create routines and environments for themselves that promote health and wellbeing.
 - Conduct rigorous evaluation of specific co-regulation strategies and programs being used in practice, including measures of fidelity and mechanisms of change.
 - Incorporate youth voice into intervention development and evaluation.

In summary, co-regulation is an approach to supporting positive youth development that appears to be highly relevant for older youth in or transitioning out of foster care who may need additional supports due to increased stress experiences. Several aspects of co-regulation are being examined for a range of competencies and self-regulation skills in the literature. A wide variety of co-regulation approaches are being studied, especially approaches that focus on building intentional relationships with youth and adults or near-aged peers, such as mentoring programs. Importantly, co-regulation is being provided by individuals in many different roles and settings, suggesting that it can be integrated throughout the child welfare system. At the same time, there are limitations and gaps in how co-regulation is being applied, particularly with regard to 1) co-creating supportive environments and providing developmentally informed day to day interactions, 2) application to employment and career readiness, and 3) examination with youth of color and those from special populations such as LGBTQ and youth with disabilities. Overall, there are significant opportunities to strengthen supports within the child welfare system using co-regulation through policies, practice, and further research.

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Chapter 1. Theoretical and Empirical Framework

Through OPRE's previous work in the [Self-Regulation and Toxic Stress Series](#), stakeholders and experts highlighted the relevance and need for co-regulation approaches to support older youth in or transitioning out of foster care. In order to inform a more systematic literature review and facilitate interpretation of findings, Chapter 1 of this report first describes co-regulation as a developmental process necessary for positive youth development for all youth. We then discuss how self-regulation functions as a foundation for positive youth development and provide specific self-regulation behaviors relevant during later adolescence and young adulthood. These initial concepts are presented broadly as applicable to the developmental needs of all youth. Next, we consider additional or unique needs of older youth in foster care, including needs stemming from common experiences of poverty and trauma that impact this population specifically, and discuss several ways in which the child welfare system itself may make it harder for young people to have the relationships and supports they need to successfully transition to adulthood. Finally, we consider opportunities within the child welfare system from which co-regulation supports could be built and address the strengths and assets of youth themselves.

Following this chapter, we describe the methods utilized in our scoping review in Chapter 2 and our program scan in Chapter 3. Next, in Chapter 4, we present results, including the methods of the articles and programs reviewed, what self-regulation skills and competencies are addressed in the literature, how co-regulation domains are addressed, what type of co-regulation approaches are being used, and the roles of co-regulators. Chapter 5 concludes with the report with a discussion of the literature and recommendations for practice and policy.

A co-regulation model for all youth

Development is an ongoing process of bidirectional interactions between an individual and their complex and changing environment (Lerner, 1986). This includes family, school, peers, neighborhood, and the broader socio-cultural environment. Ecological systems theories like developmental contextualism recognize the importance of caregivers (parents/guardians) and other caring adults in this process. Although adult-child relationships are more typically considered when understanding and developing interventions for younger children, adolescents also need supportive and long-lasting relationships with peers (NASEM, 2019) and theoretically may also provide co-regulation supports. The supportive process by which adults and peers promote positive youth development through a Caring, Consistent, and Responsive Relationship; Co-Creation of Supportive Environments; and Intentional, Developmentally-Informed Day-to-Day Interactions is called co-regulation¹ (Rosanbalm & Murray, 2017).

Co-regulation is well-grounded in the literature for younger children (Grolnick & Farkas, 2002; Karreman et al., 2006), but has been less frequently applied to caring adults' interactions with older youth. Given the importance of co-regulation for promoting positive youth development, theoretical models can be used to inform research and application. The Self-Regulation Promotion Model (Murray et al., 2019)

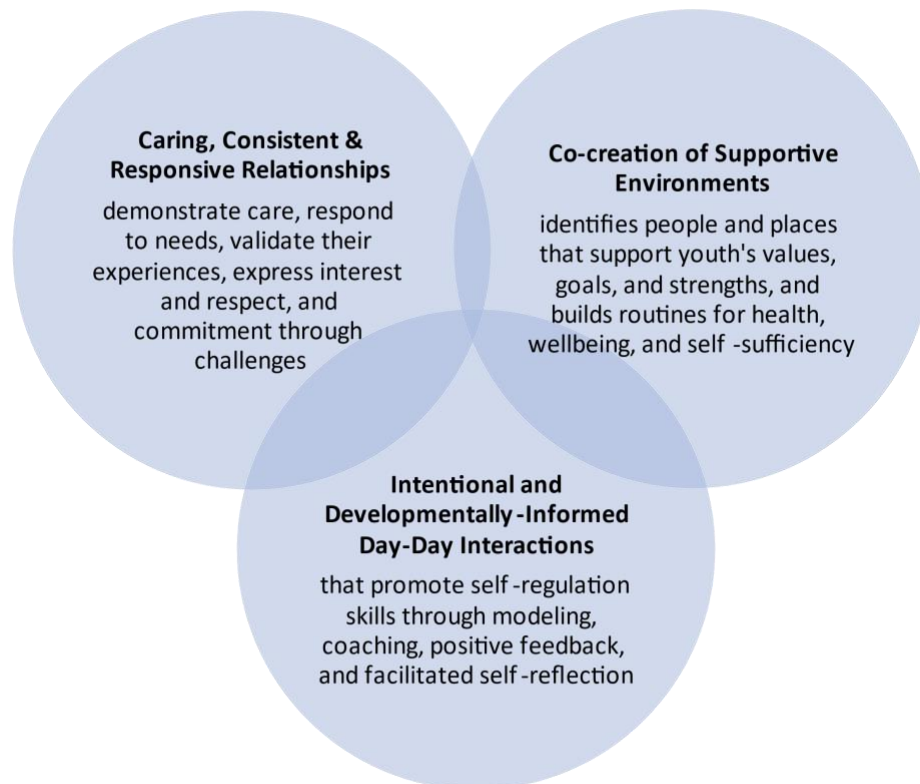
describes three domains of co-regulation support that adults and peers can provide to older youth:

Co-regulation is the supportive process by which caring adults and peers promote positive youth development through caring, consistent, and responsive relationships; the co-creation of supportive environments; and developmentally-informed day-to-day interactions.


¹ This definition has been adapted slightly from the original work in order to apply to the specific context of older youth, including those in foster care, and to more broadly address positive youth development.

- **Caring, Consistent, and Responsive Relationships** include demonstrating care and affection in a culturally responsive manner²; recognizing and responding to cues that signal needs and preferences; and providing support in times of stress. Caring adults and peers can build strong relationships with youth by accepting and validating their experiences, expressing interest in the young person’s world, respecting them as an individual, and committing to a relationship with them regardless of the young person’s needs and behaviors (i.e., unconditional positive regard).
- **Co-creation of Supportive Environments** means creating an environment in collaboration with the youth that is physically and emotionally safe and supportive. It involves identifying those people and places that support the youth’s values and goals; identifying work that matches their strengths; and building routines to promote health, wellbeing, and self-sufficiency. This may include reasonable limit setting and consequences that do not jeopardize a youth’s relationships or the stability of their living arrangement. Supportive environments make self-regulation manageable; providing a buffer against environmental stressors, and providing a “guard rail” from risks that may jeopardize a youth’s relationships, living arrangement, or well-being.
- **Intentional and Developmentally-Informed Day-to-Day Interactions** promote self-regulation skills and positive youth development through modeling, prompting, positive feedback and facilitating self-reflection that takes into consideration the youth’s developmental and social-emotional needs. Like a coach on a sports team, caring adults and peers can provide “in the moment” support or “coaching” in

Figure 1. Domains of co-regulation



² Previous versions of this model (i.e., Rosanbalm & Murray, 2017) described this domain as “warm, responsive relationships”. We have adapted this for this application to reflect the critical importance of consistency in relationships for youth in foster care and to acknowledge that genuine caring does not require specific displays of warmth, which may not be expressed differently in some cultures or situations.



everyday interactions as learning opportunities arise. Such support may involve providing space for the youth's emotions rather than offering immediate directions or solutions. This type of "coaching" may include encouraging youth to anticipate and plan for challenges as well as reflecting on what they have learned in a manner that supports their development of a sense of agency and competence.

It is important to note that this theoretical model assumes that all three components must be present in order to be effective. In other words, it is not enough to simply have a strong, positive relationship with a youth. There must also be intentionality in interactions and clear structure that is simultaneously supportive and engenders accountability. In this way, youth receive optimal support for developmental growth.

Effective co-regulation is also dependent on caregivers' and peers' own abilities to self-regulate (Shonkoff, 2012). This requires paying attention to their own thoughts, feelings and reactions during stressful interactions with a youth and using strategies to self-calm and respond effectively and compassionately. In situations where caregivers themselves become dysregulated, they can model how to repair their relationship with the youth. Thus, co-regulators need not succeed in all their efforts to self-regulate but have the opportunity to learn and grow in the same ways they are encouraging youth. Caregivers may need support, practice, and coaching from friends, family, or professionals to build their own coping and self-regulation skills (Rosanbalm & Murray, 2017).


Research supports the importance of co-regulation for positive youth development

A large body of parenting research links positive discipline, parental sensitivity, family routines, and positive parent-child relations to self-regulation in children and youth (Grolnick & Farkas, 2002; Hamoudi et al., 2015; Karreman et al., 2006). For adolescents specifically, developmental tasks related to identity, independence, and future planning are more likely to be accomplished when youth have strong relationships with their caregivers and where their autonomy is supported (Eccles et al., 1997). Strong caregiver relationships also support youth autonomy and help youth with identity formation, self-sufficiency, and future planning. Additionally, parental warmth, monitoring, and positive discipline can moderate increases in problem behaviors over time (Wang et al., 2011).

There is also literature demonstrating the benefits of caregiver co-regulation for youth with a history of significant stress. For example, caring adult relationships have been shown to buffer against the effects of maltreatment on risk for substance use in young adults (Shin et al., 2019). In addition, positive parenting in the context of poverty is associated with greater growth in self-control (Moilanen et al., 2010). In another study, specifically with children qualifying for Head Start, low-income, parental warmth, emotional responsiveness, and support predicted emotion regulation and delay of gratification (Brophy-Herb et al., 2012). Specifically for children and youth in foster care, a recent meta-analysis identified relationship skills focused on developing "empathic, sensitive, nurturing and attuned parental responses to child need" as effective in reducing behavior problems and enhancing parent-child relationships in addition to "providing opportunities for career skill development via in-session practice with role play and/or direct coaching" (Kemmis-Riggs et al., 2018), both of which are critical components of co-regulation.

Co-regulation for older youth is also supported in the youth mentoring literature

Mentoring programs vary in their emphasis on relationships, but one model proposed several decades ago by Kohut (1977), and more recently summarized by Karcher (2005), noted that effective mentoring should include "empathy, praise, and attention in the context of clear, consistent structure" and a trusting relationship. The Search Institute (2014) has also outlined several elements of what they call "developmental relationships" that are relevant to mentoring, including expressing care, challenging growth, providing support, sharing power, and expanding possibilities. Research on the effects of mentoring suggests overall small to modest benefits; although, these may be greater for youth who have experienced greater adversity, when the relationship between youth and mentor is strong, and when emotional support processes are emphasized (Dubois et al., 2002; Tolan et al., 2014). For youth with a history of adversity, strong mentoring may also serve a protective role in reducing risk for



depression (Kogan & Brody, 2010). For youth in foster care specifically, a recent review of mentoring studies with quantitative data found a positive association with outcomes related to transitioning successfully to adulthood (e.g., completing a high school diploma or GED, enhanced perceptions of strengths and sense of wellbeing or resilience), although causal evidence of benefit was lacking due to methodological limitations. Longevity and consistency of mentoring relationships were identified as particularly important (Thompson et al., 2016).

Peers are also a potential source of co-regulation support for older youth

Although co-regulation supports are described most often in the literature as being provided by caring adults, relationships with peers should theoretically provide additional opportunity for co-regulation, particularly given the developmental salience of peers during adolescence. Feeling accepted and “belonging” to a peer group is highly motivating to youth, and has been linked to regions of the brain associated with incentive processing (Chein et al., 2011; Davey et al., 2010). Indeed, evidence suggests that supportive peer relationships are associated with goal setting, motivation, and achievement (Farley & Kim-Spoon, 2014; Juvonen, 2006; Nelson & Debacker, 2008). Thus, modeling and feedback by peers is likely a powerful influence that could be leveraged to promote prosocial and self-regulated behaviors in group settings, including schools and group-based programs. At the same time, it would be important for youth in this role to have both training and adult support to help them manage their own self-regulation and ensure that peers are not put in a position of full responsibility of each other.


Theoretically, connections with others who are both similar and sympathetic and who “provide empathy, praise, and attention in the context of clear, consistent structure” may promote a sense of validation and confidence as well as opportunities to practice adaptive behaviors (Karcher, 2005; Kohut, 1977). Developmental relationships are also believed to contribute to youth’s sense of identity, cultivate their abilities to shape their own lives (sense of agency), and engage them in their community and broader world, consistent with self-determination theory (Greeson et al., 2014; Scales et al., 2020). The Search Institute has identified five key elements of developmental relationships which align well with the construct of co-regulation: expressing care, challenging growth, providing support, sharing power, and expanding possibilities (Search Institute, 2020).

Peer mentoring is a specific co-regulation approach that has been used in varying formats for several decades, with a traditional focus on building relationships (Karcher, 2005). And although peer mentoring has shown mixed results (Pawson et al., 2004), there is evidence that approaches may be more beneficial when mentors are near-aged peers (at least two years older), where emotional connectedness between mentor and mentee is prioritized, and when the mentoring is “relationally responsive” (Karcher, 2005).

Self-regulation is a useful framework for informing adolescent intervention approaches

Self-regulation is a foundational aspect of positive youth development that can inform intervention approaches (Murray et al., 2019). The impact of self-regulation can be seen in a large and growing literature showing that it predicts functioning across domains, from mental health and social-emotional wellbeing to physical health, academic achievement, and socio-economic success (e.g., Buckner et al., 2009; Dishion & Connell, 2006; Moffitt et al., 2011; Shonkoff et al., 2012). In other words, self-regulation is foundational for building youth competencies as well as for reducing risky behaviors such as substance use and sexual risk-taking (Griffin et al., 2015; Kuvaas et al., 2014; Moilanen, 2015). In particular for adolescents, self-regulation is foundational for the successful achievement of developmental tasks such as establishing emotional and psychological independence, pursuing educational and career goals, and developing healthy and long-term intimate relationships.

Self-regulation is the act of managing cognition and emotion to enable goal-directed actions, such as organizing behavior, controlling impulses, and solving problems constructively (Murray et al., 2019).



Importantly, self-regulation as defined by the Self-Regulation Promotion model is not an innate ability or trait that someone either has or does not have (Murray et al., 2019). Rather, if, how, and when someone demonstrates self-regulation is determined by the skills they have developed and the context of the moment; that is, the resources and supports (including caregiver support) as well as environmental demands and stressors. There should be no expectation that youth, including older adolescents and young adults, are solely responsible for managing their thoughts, emotions, and behaviors, especially in situations of chronic and acute stress such as those often experienced by youth in foster care. For further information on the seven key principles of self-regulation in context, see this [brief](#).

In addition to context, motivation interacts with self-regulation skills to influence one's effort and persistence in pursuing goals and inhibiting impulses (Baumeister & Vohs, 2007). Motivation can be external or intrinsic, reflecting a youth's goals, values, and beliefs that they can succeed. External motivation can be provided through incentives, which may be particularly powerful for adolescents who are developmentally sensitive to rewards, especially when this involves acceptance or recognition by peers. Regarding internal motivation, when youth believe their efforts are not likely to be useful, effective, or rewarded, motivation may decrease along with the likelihood of successful self-regulation (Dweck, 2008). Internal motivation and a future orientation (which is particularly relevant for older adolescents) can also be promoted by supportive adults who communicate their values, expectations, and beliefs in youth (Andre et al., 2017; Manian et al., 2006).

Adolescence is an important opportunity for intervention given the unique neurobiological changes that occur during this period of development (NASEM, 2019). Adolescents demonstrate remarkable growth in cognitive processes that enhance their ability to view things from multiple perspectives, solve complex problems, and work towards long-term goals. However, developmental processes also contribute to intense emotions, sensation seeking, and reduced avoidance of risk, which can influence decision-making (Casey et al., 2008; Cauffman et al., 2010; Steinberg, 2014; Steinberg et al., 2009). At the same time, it is exactly these processes that promote exploration of new environments, roles, and identities that provide the experiences necessary for building the social-emotional and cognitive skills to navigate adulthood (NASEM, 2019). This "positive risk-taking" is often associated with emotions like exhilaration and anticipation that may promote problem solving, persistence, and goal-orientation; as such, "positive risk-taking" could also be leveraged in interventions (Meyer, 2014).

Top 10 self-regulation skills to promote in all youth

In order to inform co-regulation approaches for older youth, it is important to consider specific aspects of self-regulation that are developing during this time period that support broad positive youth development. Therefore, we propose the **Top 10 self-regulation skills** that all older youth are expected to need to support development. We recognize that some youth will have delays in specific areas of self-regulation development, which will impact the amount of co-regulation support needed. In addition, some of the skills identified here are dependent on other skills such as sustained attention. This list is not meant to imply that other foundational self-regulation skills are not important but is intended to provide a summary to better describe the focus of co-regulation for older youth (i.e., aged 14-24 years):

- **Emotion Regulation:** Experiencing and expressing frustration, distress, and strong emotions in a manner that does not harm self or others.
- **Stress Management:** Using healthy coping strategies in the face of stress, including seeking help when needed and reducing exposure to stress.
- **Future Orientation:** Identifying personal hopes and dreams that motivate aspirations for the future.
- **Identity-Based Motivation:** Developing a self-identity in socio-cultural context and sense of agency that motivates attainment of individual and collective goals.
- **Planning:** Planning steps and strategies to prioritize actions and achieve goals.
- **Persistence:** Persisting in pursuing long-term goals despite challenges and setbacks.

- **Perspective-taking:** Understanding problems and considering choices and consequences from a broad perspective, including the views of those different from your own.
- **Problem-Solving:** Taking positive action to solve problems in a manner that is kind to self and others and that includes compromising when necessary.
- **Mature Decision-Making:** Making decisions in the moment in a manner that addresses the immediate issue, considers future goals, and supports health and well-being.
- **Self-Reflection:** Self-reflecting on positive and negative experiences in a manner that supports learning and positive change.

The life experiences of youth in foster care increase the need for co-regulation support


Like all young people, youth who have lived in foster care have a wide range of skills, assets, and individual differences that can sometimes be overlooked in the context of the adverse experiences they have had. Nonetheless, we acknowledge the importance of understanding how these youth may be impacted by an accumulation of acute and chronic stressors in order to design better systems and supports. In particular, it is important to recognize that adversity, such as poverty and trauma, can create stress that may overwhelm a youth's abilities to cope when supports are inadequate (Shonkoff et al., 2012). Situations where youth experience such "toxic stress" for extended periods of time can disrupt self-regulation development (Cowan et al., 2013; Green et al., 2011; McEwen, 2007).

Child welfare systems are recognizing older adolescents' needs for ongoing adult support given what is now understood about brain development (AECF, 2011, 2017), which has informed the extension of eligibility for foster care to age 21 or 23 in some cases, though these extensions are not universal across states (Gaughen & Langford, 2019; NCSL, 2017). However, less is understood about developmental processes in the context of trauma and how this may inform the nature or intensity of required supports. Moreover, there are questions about how and where these supports should be provided and what such supports might look like for adults in different roles. In addressing these questions, it is important to first consider what we know from research about the experiences of older youth in or transitioning out of foster care.

Research on how poverty may increase stress experiences

Youth who encounter the child welfare system often experience poverty, which is associated with exposure to many other stressors and adversity. Indeed, one study found that half of the children in foster care had birth families who had difficulty meeting their children's basic needs (Barth et al., 2006). Another article found that poverty was a significant predictor of children's entry into the child welfare system (Barth & Lloyd, 2010). This risk may be related to adverse conditions associated with poverty such as homelessness and parental substance abuse and incarceration (Nair et al., 2003). Poverty has also been clearly linked to child maltreatment (Metzler et al., 2017; Raver et al., 2013), although there may be several reasons for this that do not suggest causation. For example, families with lower incomes are in contact with more service systems, whereby allegations of maltreatment may be more likely to be made (Child Welfare Information Gateway, 2016b). Moreover, if Child Protective Services (CPS) workers are unfamiliar with poverty, case determinations could be biased by families' lack of resources, conflating poverty with neglect (Cooper, 2013).

What is clear is that poverty increases day-to-day stress experiences for youth. For example, there is often a lack of consistent and healthy food (i.e., food insecurity), the home environment may not support consistent routines or provide space conducive to studying, and the neighborhood may limit opportunities for safe activities. Low income families may experience significant stressors related to housing, medical care, and lack of resources (Yoshikawa et al., 2012). This accumulation of adverse experiences increases risk for long-term emotional and behavioral



difficulties (McMahon et al., 2013; Melchior et al., 2012), with toxic stress being the presumed mechanism underlying these effects (Odgers & Jaffee, 2013).

Research on how trauma affects youth development

Among a large diverse national sample of children and youth in foster care conducted by the National Child Traumatic Stress Network, 70% were identified as having experienced at least two types of trauma (e.g., physical abuse, sexual abuse, emotional abuse, neglect, domestic violence), and over 10% had experienced all five (Greeson et al., 2011). In an article examining 17- to 18-year-olds in foster care, 40% reported witnessing someone being injured or killed, 30% reported a history of physical violence, and 27% reported sexual molestation at some point in their life, which could include time in foster care (Salazar et al., 2013). Adolescents in general are also at greater risk of experiencing trauma (defined as real or threatened death or serious injury to oneself or others) than children and adults (Nooner et al., 2012), although maltreatment is substantiated more often for younger children (Williams & Sepulveda, 2019). Unfortunately, adults who care for and interact with adolescents in foster care may have little knowledge of youth's trauma histories, which can impact social-emotional functioning in complex ways. The impact of trauma depends on a variety of factors such as the number of traumatic incidents experienced, their timing, chronicity, type of trauma, and whether the trauma was inflicted by a caregiver (Jaffee & Christian, 2014).


In general, a history of abuse and neglect increases risk for physical and mental health difficulties, academic problems, and risk behaviors (Nooner et al., 2012; Rellini et al., 2012). More generally, 22% of children and youth entering foster care in the Greeson et al. (Greeson et al., 2011) study met criteria for Post-Traumatic Stress Disorder (PTSD), and 83% met criteria for at least one psychiatric disorder. Trauma is also associated with high rates of internalizing difficulties as well as problem behaviors such as skipping school, running away from home, substance abuse, suicidality, and self-injury (Greeson et al., 2014; Layne et al., 2014). Also of note, there is some evidence of variation in effects of trauma by gender, with some articles suggesting that males are at greater risk of experiencing delinquency as an outcome (Topitzes et al., 2011), while females may be more vulnerable to PTSD (Olff, 2017); other articles suggest more complex risk trajectories (Schlack & Petermann, 2013).

Research indicates that trauma disrupts the stress management system (Coates, 2010) and may negatively impact areas of the brain involved in executive functioning and emotion regulation (McCrorry et al., 2017), consistent with toxic stress. In other words, trauma can directly affect youth self-regulation capacity and enactment, and these effects may be particularly pronounced during the developmentally sensitive period of adolescence (Romeo, 2013). Fortunately, there is also evidence of "neural plasticity," or the manner in which experience shapes the architecture of the developing brain (National Scientific Council on the Developing Child, 2007). In particular, there is evidence that intervention can modify cortisol functioning (an indicator of stress reactivity) so that it is comparable to those who have not experienced adversity (Slopen et al., 2014). However, much remains to be learned about mechanisms that explain physiological plasticity or resilience, how best to target specific neurocognitive systems, and the optimal timing for intervention (Bryck & Fisher, 2012; Cicchetti, 2010).

Foster care can pose self-regulation challenges requiring increased co-regulation supports

As previously described, older youth need continued support from caring adults (and perhaps from near-aged peers) to develop a broad array of competencies that enable a sense of well-being and successful transition to adulthood including maintaining healthy relationships, developing a career, and financial independence. Unfortunately, the child welfare system makes it difficult to address these developmental needs, and many older youth transition out of care without the skills and support systems to be independent (NASEM, 2019). Addressing these needs is further complicated by the range of experiences that youth have in foster care. While all youth encounter some adversity simply by entering the child welfare system, some experience repeated and extreme adversities that will require additional supports and intervention.

There are several overarching systems factors that present challenges to creating and implementing large-scale, sustainable co-regulation supports in foster care. These include the system's focus on safety and/or immediate



needs at the expense of participation in normal developmental activities, difficulties recruiting and retaining foster parents willing to care for older youth, and caseworks with high turnover rates who are often overwhelmed with large caseloads and excessive workloads (Child Welfare Information Gateway, 2016a; NRCDDR, 2017). Below we discuss seven challenges related to systems factors: disruption of social networks, placement instability, congregate care placements, reduced opportunity for normalcy, institutional racism, transracial placements, and negative biases and beliefs.

Disruption of social networks increases need for intentional co-regulation supports


Although child welfare policy indicates that youth placed in foster care should maintain contact with their birth families and remain within their same schools and communities, many youth do experience such traumatic separations in reality (Sankaran et al., 2019). This loss is accompanied by an onslaught of uncertainty as youth navigate an unfamiliar system and struggle with unknowns, such as where they will be placed, with whom they will live, how long they will remain in foster care, and even why they were separated from their parents and placed in foster care. “Ambiguous loss”—in this case, the physical separation from people whose relationship continues to be important to youth—can then interfere with emotional engagement in new activities and development of new relationships (Kim, 2009). For adolescents, disruption of social networks and support are significant, resulting in fewer youth in foster care reporting that families and peers care about them “a lot” relative to the general population of adolescents (32% vs. 95% for families; 61% vs. 85% for peers; Perry, 2006). Recent qualitative research reflects youth experiences of trauma related to grief and non-death loss in foster care (Mitchell, 2018; Riebschleger et al., 2015). When natural social networks are disrupted, intentional co-regulation supports from other caring adults and peers are needed.

Placement instability compromises access to consistent, caring relationships with adults

We know that access to consistent and caring relationships with adults is critical for positive youth development including attachment and behavior adjustment (Harden, 2004) and this aligns with foster care’s aim of permanency. Based on a recent meta-analytic review, placement stability may be enhanced by foster family characteristics such as kinship, co-placement with siblings, and positive parenting skills (Konijn et al., 2019). However, up to 50% of youth in long-term foster care may experience premature disruption of placement (Farmer et al., 2005). Placement instability adds to the negative effects of youth’s prior trauma experiences and may contribute to the increased social, emotional, and behavioral problems seen in youth who enter foster care with a history of trauma relative to those who do not (Harden, 2004). Indeed, children who do not achieve placement stability within 18 months of entering foster care show a 63% increase in behavior problems after accounting for baseline attributes (Rubin et al., 2007). For older youth leaving foster care, many report frustrations with the system, a lack of needed services, and a desire for independence (McCoy et al., 2008). Increasing access to consistent, caring adults who provide co-regulation supports could address this challenge.

Congregate care compromises access to consistent, caring relationships with adults

Due to recent changes in federal law, there have been national declines in the percentage of youth placed in congregate care (i.e., group homes or institutions), although 10% of children and youth in foster care were in such placements at the end of fiscal year 2019 (Children’s Bureau, 2020). Among children and youth ever placed in congregate care, their average length of stay in such placements is eight months (Children’s Bureau, 2015). Among older youth who have experienced foster care, about half have spent time in such facilities (AECF, 2018), which significantly increases the relative risk of juvenile delinquency (Ryan et al., 2008). As noted above, youth development is supported by committed, responsive, and stable caregiving; congregate care often relies on a rotating staff who are less able to provide this. Indeed, this placement is associated with adolescent perceptions of less caring and support and higher rates of depression (Perry, 2006). They are also less likely to have opportunities



to participate in the types of activities that are developmentally typical for youth of their ages (i.e., “normalcy”), which are necessary for building self-regulation skills. Congregate care environments also cannot provide individually tailored and scaffolded supports for autonomy, which is a critical developmental task of adolescence (Dozier et al., 2014).

Reduced opportunity for normalcy compromises positive youth development


Participation in developmentally typical activities, experiences, and opportunities is often referred to as “normalcy.” Involvement in extra-curricular and social activities, like taking field trips and having sleepovers, builds critical life skills such as decision-making, promotes healthy peer and adult relationships, provides opportunity for positive risk taking, and builds important social networks or “capital” for future opportunities (Peck et al., 2008; Pokempner et al., 2015). Practicing skills like driving and managing finances in a safe environment with needed scaffolding allows young people to master these important competencies (AECF, 2015b). It may also promote youth’s sense of agency and confidence in achieving goals and contribute towards youth’s vision of their future.

The *Preventing Sex Trafficking and Strengthening Families Act* (Strengthening Families Act) of 2014 included provisions designed to promote normalcy for children and youth in foster care by requiring caregivers to use a “reasonable and prudent parenting standard” (Epstein & Lancour, 2016). However, it may be difficult for adults who care for and interact with youth in foster care to promote normalcy while simultaneously protecting youth who may be vulnerable to experiencing additional trauma and/or who experience emotional and behavioral difficulties. Youth in foster care also face non-normative risks such as termination of a placement or entering the juvenile justice system as a consequence of making mistakes or poor decisions (James, 2004), which is inconsistent with the concept of normalcy. They may be punished for emotional outbursts related to traumatic experiences or may receive negative feedback for what could be considered positive behaviors in other settings. For example, a youth in foster care who assumes caregiving tasks for younger siblings (“parentification”) may be discouraged from doing so by a caregiver who does not consider this to be the youth’s role or may even be prevented from babysitting based on state regulations.

Institutional racism creates multiple challenges to providing co-regulation supports

As with many other youth-serving systems, adults in the child welfare system may lack cultural competence and/or have their own implicit biases, which may influence how they approach and respond to youth. Child welfare professionals have been encouraged to provide services that promote families’ cultural integrity and strength, but there appears to be a practice gap in recognition and respect for the cultural beliefs and values of youth and families from different racial and ethnic backgrounds (McPhatter & Burdnett Wilson, 2015). This can negatively impact family assessments, family engagement, and decisions about placements. A lack of cultural knowledge could also result in interventions being provided that are either not effective, or perhaps even harmful, if they are not aligned with the specific culture of the population targeted (McPhatter & Burdnett Wilson, 2015). Implicit biases influence case workers’ assumptions they make about families of color, which can influence whether allegations of abuse are substantiated (Beniwal, 2017).

Racial disparities exist throughout the child welfare system such that children of color with equivalent levels of risk (and when controlling for poverty) are more likely than White children to enter the child welfare system at various decision-making points, resulting in differential outcomes that negatively affect them (Dettlaff, 2015). Children in foster care come from diverse racial/ethnic backgrounds; however, children of color [particularly Black and American Indian/Alaska Native (AI/AN) populations] are disproportionately represented, comprising about 55% of children in foster care (Child Welfare Information Gateway, 2016a). Black children are more likely than children of all other races and ethnicities to be investigated as a potential victim of child abuse (Kim et al., 2017). Black and AI/AN children are also more likely than their peers to be removed from their homes, remain in care longer, and are less likely to exit care to permanency (Miller & Esenstad, 2015). Similarly, Black children are also more likely to be placed in congregate care (AECF, 2017). These disparities disproportionately deprive Black and AI/AN youth of stable, supportive relationships critical for co-regulation.



Youth of color in the United States also experience discrimination (C. B. Fisher et al., 2000; Rosenbloom & Way, 2004), which is increasingly recognized for its role in development and its association with a broad range of negative social-emotional outcomes (Niwa et al., 2014; Roberts et al., 2012; Simons et al., 2003). Discrimination also creates stress, which can negatively impact self-regulation as previously noted. Encouragingly, attentive parenting appears to reduce some of these risks related to discrimination (Roberts et al., 2012), suggesting that there are opportunities for building resilience with caregiving support.

Cultural and racial differences in foster care placements may create co-regulation challenges

Many youth are placed with foster parents of a different race or ethnicity (most typically Black children with White foster parents; (Pinderhughes et al., 2019). There is ongoing controversy around transracial placements and adoption given concerns about how it may interfere with creating a positive racial identity (Johnson et al., 2013).³ However, this may create barriers to ensuring that foster or adoptive parents are prepared to support a child's positive racial and cultural identity. In addition to a lack of racial socialization, there may also be cultural differences that arise with transracial placements, although culture may be influenced by a variety of factors beyond race/ethnicity (e.g., socio-economic status, language, religion). Culture influences how families communicate, their values, expectations, and rules and may affect children's sense of belonging. Youth who are placed in foster families from different cultural backgrounds may be expected to adapt to the culture of the family with which they are placed (e.g., their food or religion), and cultural behaviors related to emotional expression and managing stress could be misinterpreted. This could create challenges in youth feeling attached to these adults, making co-regulation more difficult to enact. Caregiver interactions with youth (including warmth and controlling behaviors) may look different across cultures (Gonzales et al., 1996; Jackson-Newsom et al., 2008), highlighting the importance of race and culture in defining effective co-regulation actions.


Negative biases and beliefs surrounding youth in foster care compromise positive youth development

Negative messages proliferate in the media about youth in foster care that inappropriately blame them for their situation or portray them only in terms of problems. These biases and beliefs affect how systems (e.g., child welfare, education, juvenile justice) treat and value older youth in or transitioning out of foster care. Youth may also internalize these stereotypes and cultivate negative self-narratives that result in deleterious effects on mental health and development (Dansey et al., 2019; Kools, 1997). This may not only challenge youth's sense of identity and views of a "possible self" for the future but may also decrease the number of families willing to provide foster homes for teenagers. This is also an area where caring adults and peers may need to support youth by helping them understand that these narratives are not a reflection of their value and by strengthening a positive self-identity.

Special populations in foster care may need additional co-regulation supports

Although youth in foster care are a diverse group of young people, certain subgroups are over-represented due to some of the systems challenges noted (e.g., racism, negative biases and beliefs). In addition to youth of color addressed above, lesbian, gay, bisexual, transgender, queer and questioning (LGBTQ) youth, youth with disabilities, and youth who are also parents may need additional supports. Importantly, being part of these subgroups often also means that socioeconomic disadvantages and other socio-cultural challenges to well-being are also present, reflecting what is often referred to as intersectionality. Youth who identify with these groups may need additional and individualized co-regulation supports, especially when they belong to multiple special populations.

³ For more information, please see this discussion of the Multiethnic Placement Act of 1994 (P.L. 103-382).



LGBTQ and other sexual and gender minority youth may also experience increased stress and self-regulation challenges related to stigma, bullying, and discrimination, which exist within the child welfare system as well as schools and the broader community (McCormick et al., 2016). Rates of suicide attempts and hospitalization are higher in this population (Ryan et al., 2009; Wilson et al., 2014). Such youth are overrepresented in the child welfare system (Wilson et al., 2014), which may be related in part to family conflict around their sexual orientation. LGBTQ youth may also experience more barriers to permanency, including multiple placements and homelessness, and are more likely to live in a group home (Wilson et al., 2014). Co-regulation support may be needed for LGBTQ youth to support their sense of identity and build healthy stress management skills. In addition, foster families and other caregivers may need supports themselves to address negative attitudes or implicit biases towards LGBTQ youth.

Children with mental, emotional, and behavioral disabilities are 3.4 times more likely to experience child maltreatment than children without disabilities (Sullivan & Knutson, 2000), which may account for their overrepresentation in foster care. Early maltreatment and trauma may also cause or exacerbate disabilities. Disabilities also co-occur with poverty, although research on the nature of this relationship is limited (Groce et al., 2011). Youth with disabilities are a particularly vulnerable subgroup within an already vulnerable population. Based on administrative records in one state, 22 percent of children over the age of five with substantiated maltreatment were found to have a disability, most commonly “emotional disturbance” but also intellectual and learning disabilities (Lightfoot et al., 2011), consistent with what Greeson et al. (Greeson et al., 2011) cited previously. Certain disabilities contribute directly to self-regulation difficulties (e.g., through delayed executive functioning abilities). Individuals with disabilities may also be excluded from positive development opportunities and experiences (Peña et al., 2016) that make self-regulation development even harder.


Expectant and parenting youth in foster care face an additional challenge of caring for a child while transitioning to adulthood. Rates of depressive symptoms are high among adolescent mothers, and research suggests the stress associated with adolescent parenthood can lead to long-term negative outcomes in education, employment, physical health, and other domains (Deal & Holt, 1998; Taylor, 2009). The limited research available shows that youth in foster care are at greater risk of early pregnancy and parenthood (Svoboda et al., 2012). For example, an analysis of data from the Midwest Study suggests youth in foster care are more than twice as likely to experience teenage pregnancy compared to non-foster peers (Dworsky & Courtney, 2010). However, few programs specifically address the needs of this population, and little research exists on the effectiveness of services available to these youth. This is certainly a special population that may benefit from additional co-regulation support.

Opportunities to build co-regulation in the context of foster care

Based on literature and theory, it appears clear that older youth in foster care need caring, consistent, and responsive relationships with adults, with whom they experience a sense of security, a sense of belonging, and of being part of a family (Schofield & Beek, 2005). Because these youth may not have opportunities for typical co-regulation supports (e.g., consistent living situation with family), co-regulation supports may need to be provided in diverse and non-traditional forms, perhaps taking advantage of the larger network of caring adults with whom they are involved. There may also be opportunities to leverage existing initiatives, approaches, and supports within the child welfare system to promote co-regulation, including: 1) policies promoting normalcy, 2) the concept of relational permanency, 3) trauma-informed care and systems, and 4) mentoring programs.

Normalcy and prudent parenting can help promote co-regulation

The normalcy standard provides caregivers more decision-making authority in the everyday lives of youth in foster care. Prior to implementation of the Strengthening Families Act signed into law in 2014, there was no federal guidance on what foster parents could authorize youth to participate in with regard to typical adolescent experiences and activities, such as school dances, extracurricular activities, sleepovers, or travel with their foster family (AECF, 2015b). With this recent policy, older youth in foster care have increased opportunity to develop



competencies consistent with self-regulation. Caregivers also have opportunity to support youth through co-regulation strategies in making collaborative decisions related to participation and balancing additional freedom with reasonable limit setting.

Relational permanency is consistent with co-regulation

Long-term, supportive relationships with adults—referred to as emotional or relational permanence—are critical for all youth. Legal permanence (i.e., family reunification, adoption, or legal guardianship) is a goal in child welfare cases, based on the assumption that it will result in emotional permanency. However, legal permanence may or may not ensure a stable, long-term, and consistent relationship. Furthermore, although many youth achieve legal permanence, almost 17,000 youth aged out of the foster care system (Children’s Bureau, 2020) in 2019 . Many youth may also maintain strong emotional bonds with their biological parents, who may or may not retain parental rights. Relational permanency, as defined by youth with foster care experience, involves having someone to turn to for support, which is related to improved physical and mental health outcomes (Salazar et al., 2018). This could be the youth’s biological parent, a kinship guardian, or another supportive adult.

Trauma-informed care is an opportunity to build co-regulation supports

The federal government and child welfare agencies have funded both the Substance Abuse and Mental Health Services Administration (SAMHSA) and the National Child Traumatic Stress Initiative (NCTSI) to support trauma-informed care (TIC) interventions (see text box; SAMHSA, 2020), which hold potential for remediating negative consequences of early stress exposure. Several models of TIC and systems have been developed for intervention in child welfare, consistent with practice recommendations given high rates of trauma previously described (Greeson et al., 2011). Trauma-informed initiatives often include screening children for trauma and making improvements in behavior health services (Melz et al., 2019).


TIC promotes an understanding of the impact of trauma on child and youth development in order to minimize its effects and avoid additional trauma. Trauma-informed systems approaches typically entail training caregivers, staff, and other caring adults in youth’s lives to recognize traumatic stress reactions, effectively respond to those actions, and integrate screening and assessment into care (Rushovich et al., 2018). Trauma-informed care also focuses on providing safe, supportive, and structured environments for youth. Moreover, it builds the capacity of adults to manage any trauma they may have experienced (Bartlett et al., 2016), which is also consistent with the co-regulation model. Thus, TIC may be an important aspect of co-regulation that is particularly needed for youth in foster care. Unfortunately, implementation of these practices has not been as successful as desired, with significant numbers of youth whose trauma goes unidentified and untreated (Greeson et al., 2011; Kramer et al., 2013).

The National Child Traumatic Stress Initiative

- Develops and implements evidence-based interventions to reduce the impact of traumatic experiences on youth
- Collaborates with systems of care and convenes a collaborative network of experts called the National Child Traumatic Stress Network
- Develops and implements education and training approaches, including training practitioners in trauma-informed services
- Provides education to and raises awareness with policymakers about trauma, resilience, and recovery (SAMHSA, 2020).

Mentoring is an opportunity to build co-regulation supports

Mentoring has been traditionally provided by a non-caregiving adult who develops a relationship with a youth in which there is an emotional connection and the mentor offers guidance and others forms of support (Dubois & Karcher, 2013). However, mentoring comes in many different forms, and can vary greatly with regard to who provides the mentoring (i.e., an adult or peer), the context (e.g., schools, workplace, community), the goals of



mentoring, how formal or structured the mentoring is, whether any systematic skills are taught in the mentoring context, and the extent to which an emphasis is placed on relationship building (Karcher et al., 2006). Mentoring may or may not include “coaching,” defined here as skills instruction provided in the moment when a challenge or opportunity for self-regulation is encountered and may be just one component of a broader program. Given the previously described alignment with co-regulation and potential for benefit, mentoring seems to be a promising opportunity through which the child welfare system could provide co-regulation supports. However, there can also be challenges associated with mentoring, including difficulties identifying enough mentors for all the youth who may benefit, the demands placed on one individual for supporting a youth who may have significant needs, and difficulties in maintaining mentoring relationships across time.


There are several models for mentoring youth in foster care in during their transition to adulthood, including mentors who have “lived experience” in the child welfare system. This mentoring typically pairs a youth with an adult or older peer role model to build independent living skills or skills for college success. Mentoring approaches for youth in foster care generally fall into two categories: natural mentoring and structured mentoring, both of which can be conducted in a one-on-one or group format. “Natural mentors” are caring adults in a youth’s life to whom they can turn to for support. However, programs and initiatives tend to promote structured mentoring relationships with the goal of replicating the benefits of a natural mentor (Osterling & Hiney, 2006). In recent years, some child welfare programs and agencies started exploring group mentoring approaches (e.g., Colorado’s Fostering Healthy Futures program; Taussig et al., 2007, 2012) to address some of the challenges of one-on-one mentoring. Group mentoring provides youth with the opportunity to form relationships with multiple peers and mentors concurrently, which may provide some unique benefits such as mentors being able to model social skills in their interactions with each other and mentees practicing those skills with peers (Karcher et al., 2006).

Strengths and resilience in youth with current and former foster care experience

Despite the many developmental challenges that youth in foster care experience, many ultimately achieve competencies across broad domains of functioning, including education and vocational participation, and they are also successful in avoiding risks like substance use and teen pregnancy. This reflects resilience, defined as a “capacity to act or adapt in the face of adversity” (Danaher et al., 2014), which can be strengthened through intervention that promotes coping strategies and provides relational support. Indeed, across four different articles, about two-thirds of the samples experienced what was defined as positive outcomes (Daining & DePanfilis, 2007; Jones, 2012; Shpiegel, 2016; Yates & Grey, 2012). Several factors have been identified as promoting resilience in youth who have experienced an accumulation of acute and chronic stressors, although outcomes also appear heavily influenced by risk exposure (Shpiegel, 2016).

Research on individual, family, and community factors that build resilience

Protective factors associated with positive development and adjustment for youth in foster care and those who have experienced maltreatment have been identified at multiple levels, including that of the individual youth, the family or caregiver, and the community. Individual protective factors include intellectual abilities, spirituality, a “positive outlook,” future orientation, and culturally based assets (Edmond et al., 2006; Murry et al., 2018). Another potentially protective factor specifically related to self-regulation among children who have been maltreated is emotion regulation (Curtis & Cicchetti, 2007). At the family level, research suggests that positive parenting practices promote resilience (e.g., Harden, 2004; Konijn et al., 2019). More specifically, supportive parents who acknowledge and recognize their children’s capabilities and strength may increase children’s sense of security, self-reliance, awareness of their own emotional needs, and abilities to make sense of the past and to persist despite difficulties (Schofield & Beek, 2005). Finally, community factors such as school engagement, school bonding or sense of belonging, as well as involvement in extra-curricular activities, having access to a mentor, and affiliating with prosocial peers, serve a protective function for youth, facilitating resilience (Haight et al., 2009; Jones, 2012). Although co-regulation does not appear to have been examined within the resilience research for



youth in foster care specifically, it is certainly aligned with positive parenting practices and supportive environments.

Culturally-based assets include racial/ethnic socialization, spirituality and religiosity, kinship support, and collective socialization. For children of color, culturally-based assets may serve as a protective factor to help youth negotiate and navigate challenges associated with discrimination and its consequences (Murry et al., 2001, 2018). For Black American youth specifically, racial/ethnic socialization, which promotes racial pride and a positive racial identity, has been associated with positive psychosocial adjustment (Jagers et al., 2018; Murry et al., 2018; Rivas-Drake et al., 2014). In addition, spirituality and religiosity may serve a protective factor in Black families (Douglas et al., 2008; Murry et al., 2018). In that regard, Black youth report higher levels of subjective religiosity than their non-Black American counterparts (Smith et al., 2003). Similarly, maintaining positive and supportive relationships with extended kin (i.e., “kinship support”) dissuades Black adolescents from risky behaviors, including lowering risk for substance use (Stevens-Watkins & Rostosky, 2010).

For AI/AN youth who are also disproportionately represented in foster care, research has identified negative impact related to loss of cultural identity for those adopted as infants from their tribal communities (Locust, 2000). Cultural preservation programs for youth may be one way to address this (Long et al., 2006). More specifically, there is reason to believe that native beliefs, values, and practices may promote self-regulation through traditional Native child-rearing and languages (Tsethlikai et al., 2018). In particular, there is a body of literature identifying spirituality as an important factor promoting resilience in this population (Fleming & Ledogar, 2008). Interventions to build resilience in AI/AN families using traditional practices are also underway (NICWA, 2020).

Across race and ethnicity, kinship care (i.e., the care of children by relatives or close family friends who may be referred to as fictive kin) is fairly common (32% in 2018; Children’s Bureau, 2019). There is evidence that placement with relatives may provide more stability than other placement types (AECF, 2015a) and may contribute to greater contact with biological parents and greater emotional well-being and adjustment (Metzger, 2008). Finally, another potential protective factor for youth is having access to other adults in one’s neighborhood who support families and monitor neighborhood children, a process described as collective socialization (Burton & Jarrett, 2000; Freisthler & Maguire-Jack, 2015; Sampson et al., 1997). The investment of community members in the oversight of neighborhood children may include establishing norms for and sanctioning appropriate behavior and processes to monitor and correct misbehavior. This sense of community engagement may also encourage prosocial development among youth and, in turn, may reduce risk engagement (Browning et al., 2008).

Chapter 2. A Scoping Review of the Co-Regulation Literature

This chapter describes the methods and results of a scoping review of the literature examining co-regulation for older youth in or transitioning out of foster care. A scoping review aims to address broad questions about key concepts and characteristics of a defined area of literature and identifies types of evidence or knowledge gaps across studies with a range of designs and methods (Arksey & O'Malley, 2005), which is appropriate for an emerging area of work such as this. The theoretical and empirical background in Chapter 1 informed our approach to the scoping review, including the identification of our primary research questions, as follows:

1. What developmental skills and competencies are addressed in the literature in relation to co-regulation?
2. How is co-regulation addressed in research and practice with regard to our theoretical model?
3. In what contexts is co-regulation being applied and by whom?

In this chapter, we will review the methods used in the scoping review, including our literature search strategy, inclusion/exclusion criteria, and coding approach. Then, we present results that are charted by frequency and percentage to depict types of research methods in the literature; specific self-regulation skills and broader developmental competencies as well as risks; and co-regulation domains, approaches, and co-regulator roles. We also examine literature on specific topics like trauma and for special populations.

Methods for the Scoping Review

We followed the six steps outlined by Arksey and O'Malley (Arksey & O'Malley, 2005): 1) Identify the research question; 2) identify relevant articles through systematic search strategy; 3) select articles based on inclusion and exclusion criteria; 4) chart the data according to key themes; 5) collate, summarize, and report the results; 6) obtain consultation to gain insights to inform and validate findings.

Identification of relevant articles

To guide our search, we developed a theoretical framework of co-regulation actions and needs based on the Self-Regulation Promotion Model (Murray et al., 2019), which we revised based on input from OPRE/ACF partners and our consultants. To develop initial search terms and inclusion/exclusion criteria, we conducted an exploratory review and identified practices and approaches supporting co-regulation for youth in foster care using evidence-based practice clearinghouses. Based on this exploration and with input from our consultants, we developed a final list of search terms (see Appendix C). Three members of the project team (HS, KS, DWM) independently assessed three of the identified programs utilizing preliminary criteria to refine inclusion/exclusion criteria. We utilized these terms to search for literature in Scopus, ERIC, PsycINFO, and Cochrane databases. Number of citations per database and duplicates removed are also listed in Appendix C.

Inclusion/exclusion criteria for scoping review

After identifying relevant literature, we applied inclusion/exclusion criteria to determine whether articles were within the scope of the review using two steps. First, title and abstract screening was conducted by two reviewers (HS, SH) to assess articles for relevance. This step was followed by a full text review of relevant articles to evaluate inclusion/exclusion criteria (HS, KS). Through consensus discussion with a third reviewer (DWM), reviewers resolved any disagreements and modified inclusion/exclusion criteria.

Table 1. Inclusion and exclusion criteria

Criteria	Include:	Exclude:
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Publication type	<ul style="list-style-type: none"> Peer-reviewed journals; Gray literature including government reports, program reports and evaluations, and issue papers; 	<ul style="list-style-type: none"> Books; Unpublished dissertations;
Study Design	<ul style="list-style-type: none"> Quantitative evaluation (observational, experimental/RCTs, quasi-experimental, longitudinal, meta-analyses); Qualitative studies; 	<ul style="list-style-type: none"> Reviews; Case studies with n<5;
Population: Age	<ul style="list-style-type: none"> Adolescent to young adults (14-24 years based on mean for sample); Or adults that work with these ages; 	<ul style="list-style-type: none"> Below or above this age range;
Population: Foster Care Related	<p>Relevant to youth or young adults who have been in the U.S. foster care system:</p> <ul style="list-style-type: none"> Study occurs in foster placement, kinship care, congregate care, residential care setting, extended services, or after care; If in restrictive setting such as inpatient care or incarceration, study has a primary population of individuals who have been involved in foster care system; 	<ul style="list-style-type: none"> Occurs outside of the U.S.; Study sample may include participants who are involved with foster care system, but they are not specifically discussed;
Co-Regulation Actions and/or Capacity	<p>Examines at least one co-regulation related domain:</p> <ul style="list-style-type: none"> providing caring, consistent, and responsive relationships; co-creating the environment; modeling, prompting, and providing feedback to facilitate development of self-regulation skills; peer co-regulation; co-regulator self-regulation or capacity to provide co-regulation; 	<ul style="list-style-type: none"> Does not meet these criteria;
Youth Self-Regulation	Examines self-regulation with one of the Top 10 skills OR a related skill (identified by consensus).	<ul style="list-style-type: none"> Does not meet these criteria.

As can be seen in the PRISMA chart in Appendix A, we screened 1108 articles (after removing duplicates) and assessed 163 full text articles for eligibility. The final number of articles included for synthesis was 46 (see Appendix B for a list of included articles). Of those excluded:

- Approximately 30% did not include co-regulation;
- 22% were conducted outside of the U.S.;
- 13% were not in the eligible age range.

Under 10% of full text articles screened were excluded for other reasons: unable to access, did not include youth self-regulation, sample not relevant to foster care, case study or n < 5, or not a research study.

In addition, a number of youth skills instruction programs were excluded because they did not explicitly discuss aspects of co-regulation or youth self-regulation. Twenty-seven dissertations conducted since 2005 were identified as potentially relevant, but since they were not peer-reviewed, did not meet criteria for full text screening.

Coding of Article Characteristics

Based on our exploratory review, we deductively derived a coding system to address our research questions, which is displayed in Figure 2. Initial coding was conducted using a scheme developed during the previously mentioned

exploratory review. Three team members (DWM, HR, KS) coded the same five articles to develop operational definitions for codes and consensus. Definitions were further refined iteratively during coding to capture relevant article characteristics identified in the literature. During this process, reviewers tagged articles that required consensus discussion, and these were then reviewed by an additional reviewer to achieve consensus on coding.

Figure 2. Coding Scheme

Study Design

- Foundational descriptive
- Exploratory descriptive
- Design and development
- Efficacy
- Effectiveness
- Scale-Up

Co-regulation Domains

- Caring, Consistent, & Responsive Relationships
- Co-Creation of Supportive Environments
- Intentional and Developmentally-Informed Day-to-Day Interactions

Other Co-regulation Related Constructs

- Peer co-regulation
- Co-regulator self-regulation or capacity to provide co-regulation

Approaches

- Intentional adult relationship
- Near-age peer support
- Support from individual with lived experience
- Youth skills support (coaching)
- Environmental systems or supports
- Behavioral management
- Cultivating positive self-narrative
- Parent/caregiver training
- None

Youth Skills and Competencies

- College success
- Employment and career planning
- Healthy relationships
- Identity development
- Increased social capital
- Independent living skills
- Decreased sexual risk behavior
- Decreased substance use
- Self-regulation

Youth Self-regulation Skills

- Decision making
- Emotion regulation
- Future orientation
- Identity-based motivation
- Persistence
- Perspective-taking
- Planning
- Problem solving
- Self-reflection
- Stress management
- Self-determination
- Behavior regulation
- Resilience

Co-regulator Roles⁴


- Parent
- Child welfare service provider
- Employer
- Extracurricular advisor (e.g., coach)
- Formal peer
- Foster parent
- Informal peer
- Kinship caregiver
- Mental health service provider
- Mentor
- Other family members
- Other important adults
- Other service provider
- Residential staff/caregiver
- Sibling
- Teacher

Focus on Special Populations

- LGBTQ Youth
- Youth with disabilities
- Youth who are parenting
- Youth of color

We utilized the ACF’s framework for research and evaluation to categorize research design (OPRE, 2016).The general themes coded include the three previously defined co-regulation domains in addition to two co-regulation related constructs: Peer co-regulation and co-regulator self-regulation or capacity to provide co-regulation. Approaches to co-regulation refer to the way in which co-regulation was provided that are not specific to program

⁴ Note: In the Roles theme, parent refers to youth’s birth parents or family of origin, whereas foster parent refers to non-related caregivers in family foster care settings.



or setting. Our iterative review process identified three additional self-regulation skills in addition to the Top 10 previously described that we defined by consensus: self-determination, behavioral regulation, and resilience.

Results of the scoping review

In this section, we report results and present tables depicting results of our coding. First, we summarize the types of research identified in our search. Then, we chart the frequency of different youth self-regulation skills addressed in the articles. We next examine the frequency of youth developmental competencies, including but not limited to self-regulation, that are discussed in relation to co-regulation approaches. Following these descriptive data, we share the number of articles we found addressing the different domains of co-regulation and co-regulation related constructs. Finally, we identify key co-regulation approaches and highlight exemplar practices for each.

Data are presented in different ways based on the information available in the articles and our research questions. For example, individual youth self-regulation skills were identified regardless of the context, given their importance to our theoretical model. However, youth competencies were coded only if they were discussed in relation to co-regulation, to better inform our research questions. Thus, some tables show frequencies based on

Common Framework for Research and Evaluation (OPRE, 2016)

Foundational Descriptive Research: Describes and documents existing interventions or programs and/or their target populations. Generates hypotheses, develops, refines, or tests theories and methodology, creates conceptual frameworks, and provides fundamental knowledge about constructs or phenomena related to human services provision.

Exploratory Descriptive Research: Examines relationships between modifiable factors (e.g., behaviors, technologies, programs, policies, practices) or fixed factors (e.g., demographic characteristics) and human services-related outcomes to inform development, modification, targeting, or evaluation of intervention or program.

Design and Development Research: Develops program or intervention approaches or components to address a human services-related issue based on well-specified theory of action, creates measures and collects data to assess the implementation and outcomes of the solution in a typical delivery setting, and/or conducts a pilot study to examine the promise of generating intended outcomes.

Efficacy Research: Determines whether an intervention can improve outcomes under “ideal” conditions or under different conditions than in a previous evaluation.

Effectiveness: Estimates impacts of intervention when implemented under conditions of routine practice.

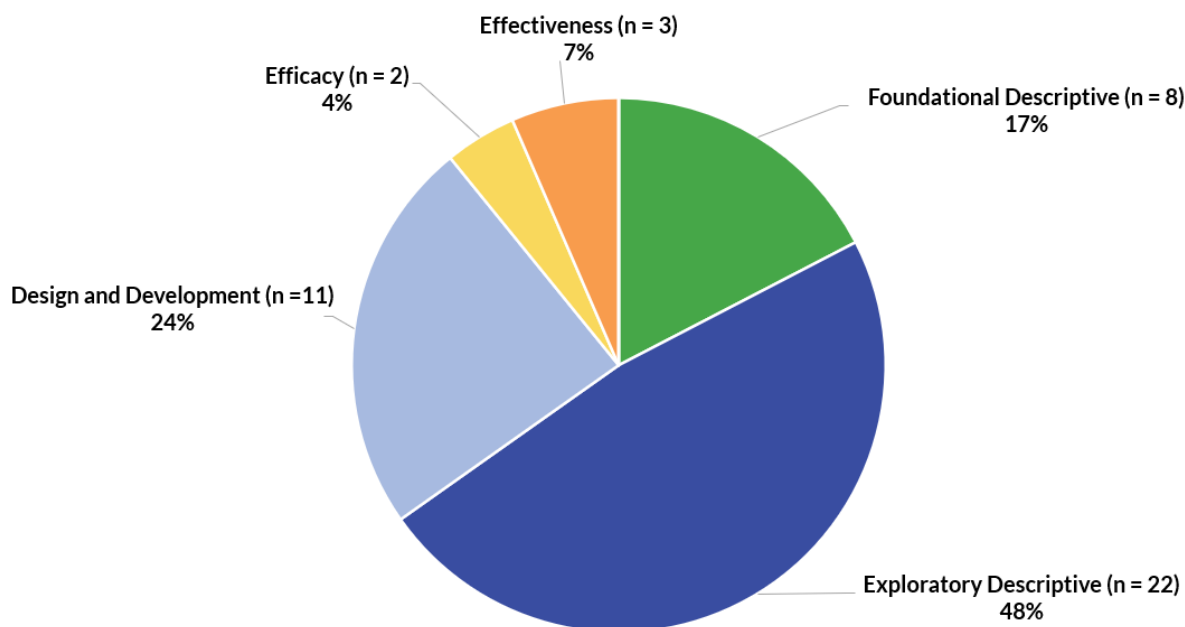
Scale-Up Research: Estimates the impacts of an intervention, program, or strategy under conditions of routine practice and across a broad spectrum of populations and settings. /Population groups should be sufficiently diverse to broadly generalize findings.

the full sample of articles, while others include a subset of articles where coding could be completed.

Research methods are primarily descriptive

As shown in Figure 3, a pie chart depicts the percentage of articles found for each of six types of research. About two-thirds of the 46 articles included are Descriptive (either Foundational or Exploratory). Sixteen articles (35%) described program evaluations, though a majority of those were at the design and development stage ($n = 11$), reporting only pilot or implementation data. Only three articles were conducted earlier than 2000, and nearly half ($n = 21$) were conducted since 2015.

Figure 3. Type of research studies included



Note. No included articles were classified as Scale-Up Research

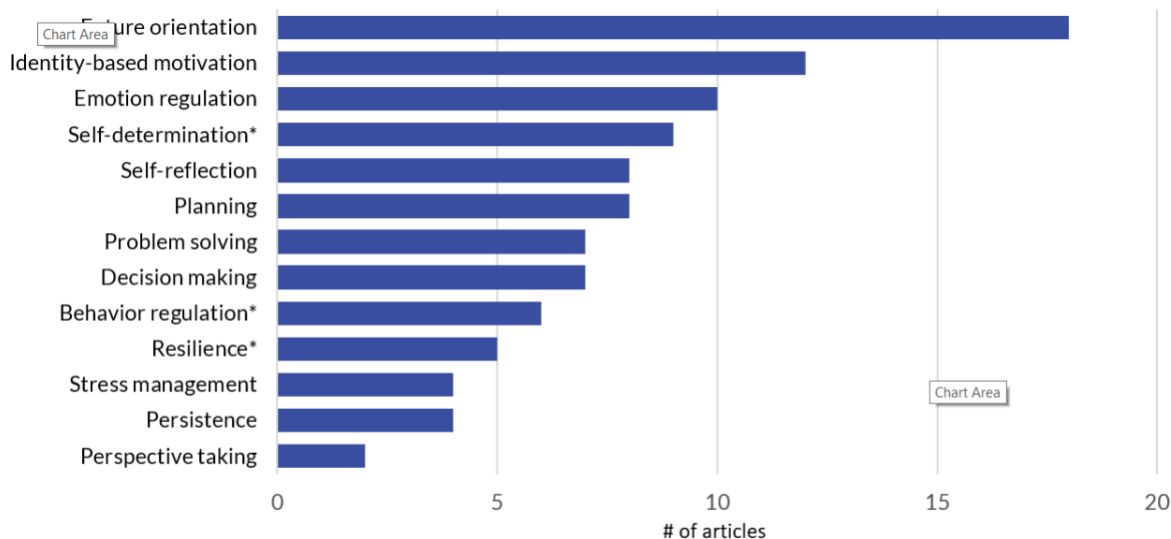
A range of youth self-regulation skills are addressed

Figure 4 shows how many articles addressed each of the 13 self-regulation and related skills identified earlier in this document. Coding of these skills required that they were identified in some manner that was more meaningful than a minor or indirect reference and were discussed in relation to intervention effects or co-regulation practices—typically the skills and competencies were described in the discussion or summary. Multiple youth self-regulation skills may be addressed in one article.

Future orientation was by far the most frequently represented skill ($n = 18$, 38%). Other relatively common skills addressed were identity-based motivation ($n = 12$, 26%) and emotion regulation ($n = 10$, 21%). Several articles also explored planning, self-reflection, self-determination, problem solving, and decision making. Few articles examined perspective taking, stress management, or persistence. On average, articles addressed two youth self-regulation related skills; only three articles addressed more than three skills. The most common overlap in skills addressed within one article was between planning and future orientation ($n = 5$, 11%), identity-based motivation and future orientation ($n = 5$, 11%), and stress management and self-reflection ($n = 5$, 11%).

We next explored whether there may be patterns in the types of contexts in which different self-regulation skills were being addressed. Future orientation was often identified in articles focused on educational settings ($n = 10$). Identity-based motivation was found across settings, but most commonly in relation to educational settings ($n = 4$). Similarly, emotional regulation was found across settings, with the most common being residential care ($n = 4$).

Figure 4. Youth self-regulation and related skills focused on in included articles



Note. Skills with * indicate self-regulation related skills identified through review.

Co-regulation practices are discussed most often in relation to educational success and identity development

Table 2 shows the frequency of developmental competencies (and absence of risk) that were specifically discussed in relation to co-regulation practices, with more than one competency possible within each article. Although articles did not need to demonstrate an empirical relationship between co-regulation and competencies, coding required some evidence of relationship that at least two of three coders could identify and agree upon. We also depict the frequency of articles where self-regulation was discussed in relation to co-regulation (which was not presented in data in Figure 3).

As can be seen, a wide range of developmental competencies are discussed in the literature in relation to co-regulation practices. Not surprisingly given our inclusion criteria, self-regulation was addressed in the greatest number of articles ($n = 18$; 38%). In addition, 16 articles (35%) addressed educational success, the majority of which focused on youth transitioning to postsecondary education. Another relatively common competency addressed ($n = 13$, 28%) was identity development. In addition, several articles examined independent living skills and increased social capital. Very few articles examined youth parenting (i.e., youth who are parenting) and sexual risk behavior and no articles examined healthy relationships. Only four articles addressed employment and career readiness.

Table 2. Number of articles where developmental competencies are discussed in relation to co-regulation practices

Competencies and Risks	Self-regulation	Total
Self-regulation	-	18
Educational success	6	16
Identity development	3	13
Independent living skills	3	9
Increased social capital	2	7
Employment & career readiness	0	4
Decreased sexual risk behavior	2	4
Decreased substance use	0	2

On average, each article addressed fewer than two skills or competencies. Self-regulation most commonly overlapped with educational success ($n = 6$, 13% of all articles included), *increased social capital* ($n = 3$, 7% of all articles included), and independent living skills ($n = 3$, 7% of all articles included). None of the four articles examining employment outcomes also examined self-regulation. Only 3 of 13 articles (7% of all articles included)

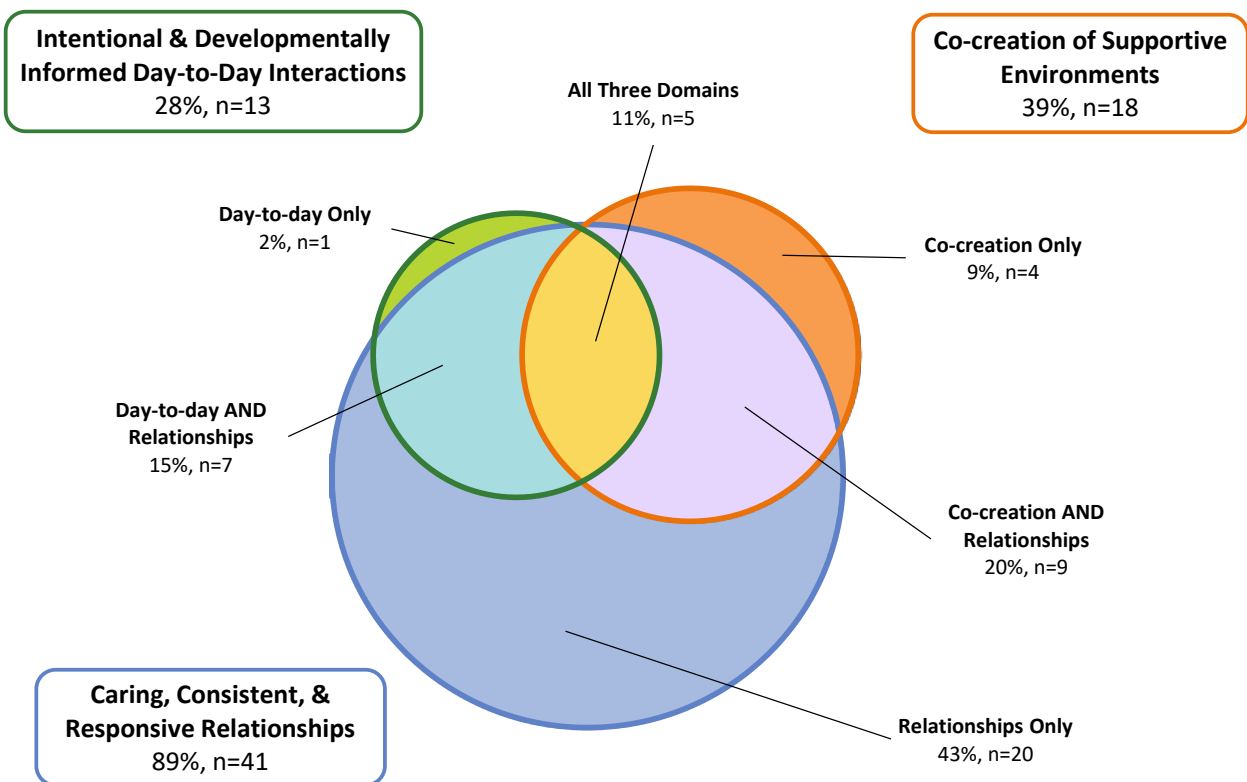
focusing on identity development also targeted self-regulation. With regard to overlap among competencies, almost half the articles focusing on *identity development* also addressed educational success ($n = 5$, 11% of all articles included). With regard to risk behaviors, only three articles (7% of all articles included) addressed reduction of sexual risk, and two (4% of all articles included) examined substance use; none examined delinquency or criminal justice involvement.

We also explored whether there may be patterns in how self-regulation was addressed by setting and role of co-regulator. The majority of articles targeting self-regulation were conducted in residential care or involved mental health care (11 of 18; 61%), which often overlapped. A total of 39% of articles (7 of 18) addressing self-regulation included foster parents and five (11%) included kinship caregivers (some of these overlapped). Self-regulation was addressed much less often in other contexts (i.e., only four mentoring articles; no articles with peers in a formal or informal co-regulator role).

Relationships is the co-regulation domain addressed most often


Figure 5 shows the number of articles that address each of the three core co-regulation domains and their overlap, with a different color depicting each domain and its combination with each of the others. For example, the Caring, Consistent, & Responsive Relationships domain is addressed in almost all the articles reviewed (89%) in some combination; 43% reflect Caring, Consistent, & Relationships only, 20% reflect Caring, Consistent, & Relationships and Co-Creation of Supportive Environments, 15% reflect Caring, Consistent, & Relationships and Intentional and Developmentally-Informed Day-to-Day Interactions, and only five (11%) articles include all three

Figure 5. Co-regulation domains addressed in studies



Note. No articles addressed Day-to-day and Co-creation without Relationships.

domains of co-regulation. Relative to Caring, Consistent, & Responsive Relationships, the other two core domains are addressed much less frequently: Co-Creation of Supportive Environments (39%), Day-to-Day Interactions (28%). Nearly half of the articles ($n = 21$, 46%) included at least two of the three domains. In addition, a handful of



articles (primarily in congregate care settings) addressed Co-Creation of Supportive Environments or Intentional and Developmentally Informed Day-to-Day Interactions without either of the other two domains, an approach not considered ideal according to our model.

Co-regulation approaches vary but focus predominantly on relationships

Approaches to co-regulation describe the way in which co-regulation was provided (not defined by a specific program or setting). Our process of identifying approaches was iterative and grounded in the literature, which identified one unanticipated approach: cultivating a positive self-narrative. Table 3 demonstrates the number of articles (visually depicted by the size of the circle) that utilized each approach for the three co-regulation domains (Caring, Consistent, & Responsive Relationships, Co-Creation of Supportive Environments, and Intentional and Developmentally-Informed Day-to-Day Interactions) and the two co-regulation related constructs (peer co-regulation and co-regulator self-regulation). It also includes examples of co-regulation practices described in the articles for each approach. Importantly, these examples should not be considered best practices, since evidence was inadequate to evaluate their efficacy. Also of note, 11 articles (24%) did not have any identifiable approach, resulting in a subsample of 35 for this data summary.

The most common approaches for addressing the Relationship domain were intentional adult relationships ($n = 20$; 57%), support from individuals with lived experience ($n = 12$; 34%), and near-age peer support ($n = 10$; 29%). To a lesser extent, these three approaches were also used to address Co-Creation of Supportive Environments and Intentional and Developmentally-Informed Day-to-Day Interactions as well as peer co-regulation. Surprisingly, none of these approaches addressed co-regulator self-regulation – this was a clear gap across all approaches.

Specific approaches that addressed Co-Creation of Supportive Environments ($n > 5$) were intentional adult relationships, parent/caregiver training, and environmental systems. Intentional and Developmentally-Informed Day-to-Day Interactions were most often addressed ($n \geq 5$) through youth skills support. Peer co-regulation was addressed ($n \geq 5$) in articles with intentional adult relationships, support from individuals with lived experience and near-age peer support as well as cultivating a positive self-narrative. Finally, the few articles ($n = 4$) that addressed co-regulator self-regulation or capacity to provide co-regulation used a diversity of approaches including parent/caregiver training, youth skills support, environmental systems, and behavioral approaches.

Regarding specific approaches:

- Caregiver training ($n = 8$; 23%) was used most often to promote Caring, Consistent, & Responsive Relationships and Co-Creation of Supportive Environments. Although a few articles addressed foster parents and kinship caregivers, the majority focused on caregivers in congregate settings. Training focused on understanding youth's developmental needs and positive caregiving practices such as establishing expectations and monitoring youth behavior.
- Youth skills support ($n = 8$, 23%) was provided in programs addressing independent living skills, reproductive health, and employment, among others.
- Cultivating a positive self-narrative ($n = 7$, 20%) was an approach common to educational success and independent living skills programs, often focusing on helping youth recognize their assets and reframe their personal narratives such that adversity builds resilience.
- Environmental systems ($n = 6$, 17%) and behavior management ($n = 3$, 9%) approaches were the least common. These approaches addressed all three core co-regulation domains, but Co-Creation of Supportive Environments was the most common. Five of the six articles (83%) describing an environmental systems approach were conducted in residential care settings.

Table 3. Youth support approaches

Youth Support Approaches	# of Articles Containing Each Co-Regulation Domains and Related Constructs						Exemplar Practices
	# of Articles	Relationships	Co-creation	Day -to-Day	Peer Co-regulation	Co-regulator Self-Regulation	
Intentional adult relationship	20	10+	5-9	5-9	5-9		Express genuine interest; stay engaged despite challenges; accept youth for who they are but also focus on potential; believe in them; be trustworthy, reliable, and responsive; help connect youth to resources and navigate systems
Support from individuals with lived experience	12	10+	<5	1-4	5-9		Offer understanding through shared experiences; model success or persistence in the face of adversity
Near-age peer support	10	10+	1-4	1-4	5-9		Provide a sense of belonging; offer understanding and acceptance; model successful future pathways and how to navigate different challenges
Caregiver training*	8	5-9	5-9	1-4		1-4	Respond to youth needs with flexibility and support; establish expectations and routines for safety and security; provide guidance for the future; use effective de-escalation strategies grounded in strong understanding of youth development
Youth skills support	8	5-9	1-4	5-9	1-4	1-4	Use behavior modeling; provide in the moment feedback and problem-solving support; help youth apply skills to new challenges; teach skills rather than do it for them; offer patience when youth make mistakes
Cultivating positive self-narrative	7	5-9	1-4	1-4	5-9		Help youth recognize assets; help youth gain perspective on their experiences; reframe adversity as building resilience
Environmental systems	6	1-4	5-9	1-4	1-4	1-4	Work with youth to establish routines and environments that support their goals; encourage youth to monitor progress toward goals
Behavior Management	3	1-4	1-4	1-4		1-4	Provide clear expectations for behavior; provide positive reinforcement; support youth in self-reflection and problem solving when behavior does not meet expectations; focus on teaching vs. punishing;

Note. No approach was identified in eleven articles; thus, this table is based on 35 articles only. Multiple approaches may be identified in one article.

*Only 2 of these articles focused on parents; the others focused on staff in congregate care facilities

Co-regulation is provided by adults and peers in a wide range of roles and settings

Co-regulators are adults or peers who promote self-regulation in youth through their relationships and day-to-day interactions. Table 4 shows the number of articles that described co-regulation (or actions consistent with co-regulation) in reference to individuals in different roles, with more than one role possible within each article. As can be seen, a wide range of co-regulator roles were identified, reflecting the diverse settings in which the research was conducted.

The most common roles were mentor ($n = 15$, 33%) and foster parent ($n = 11$, 24%). Parents ($n = 4$, 9%), extra-curricular advisors ($n = 3$, 7%), teachers ($n = 3$, 7%), employers ($n = 1$, 2%) and siblings ($n = 0$) were the least represented roles.

Although settings were not coded explicitly because they did not address any specific research questions, we explored them in relation to co-regulator roles, with the following findings:

- Mentors were identified most often in college settings and independent living skills programs.
- Formal and informal peers were identified most often in college settings but were also noted in mental health services and independent living skills programs.
- Other service providers such as program staff and vocational coaches were found in programmatic settings such as independent living skills and reproductive health curriculum delivery.
- Other important adults provided support to youth, most often within education settings but also in the community.

Table 4. Co-regulator roles

Role	# of Articles
Mentor	15
Foster parent	11
Informal peer	9
Mental health service provider	9
Residential staff/caregiver	8
Formal peer	7
Kinship caregiver	7
Other family members	6
Other service provider	6
Child welfare service provider	5
Other important adults	5
Parent	4
Extracurricular advisor	3
Teacher	3
Employer	1
Sibling	0

Note. More than one role may be identified per article, so total is greater than 46.

Youth of color and special populations are rarely meaningfully addressed

Of the 46 articles included, relatively few addressed youth of color and special populations in a manner that considered or discussed these youth's needs so as to advance theory or tailoring. Thus, we did not include this in a data visualization. Only three articles (7%) addressed youth of color and three (7%) specifically addressed youth who are parents. Just one article addressed youth identifying as LGBTQ, and none addressed youth with disabilities. Additional articles included these populations but did not provide information that would be useful for understanding their co-regulation needs or approaches. Given the prevalence of youth in foster care identifying as youth of color and members of these special populations, this is a critical gap in the co-regulation literature.

Trauma and adversity are infrequently addressed

Similar to how special populations were addressed in the literature, many articles referenced trauma and adversity as context for studying programs and supports for youth in foster care, but only seven (15%) addressed this in a manner that informed co-regulation needs or approaches. All seven were conducted in residential treatment and educational settings.



Chapter 3. Program Scan

This chapter describes the methods and results of a targeted program scan that we conducted to supplement the scoping review. The program scan was targeted to address areas where specific gaps were identified in the published literature including employment and career readiness, healthy relationships and dating, co-regulator self-regulation, youth with disabilities, youth identifying as LGBTQ, youth of color, and youth who are parents. We described how we identified programs in these targeted areas and what we learned with regard to co-regulation domains and approaches addressed. We highlight new information regarding practices being used to strengthen adults' co-regulation capacity and areas where gaps remain.

Methods for the Program Scan

We reviewed programs from eight evidence-based clearinghouses: California Evidence-Based Clearinghouse for Child Welfare, Blueprints for Healthy Youth Development, Teen Pregnancy Prevention Evidence Review, The Office of Juvenile Justice and Delinquency Prevention's Model Programs Guide, Clearinghouse for Military Family Readiness, IES What Works Clearinghouse, and Social Programs That Work. From these clearinghouses, we identified 79 programs for review. We also reviewed 15 additional programs recommended by project consultants and ACF collaborators. We reviewed program listings in each clearinghouse along with supplemental information program websites and related gray literature. After determining if a program was consistent with co-regulation (using the same definition as the scoping review), we assessed the co-regulation domains and approaches identified and evaluated this in relation to the program scan. Finally, we identified additional practice elements, specifically in the gap areas.

Results of the program scan

Of the 94 programs reviewed, we identified 31 that address one of our targeted gap areas and were consistent with co-regulation (see Appendix D). Of the programs identified through evidence-based clearinghouses, 19 (61% of programs) did not have an evidence rating. The remaining 12 programs were evenly distributed as "Promising," "Supported," and "Well Supported".

Similar to results of the scoping review, the programs we identified included a significant focus on Caring, Consistent, & Responsive Relationships ($n = 27$; 87% of programs), with more limited focus on Co-Creation of Supportive Environments ($n = 14$; 45% of programs), Intentional and Developmentally-Informed Day-to-Day Interactions ($n = 14$; 45% of programs), and peer co-regulation ($n = 6$; 19% of programs). Of these 31, programs most often addressed co-regulator self-regulation or capacity to provide co-regulation ($n = 21$; 68% of programs), healthy relationships ($n = 10$; 32% of programs), and employment and career readiness ($n = 5$; 16% of programs). Programs that addressed healthy relationships and employment and career readiness used similar approaches to those already identified in the scoping review.

The program scan also identified few programs addressing youth with disabilities and youth of color (only two each; 6% of programs each). Similarly, only one program each was identified addressing the co-regulation needs of LGBTQ youth and youth who are parents (3% of programs each). Twelve programs also included discussion of risk behaviors (39% of programs), including substance use ($n = 8$; 26% of programs), and delinquency/involvement in the criminal justice system ($n = 7$; 23%). However, there was limited evidence of these outcomes being related to co-regulation practices.

Overall, the program scan addressed gaps we found in the literature with regard to examining adult co-regulation capacity and supporting co-regulation in a healthy relationship context. However, significant gaps persisted in examining youth of color and special populations in a meaningful way.



Existing programs are targeting adults' co-regulation capacities

Across the 31 programs consistent with co-regulation, 68% ($n = 21$) provided caregiver training to increase the capacity of adults to provide co-regulation, filling one of the major gaps in the scoping review. These programs were highly variable in structure and modality, with some involving only online trainings, others delivered through in-person workshops, some that focus on building knowledge and skills, and others that focus on providing social and resource support. Active learning methods such as role playing and coaching the adults in their interactions with youth were utilized in several. Almost all the 21 programs focused on building skills in the co-regulation domain of Caring, Consistent, & Responsive Relationships ($n = 20$; 95% of caregiver training programs) and more than half also addressed Co-Creating Supportive Environments ($n = 13$; 62% of caregiver training programs).

However, these programs also had some limitations. Most focused on caregivers in traditional roles such as foster parents and did not extend to other caring adults or service providers. In addition, few ($n = 5$; 20% of caregiver training programs) addressed the third domain of co-regulation: Intentional and Developmentally-Informed Day-to-Day Interactions. Only one program (5% of caregiver training programs) addressed youth skills support and only four (20% of caregiver training programs) also included a behavior management approach. This suggests that in existing programs, co-regulator capacity building is not connected in an intentional way to youth skills and in a very limited way to strategies for supporting and responding to youth behavior.

Several approaches for co-regulation training and building co-regulator capacity were described in these programs including:

- *Teaching co-regulation skills* such as how to strengthen relationships with youth and provide them with a sense of belonging; how to create safe, supportive environments for youth through routines, behavioral expectations, and agreements to reduce risk behavior; and family problem solving and conflict resolution strategies.
- *Providing psychoeducation* to understand the importance of consistent responsive relationships and increasing adults' understanding of factors that may shape youth behavior, emotions, and context. This can increase adults' compassion for youth's experiences and may inform the strategies they use to support youth and respond to their self-regulation failures. Psychoeducation often included special considerations for youth with foster care experience such as:
 - Trauma and attachment
 - Cultural competency
 - Identity development
- *Building a support network* to help families navigate the child welfare system, obtain social support from other foster families, gain access to resources, and decrease stress.
- *Strengthening adult's own self-regulation* by increasing awareness of emotions and identification of personal needs, practicing self-care and stress reduction strategies, and obtaining social support or respite care as well as other resources. This may reduce the emotional reactivity that adults experience during challenging times with youth.

Programming consistent with co-regulation for youth of color and special populations is also limited

In our program scan, we identified few additional programs that were consistent with co-regulation while addressing considerations for special populations. We identified two programs pertaining to youth with disabilities, two programs that meaningfully addressed considerations for youth from racial and ethnic diverse backgrounds, one program pertaining to youth who identify as LGBTQ, and one program for youth who are parents. For programs that did address these populations, co-regulation practices were qualitatively similar to those already identified. They differed from other approaches in that they included specialized content for training adults working with these youth and often addressed identity development and the importance of role models with the same identity (e.g., race/ethnicity, LGBTQ).





Chapter 4. Integrated Findings

As described in Chapter 1: Foundational Literature, co-regulation is a support that all youth need to develop a broad set of skills and competencies. Although co-regulation has not been well-defined or systematically studied with older youth, its application is supported by a strong cross-disciplinary literature and theoretical models based in current developmental science. Co-regulation supports appear particularly needed for older youth in or transitioning out of foster care who experience an accumulation of chronic and acute stressors that create developmental challenges such as disruption of social networks; reduced access to consistent, caring adults; and reduced opportunity for normalcy. In addition to trauma resulting from maltreatment and child welfare system involvement, many youth in foster care have experienced trauma due to the stressors of poverty and/or of discrimination due to their race, ethnicity, sexual orientation, or disability status, suggesting that additional co-regulation supports may be needed.

In this chapter, we will integrate findings from our scoping review and program scan to address our three primary research questions:

1. What developmental skills and competencies are addressed in the literature in relation to co-regulation?
2. How is co-regulation addressed in research and practice with regard to our theoretical model?
3. In what contexts is co-regulation being applied and by whom?

First, however, we acknowledge limitations of our research that should be considered in our interpretations.

Strengths and limitations of research conducted for this report

Results of the scoping review are based on specific inclusion criteria and the selected databases. This resulted in the exclusion of a number of youth skills instruction programs that did not include any reference to co-regulation. It is possible that some of these actually included elements of co-regulation but did not describe them. Thus, findings are also dependent upon the ways in which co-regulation constructs and youth skills and competencies were discussed in the literature. Findings are also limited by our targeted approach to coding (i.e., we did not systematically address all possible article characteristics).

The program scan was designed to address only those areas where specific gaps were identified in the published literature; therefore, it should not be considered a comprehensive examination of programs relevant to co-regulation in older youth in foster care. In addition, there are many grassroots programs that may not have been identified. Also, co-regulation domains, program approaches, and practices were difficult to assess giving the lack of access to or availability of program manuals and/or full program descriptions. Therefore, our coding assumed approaches and practices *may* be consistent with co-regulation if descriptions were not adequately detailed. Finally, given limitations in program descriptions, several aspects of co-regulation examined in the scoping review could not be coded.

Although these methodological limitations reduce generalizability, studies were conducted in a diversity of settings with a wide range of samples. Consistency in findings across the published literature and program scan increases confidence in conclusions. In addition, many articles incorporated youth voice in interviews and focus groups, providing rich examples of co-regulation practices and needs that reflect youth's lived experiences.



Findings to Address Primary Research Questions

Research Question 1: What developmental skills and competencies are addressed in the literature in relation to co-regulation?


Each of the Top 10 self-regulation skills was identified in at least two articles and across a range of contexts, which suggests that our theoretical framework is relevant for older youth in or transitioning out of foster care. However, there was significant variability in extent to which different skills were addressed. While some of the more commonly addressed skills were expected given youth's developmental needs (i.e., future orientation), there was also a lack of attention to skills that seem particularly salient for many youth with foster care experience (i.e., emotion regulation, stress management, and resilience), pointing to directions for future research. In addition, articles on average only addressed two youth self-regulation related skills, in contrast to the comprehensive set of skills we expect is needed for successful transition to adulthood.

In addition to self-regulation skills, articles also addressed broader developmental competencies in relation to co-regulation, particularly educational success (39%) and identity development (28%). These are certainly important areas of focus for co-regulation support, given significant disparities in the numbers of youth in foster care who complete high school, enroll in college, and obtain a university degree (National Working Group on Foster Care and Education, 2018) and given the connections between identity development and motivation described earlier. However, there was a notable lack of literature examining several competencies that seem highly relevant to youth in foster care, including employment and career readiness, healthy relationships, and parenting. Although self-regulation is clearly relevant to each of these areas, it does not appear to have been integrated into research questions and theoretical models for building competencies in these areas.

Future orientation (typically focused on life after foster care) was the most commonly identified self-regulation skill in the literature reviewed, with 39% of studies reviewed addressing this skill. This is encouraging given the association between future orientation and improved health and educational outcomes (Borowsky et al., 2009; Johnson et al., 2014; Seginer, 2009). Youth who have experienced an accumulation of acute and chronic stressors may have difficulty envisioning a future as well as identifying steps towards future goals, both of which appear to be critical aspects of future orientation (Bowen et al., 2018; Hines et al., 2005; Rios & Rocco, 2014). Motivation for envisioning a future was encouraged in the literature through practices such as motivational interviewing (Bowen et al., 2018) and positive emotional support (i.e., Rosenwald et al., 2013). Several articles also described ways that adults helped shape youth's goal orientation and realistic expectations (i.e., Albertson et al., 2020; Hudson, 2013; Lovitt & Emerson, 2009; Neal, 2017; Spencer et al., 2019; Strolin-Goltzman et al., 2016). We also identified several programs specifically targeting goal-setting and future orientation, including Rivard and colleagues' (2003) Sanctuary Model, the Better Futures program where youth share their goals with peers who help identify steps to achievement and problem solve potential barriers (Geenen et al., 2015), and the Michigan Educational Opportunities for Youth in Care (MEOYIC) that helps youth set and obtain academic goals through interactions with near-age peers (Kirk & Day, 2011).

Identity-based motivation was addressed in 26% of articles in the scoping review. As described in Chapter 1 of this report, youth motivation related to a personal identity and values is necessary for successful enactment of self-regulation. However, this may be difficult for youth in foster care whose sense of self may be undermined by disrupted relationships and challenges created by foster care experience (Kools, 1997). In addition, building a positive self-identity is difficult within the context of negative media messages that make it difficult for youth in foster care to have and do many things like their peers. Only one article addressed identity development specific to race/ethnicity (Yancey, 1998) and one addressed LGBTQ identification (Mallon et al., 2002), suggesting a clear area for future research.

Motivation is also related to self-determination, which was addressed in nine articles (20%). Self-determination has been recognized as an important component of positive youth development (Catalano et al., 2004) and for youth in foster care specifically (Powers et al., 2012). In the articles reviewed, self-determination was described as youth's confidence in their abilities and perceptions of personal control and responsibility and was linked to being



more prepared for transitions, self-advocating during court proceedings, and positive educational outcomes (Geenen et al., 2015; Hass & Graydon, 2009; Kirk & Day, 2011; Osterling & Hinest, 2006). In mental health and residential care settings, self-determination and self-sufficiency were important goals of care and focused on allowing youth to make decisions and mistakes (i.e., Jones & Williams, 1983; Mallon et al., 2002; Piel & Lacasse, 2017; Rivard et al., 2005).

Increased focus is needed on co-regulation supports for emotion regulation and stress management


Emotion regulation was discussed in only 22% of articles, much less often than expected given its relevance for youth with a history of maltreatment (Kim & Cicchetti, 2010; Robinson et al., 2009) and given its demonstrated importance for program success for youth in foster care (McMillen et al., 2015). Articles addressing emotion regulation in this review linked it to trust appraisal, impulse control, effective communication, stress management, and maintaining employment (Ahrens et al., 2016; Sakai et al., 2014; Vorhies et al., 2012). The role of caring adults in helping youth identify and contextualize emotions was also discussed (Bermea et al., 2019; L. K. Brown et al., 2013; McMillen et al., 2015; Osterling & Hinest, 2006; Rivard et al., 2003). Specific strategies for increasing emotion regulation skills were discussed most often in programs implemented in residential care settings (Bermea et al., 2019; A. D. Brown et al., 2013; McMillen et al., 2015; Rivard et al., 2003, 2004). Overall, there appears to be clear opportunity for addressing emotion regulation more often and in a larger diversity of settings with adults and peers in different co-regulator roles.

Similarly, stress management and mechanisms of resilience were also addressed in surprisingly few articles (only 9% and 11%, respectively). Similar to emotion regulation, these skills are of particular importance to youth in foster care who experience higher rates of stress related to separation/loss and trauma (Greeson et al., 2011; Harden, 2004). Adolescents in general are more sensitive to stress developmentally than younger children and older adults and may experience long-term negative consequences without support (Cowan et al., 2013; McEwen, 2007; Shonkoff, 2012). Given this, effective interventions are needed that decrease the reactivity of the stress response system on a physiological level and assist youth in applying coping skills when their stress response is triggered. Models for intervention research based in developmental neuroscience have been proposed (Cicchetti, 2010), but do not appear to have been integrated into research with youth in foster care.

The literature discussed stress in the context of a trauma recovery program in residential care (Rivard et al., 2004, 2005), as an identified need for mental health services (Sakai et al., 2014), and as a therapy skill taught in a group home (Yancey, 1998). Resilience was specifically targeted in Rivard's work and in the context of college success (Kirk & Day, 2011; Neal et al., 2017). Only Jones et al. (2013) examined resilience more broadly in relation to social support for youth who had exited foster care, with an interesting positive finding related to continued contact with former foster parents or group home workers. Overall, however, the narrow focus on promoting stress management and resilience overlooks opportunity to strengthen these skills more broadly.

Research Question 2: How is co-regulation addressed in research and practice with regard to our theoretical model?

Overall, it is notable that the literature addressing older youth in or transitioning out of foster care included all three key domains of co-regulation, which supports application of the Self-Regulation Promotion Model (Murray et al., 2019). However, it is clear that the primary focus is on Caring, Consistent, & Responsive relationships (i.e., reflected in 89% of articles). Relationships are certainly foundational for all other co-regulation approaches and warrant attention for youth in foster care given experience with disrupted familial relationships, negative stereotypes, and oftentimes, cultural disconnections (Brophy-Herb et al., 2012; Eccles et al., 1997; Moilanen et al., 2010; Shin et al., 2019; Storer et al., 2014; Wang et al., 2011). Foster care parents may also need support to understand adolescent development and trauma so they can respond effectively to typical adolescent behaviors (Dorsey et al., 2008). Youth sometimes fear repeated rejection and/or have a sense of "survivalist overreliance" (Samuels & Pryce, 2008) that can lead to them sabotaging relationships or even placements. It should also be expected that it may take time for an unknown adult to establish a trusting relationship with an older youth who



has a history of relationship disruptions, further highlighting potential benefits of kinship care. The fact that the co-regulation literature references relationships so consistently may reflect these challenges as well as recognition of the potential value of caring, consistent and responsive relationships for this population.

It is clear that the theoretical Self-Regulation Promotion model is not being fully enacted, particularly with regard to Co-Creation of Supportive Environments and Intentional and Developmentally-Informed Day-to-Day Interactions. We identified only two articles that cohesively describe co-regulation practices : Storer et al.'s (Storer et al., 2014) Connected Foster Teen and Caregiver Relationship model and Patterson et al.'s (Patterson et al., 2018) competencies for resource parents for traumatized teens in out of home care. For literature where supportive environments was addressed, youth identified the importance of feeling a sense of belonging and consistency, and a few examples of helpful structure and boundaries were provided (R. M. Johnson et al., 2020; Storer et al., 2014). Day-to-day interactions were described across settings to promote a variety of skills and competencies such as life skills, employment, independent living, social capital, and resilience, typically in the context of mentoring programs or as part of specific skills-based programs. Specific coaching practices included behavior modeling, experiential learning, and support for goal-setting and problem-solving (Geenen et al., 2015; Osterling & Hinest, 2006; Uzoebor et al., 2008). What is absent from this literature is an explicit focus on skill-building within the day-to-day context of relationships. In addition, there was little attention paid to collaborating with older youth to help them co-create supportive environments with caring adults and peers.


Building co-regulation capacity in adults is addressed in some programs, but not the research literature

In the scoping review of the co-regulation literature, there was remarkably little that addressed co-regulator self-regulation or capacity to provide co-regulation. This seems highly relevant given that professionals in the child welfare system experience high rates of burnout and even secondary traumatic stress (Child Welfare Information Gateway, 2016a), and foster parents may feel unprepared and ineffective in managing challenges with youth (Spielfogel et al., 2011). The best research model for targeting caregiver self-regulation found in our review comes from Patterson et al. (Patterson et al., 2018), who identified core competencies for resource parents as part of a national training initiative, based on literature review and structured input from foster parents, kinship parents, and adoptive parents as well as subject matter experts. Although not specifically conceptualized as co-regulator self-regulation, several competencies involve adult regulatory behaviors (e.g., remain attuned to their feelings, manage their own emotional reactions, and not take youth behaviors personally) as well as practicing self-care.

In contrast, we found several programs that described practices designed to strengthen co-regulator capacity, including: skills-based training in co-regulation practices; psychoeducation around adolescent development, stress and trauma, and cultural competency; building a social support network; and strengthening personal self-regulation skills and self-care. One program identified in our scan is also worth highlighting: the *Self-Regulation Training Approaches and Resources to Improve Staff Capacity for Implementing Healthy Marriage Programs for Youth (SARHM)*; Baumgartner et al., 2019) project, which is highly relevant as it uses the same theoretical model as this report. The most important finding relevant to co-regulation for co-regulators was an “overall shift in their (staff’s) mindset, toward understanding their role as adults in supporting youth self-regulation development through warmth and responsiveness, modeling and coaching skills, and structuring the environment to promote safety and focused learning” (Baumgartner et al., 2019). This is a particularly encouraging demonstration of how co-regulation theory and research can be translated into a specific training approach and strategies.

Research Question 3: In what contexts is co-regulation being applied and by whom?

The literature reviewed makes it clear that co-regulation for older adolescents in foster care does not require a specific setting or role. In order to highlight this and increase generalizability of our findings, we instead identified approaches across contexts for addressing several core co-regulation domains concurrently. Regarding approaches that could be delivered by individuals in different roles, the literature provides the greatest insight into that of mentors, with much less work on foster parents, caseworkers, teachers, employers, and other caring adults such as



extra-curricular activity leaders and coaches. Research on approaches for kinship caregivers and biological family members is also surprisingly limited given that about one third of youth in foster care reside with kinship caregivers and almost all maintain some contact with biological parents (Children’s Bureau, 2019; Haight et al., 2003). The few articles that specifically addressed training approaches for caregivers other than residential staff included an adaptation of Multi-dimensional Treatment Foster Care for older youth (McMillen et al., 2015), focus group identification of strategies for reducing sexual health risk (Albertson et al., 2020), and Patterson et al.’s (Patterson et al., 2018) identification of essential competencies for resource parents. There are nonetheless potential strategies for foster parents, kinship parents, and biological parents that could be utilized from approaches delivered in residential care.

Application of co-regulation to mentoring


As noted, mentoring was well-represented in our scoping review with 15 studies (33%), building on a larger literature that has demonstrated benefit for youth who have experienced adversity, including those in foster care; however, mentoring outcomes can be variable, and relationships are not always maintained (Dubois & Karcher, 2013). This review identified a few promising pilot programs that we identified as reflecting co-regulation. In one, youth identified their own adult mentors from within their existing networks (Spencer et al., 2019), with descriptive results suggesting that this may increase mentor commitment and stability. Another model is provided by Watt et al. (2013) who developed the FACES (Foster Care Alumni Creating Educational Success) program with university mentors trained by Casey Family Programs that has shown promising effects on youth’s sense of belonging as well as graduation and retention rates. A third example of a mentoring program focused on teaching independent living skills, advocating for and helping to coordinate services, and exposing them to healthy opportunities and future options (Osterling & Hines, 2006). Qualitative data suggested that a strong mentoring relationship helped promote youth skill development (Osterling & Hines, 2006; Uzoobo et al., 2008). Unfortunately, this literature cannot inform which specific approaches might be most valuable (i.e., who should serve as mentors), how they should be identified, and explicit focus of mentoring or mentoring strategies.

Application of co-regulation to educational programs

Within our scoping review, there was also a sizeable body of co-regulation literature examining approaches for promoting educational success (i.e., 16 articles, 35%). Although only about 20% of foster care alumni continue to post-secondary education (National Working Group on Foster Care and Education, 2014), there are useful insights that can be gained about resilience more broadly from this work. Qualitative research identified the following factors that may be associated with success: strong and supportive adult relationships, peer modeling, emphasis on higher education within social networks, and self-regulation related skills including motivation (Neal, 2017; Rios & Rocco, 2014; Strolin-Goltzman et al., 2016). In addition to the FACES program referenced above (Watt et al., 2013), other promising programs integrating co-regulation include: Michigan’s Educational Opportunities for Youth in Care (MEOYIC) that involves three days of residential activities with foster care alumni as camp counselors (Kirk & Day, 2011); and Bridging Success Early-Start at Arizona State University, which is a six-day transition program also involving foster care alumni as peer mentors along with workshops promoting academic support skills and networking (Geiger et al., 2017).

Application of co-regulation for employment and career readiness

Overall, we found four articles addressing co-regulation and employment/career readiness in our scoping review and five programs consistent with co-regulation in our program scan. Given that the vast majority of foster care alumni will not have the opportunity to attend post-secondary education (National Working Group on Foster Care and Education, 2018), vocational training and/or career readiness programs seem highly relevant. A few programs have established partnerships with local employers, suggesting opportunity for training supervisors in co-regulation related to improving the work environment and promoting employee success. Another promising approach involves building youth’s networks for employment opportunities, which aligns with our understanding of co-regulation for this population.



There also appears to be significant opportunity to integrate focus on self-regulation in such programs for young adults. One promising approach for doing this is employment coaching as described by Joyce and McConnell (2019) in which coaches work collaboratively with participants to “set individualized goals and provide motivation, support, and feedback as the participants pursue their goals.” The coaches specifically focus on strengthening participants’ self-regulation skills in the context of limited financial resources and the challenges that context may bring. Work supported by OPRE to evaluate four programs utilizing this model is ongoing (OPRE, 2020). However, more research is clearly needed in this context to identify key practice elements related to co-regulation and evaluate the effects of existing programs on youth employment outcomes in addition to more general well-being and economic stability.

Application of co-regulation for developing healthy relationships

Although we did not identify any articles meeting inclusion for the scoping review that addressed healthy relationships related to co-regulation, in the program scan we found 10 programs that are doing so – a clear area for future research. Particularly noteworthy is the ACF-funded SARHM project that developed and piloted co-regulation strategies for staff to integrate into Healthy Marriage Relationship Education (HMRE) programming for youth, including one site serving youth aging out of foster care. Findings suggested that co-regulation strategies could be integrated effectively in this context with time, effort, and ongoing coaching support, with promise for enhancing youth engagement (Baumgartner et al., 2019). Some of the most promising co-regulation strategies identified in this project were the use of labeled praise statement, providing “rest and return” breaks for youth, and modeling/encouraging youth to take deep breaths to refocus.



Chapter 5. Implications for Practice, Policy, and Research

Older youth in or transitioning out of foster care have the same developmental needs as all youth; however, given the trauma and adversity they experience, they may not have received an adequate amount of co-regulation support to ensure their optimal development. Based on the research in this report, we suggest that these youth may benefit from co-regulators who intentionally focus on building specific self-regulation skills such as emotional regulation and stress management to promote resilience as well as cultivating a positive self-narrative to support long-term goals. Near-aged peers with lived experience in the foster care system may offer specific benefits by providing a sense of belonging and modeling pathways to future success. In addition, youth may need specific supports in getting connected to resources (e.g., financial assistance, medical care, or transportation) and navigating the systems they interact with to obtain these resources. More generally, it may be beneficial for co-regulation supports to target increasing the consistency of relationships with caring adults, ensuring a safe environment with opportunity for learning new skills and a sense of belonging, and intentional supports to build a positive self-identity and future hopes and dreams.

In this chapter, we utilize findings to consider implications for practice, policy, and research. We identify a set of Principles of Practice that appear to have universal application across settings and roles and reflect on how co-regulation supports may need to be tailored for older youth in or transitioning out of foster care. Then, we consider ways to strengthen the child welfare system to better support co-regulation. Finally, we identify areas of future research to address gaps and make suggestions for general approaches in this area.

Principles of co-regulation practice

Given the diversity of settings in which co-regulation actions are needed from both caring adults and peers, a traditional program intervention approach may not be useful. Rather, we believe that a practice element approach similar to Embry and Biglan's (2008) evidence-based "kernels" may be more applicable.^{xix} Given the lack of current evidence for specific co-regulation actions, we instead propose **Principles of Practice**, based on the articles and programs reviewed as well as theory and the broader literature:

Evidence-based kernels are fundamental behavior influence procedures identified as active ingredients such as reinforcement, altering antecedents, changing verbal relational responding, or directly changing physiological states (Embry & Biglan, 2008).

- **Increase intentionality of relationships with youth;** that is, stay engaged over time despite challenges that arise, interact in genuine and consistent ways that promote trust, and for youth's long-term benefit.
- **Focus on youth strengths and resilience** to help them recognize their assets and build a positive self-narrative and self-identity that is aligned with their personal and cultural values and beliefs.
- **Provide normative opportunities for youth experiences that promote development of skills and competencies,** making decisions to address individual youth's needs and to balance safety with opportunity for growth.
- **Meet youth "where they are" developmentally,** understanding their likely need for greater co-regulation support than expected for their age and the possibility of uneven development of skills and competencies.
- **Be attuned to youth's needs in the moment** given their unique history and current context and adapt strategies based on youth's responses (rather than trying to make the youth change); at times this might simply involve "holding space" rather than trying to "fix things."

- **Approach youth in a culturally-responsive manner** that acknowledges and respects their lived experiences and values. For caring adults who do not share youth’s cultural experiences, humility and authenticity will be helpful in providing co-regulation supports.
- **Approach youth from a trauma-informed framework** with flexibility and understanding, particularly when they may be dysregulated in response to a trauma trigger.
- **Help youth self-reflect on their day-to-day experiences** to gain perspective and learn from “mistakes” with developmentally appropriate consequences that focus on teaching rather than punishing or shaming.
- **Work collaboratively with youth to help them create routines and environments** that will support their goals, values, and well-being.
- **Connect youth to supportive peers**, including foster care alumni who can model pathways of “success,” provide a sense of belonging, and help de-stigmatize foster care.
- **Promote youth skills and competencies within day-to-day situations** in the context of strong positive relationships by identifying specific actions that serve this purpose and could be enhanced with intentionality:
 - Model, prompt, and support youth in using healthy strategies for coping with stress (i.e., maintain connections, ask for help when needed) and managing difficult emotions to support healthy relationships.
 - Provide opportunities to learn life skills through day-to-day interactions and modeling; This may be particularly useful for skills related to employment.
 - Support youth in pursuing their interests, talents, hopes and dreams.

Strengthening System Support for Co-Regulation

The child welfare system has clear guidance promoting placement stability and other regulations intended to support the best interests of children and youth, many of which align with co-regulation. There is also recognition and value of relationship-based care within the system. However, youth’s experiences across states and jurisdictions vary; it is likely that many would benefit greatly from more systematic and intentional co-regulation supports. More consistent implementation of or additional focus on the following strategies may help build co-regulation supports for youth served by the child welfare system:

- Review child welfare policies across states to identify areas where specific changes could further support co-regulation, considering the costs of more intensive services and placements as well as the need to prioritize placement stability.
- Prioritize placement decisions that support long-term relationships with adults that youth identify as having meaningful connections with, as well as to maintain stability in school settings and connections with peers.
- Support youth’s connections with siblings, parents, and other kin, while providing supports for building co-regulation capacities among kinship caregivers. This may enhance placement stability and cultural matches, which may promote resilience.

- Collaborate with youth advocacy groups to create opportunities to meaningfully incorporate youth voice not only in decisions regarding placement and their future, but also in promoting a sense of agency in day-to-day decisions regarding their well-being and preferences.
- Systematically integrate co-regulation principles of practice into settings and programs for older youth in foster care, including mentoring, career readiness, and relationship education and with individuals in diverse roles including extra-curricular program staff and employers. Ensure that these include focus on co-creating supportive environments and day-to-day interactions for skill development as well as relationship-building and skills instruction.
 - Peer mentors may be able to expand the sources of support for older youth in or transitioning out of foster care, especially for those who may not have adults serving in this role.
- Provide comprehensive co-regulation training for foster parents, birth parents, kinship care providers, caseworkers, and staff working in residential settings. Explore training methods that provide video feedback and modeling around micro-interactions. Based on existing programs, training components might include:
 - Skills-based training in co-regulation practices (see “Principles of Practice”)
 - Psychoeducation around adolescent development, stress and trauma, and cultural competency
 - Building a social support network
 - Strengthening personal self-regulation skills and self-care, which could also reduce staff turnover
- Explore similar opportunities for integrating co-regulation principles of practice into other ACF-supported programs related to healthy relationships and career readiness, similar to the recent ACF-funded [SARHM project](#).
- Support large-scale messaging within the system and across other systems and programs serving older youth (e.g., education, juvenile justice, other human services) to:
 - Promote the societal value of all caring adults providing supportive day-to-day interactions with youth (address “why” they should take this role);
 - Communicate that co-regulation supports provide scaffolding for “gaps” where older youth may have missed out on developmental opportunities; not that youth require “fixing;”
 - Promote a positive youth development framework that emphasizes youth resilience (see [Communicating Scientific Findings about Adolescence and Self-Regulation](#));
 - Communicate to youth with foster care experience advocacy organizations how and why co-regulation supports can be helpful.

Agency Conversation Guide

- ✓ How are we recognizing youth resilience and strengths, particularly culturally-based assets?
- ✓ Are we focusing on a full range of self-regulation skills, including emotion regulation and stress management?
- ✓ How are we helping youth reframe their personal narrative and develop hopes and dreams for the future?
- ✓ Are we approaching each youth from a trauma-informed perspective?
- ✓ What are we doing to promote a sense of belonging across all settings youth encounter?
- ✓ How are we supporting caring adults in collaboratively creating supportive environments with youth and supporting youth skills through intentional, developmentally informed day-to-day interactions?

At the agency and organization level, there are several questions that can be used to generate conversation and self-reflection to promote co-regulation (see text box).




Implications of Public Health Emergencies

In any disaster situation, it is likely that the most vulnerable populations, including youth in foster care, will experience disproportionate burden and may have the least access to resources and services without intentional efforts such as those being made by the Children’s Bureau during COVID-19 (Kelly et al., 2020). The pandemic has also required an extended period of physical distancing, compromising meaningful personal and social interactions that are critical for co-regulation. Although virtual programming offers opportunities for increased access, we recommend that human contact be prioritized whenever possible.

Areas for future research

Examination of co-regulation practices in foster care is an emerging area of research as evidenced by the majority of studies being descriptive and qualitative and by almost half of the studies having been published in the last five years. For articles that did evaluate outcomes, most were in the design and development stage, which limits our ability to identify change mechanisms and assess the efficacy of specific actions and approaches. Indeed, no causal implications should be interpreted from any of the associations described in this report. This is generally consistent with the overall field of research in foster care, which is predominantly practice-driven. Overall, there is a clear need for more theoretically informed and rigorous research on co-regulation supports for older youth in foster care to improve our ability to identify change mechanisms and assess efficacy of specific approaches. In addition, there are several specific gap areas to prioritize that would advance intervention design and development:

- Inclusion of special populations in co-regulation research, including youth with disabilities, youth who identify as LGBTQ, and youth who are parents.
- Examination of culturally-relevant co-regulation approaches for those youth who experience the greatest disparities within the child-welfare system (Black Americans and American Indians/Alaska Natives). It is particularly notable that youth of color are often included in foster care research, but their specific co-regulation needs and strengths are not addressed in a meaningful way that could inform practice.
 - Relatedly, work is needed to systematically examine co-regulation assets and challenges that may be related to racial/ethnic identity and cultural experiences
- Identification of specific peer co-regulation and peer mentoring practices that can be implemented through informal day-to-day interactions to promote youth self-regulation and developmental competencies.
- Evaluation of programs and program approaches being used to promote co-regulation in employment/career readiness and healthy relationship programs for older youth in foster care.
- Evaluation of specific co-regulation training strategies, many of which are being used in practice but were not rigorously evaluated.
- Identification and evaluation of specific co-regulation practices to help youth learn to create routines and environments for themselves that promote their health and well-being, especially as they transition to adulthood.
- There is also a clear need for co-regulation research that examines critical adaptive outcomes, including promotion of healthy relationship and career development, and prevention of risks such as teen pregnancy, substance use, and involvement in the criminal justice system. Additional research on these outcomes will help justify programs’ costs in relation to the benefits they produce.
- Examination of physiological stress reactivity as an outcome for interventions designed based on current developmental neuroscience.



In addition, we suggest some general approaches for research in this area:

- Study existing programs and practices more systematically to learn from the field.
- Incorporate youth voice in development and implementation of approaches to ensure supports are tailored as needed to meet youth needs and preferences, as well as in the research process itself.
- Include fidelity tools in program evaluation research to facilitate identification of evidence-based “kernels” of co-regulation.
- Examine implementation of co-regulation supports across both urban and rural settings to determine if there may be different types of approaches needed.
 - Many programs for youth in foster care youth are within urban locations, and there may be other barriers within rural settings related to staffing programs and providing needed training. Virtual programs utilized increasingly during the COVID-19 pandemic may provide new opportunities for programming, although broadband access can also be an issue.


Conclusions

In summary, co-regulation is a highly promising approach to supporting positive youth development for which there are significant opportunities within the child welfare system and for a broad range of caring adults and peers who interact with older youth in or transitioning out of foster care. Such supports do not require a specific setting or role and do not need to be delivered within a formal program or in a therapeutic or clinical context. Indeed, they can be integrated into adults’ daily interactions with youth with intentionality. Importantly, however, effective co-regulation involves more than just promoting a positive relationship or “having a person”. It also requires Co-Creation of Supportive Environments and Intentional and Developmentally-Informed Day-to-Day Interactions. System-level policies and guidelines as well as workforce development can contribute to strengthening co-regulation supports and actions that may translate to important gains in long-term skills and competencies necessary for youth’s successful transition to adulthood.



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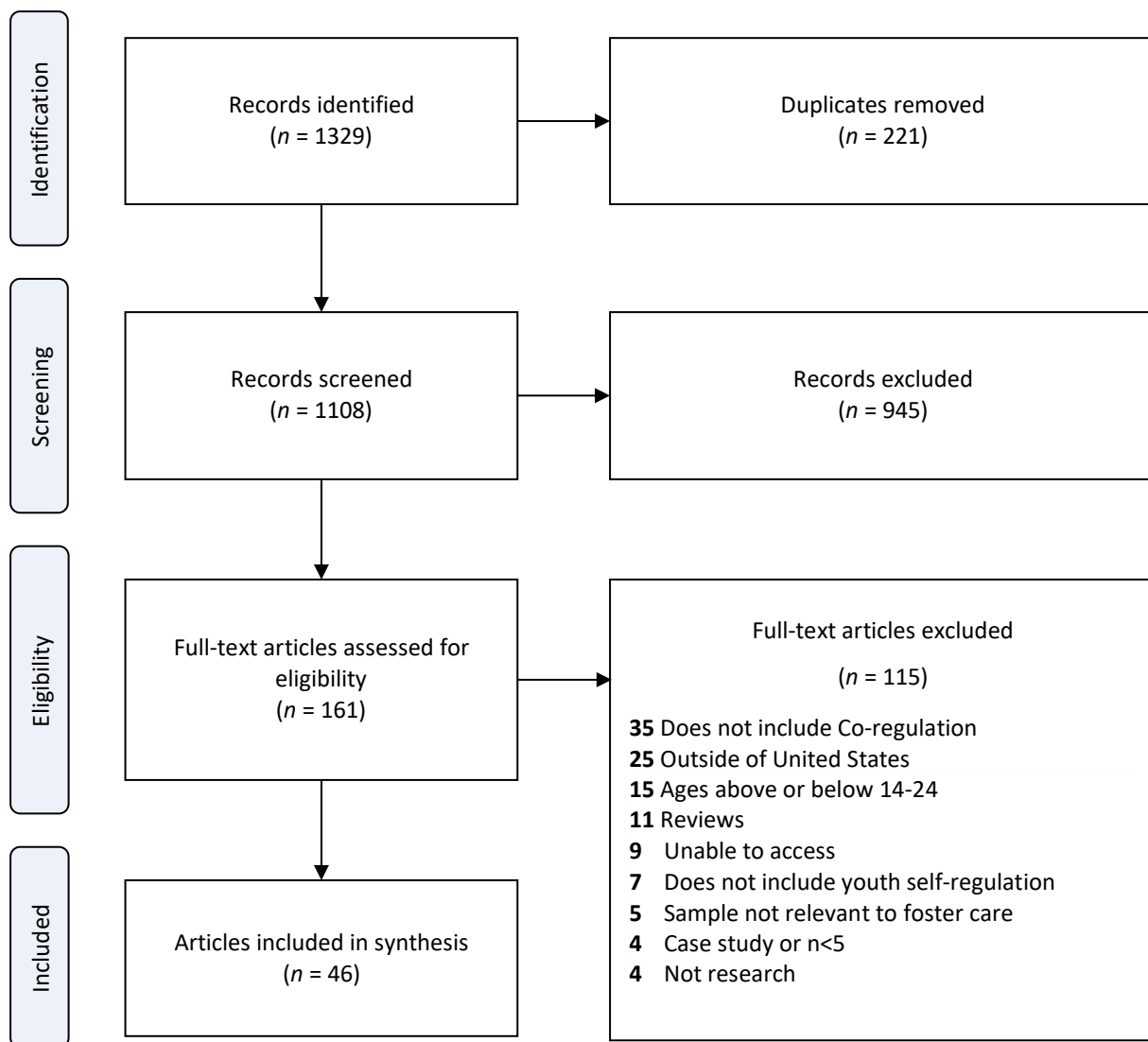
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Appendix A. PRISMA Chart





Appendix B. Included Articles

Ahrens, K. R., Spencer, R., Bonnar, M., Coatney, A., & Hall, T. (2016). Qualitative evaluation of historical and relational factors influencing pregnancy and sexually transmitted infection risks in foster youth. *Children and Youth Services Review*, 61(PG-245-252), 245–252. <https://doi.org/10.1016/j.chilyouth.2015.12.027>

Albertson, K., Crouch, J. M., Udell, W., Schimmel-Bristow, A., Serrano, J., & Ahrens, K. R. (2020). Caregiver-endorsed strategies to improving sexual health outcomes among foster youth. *Child and Family Social Work*. <https://doi.org/10.1111/cfs.12726>

Augsberger, A., Springwater, J. S., Hilliard-Koshinsky, G., Barber, K., & Martinez, L. S. (2019). Youth participation in policy advocacy: Examination of a multi-state former and current foster care youth coalition. *Children and Youth Services Review*, 107. <https://doi.org/10.1016/j.chilyouth.2019.104491>

Bermea, A. M., Forenza, B., Rueda, H. A., & Toews, M. L. (2019). Resiliency and Adolescent Motherhood in the Context of Residential Foster Care. *Child and Adolescent Social Work Journal*, 36(5), 459–470. <https://doi.org/10.1007/s10560-018-0574-0>

Boel-Studt, S., Schelbe, L., Deichen Hansen, M., & Tobia, L. (2018). Increasing Youth Engagement in Residential Group Care: A Mixed Methods Pilot Study of a Youth-Guided Incentive Program. *Child & Youth Care Forum*, 47(6), 863–880. <http://dx.doi.org/10.1007/s10566-018-9465-y> NS -

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Brown, A. D., McCauley, K., Navalta, C. P., & Saxe, G. N. (2013). Trauma Systems Therapy in Residential Settings: Improving Emotion Regulation and the Social Environment of Traumatized Children and Youth in Congregate Care. *Journal of Family Violence*, 28(7), 693–703. <https://doi.org/10.1007/s10896-013-9542-9>

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McMillen, J. C., Narendorf, S. C., Robinson, D., Havlicek, J., Fedoravicius, N., Bertram, J., & McNelly, D. (2015). Development and piloting of a treatment foster care program for older youth with psychiatric problems. *Child and Adolescent Psychiatry and Mental Health*, 9(1). <https://doi.org/10.1186/s13034-015-0057-4>

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Storer, H. L., Barkan, S. E., Stenhouse, L. L., Eichenlaub, C., Mallillin, A., & Haggerty, K. P. (2014). In search of connection: The foster youth and caregiver relationship. *Children and Youth Services Review*, 42, 110-117. <https://doi.org/10.1016/j.chilyouth.2014.04.008>

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Watt, T. T., Norton, C. L., & Jones, C. (2013). Designing a campus support program for foster care alumni: Preliminary evidence for a strengths framework. *Children and Youth Services Review*, 35(9), 1408–1417. <https://doi.org/10.1016/j.chilyouth.2013.06.002>

Yancey, A. K. (1998). Building positive self-image in adolescents in foster care: The use of role models in an interactive group approach. *Adolescence*, 33(130), 253–267. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-0347038799&partnerID=40&md5=2fb02310bed34b8eb6e62a165da8958e> NS -

Appendix C. Search Terms

Databases searched: Scopus, ERIC, PsycINFO, Cochrane

#1 Population, #2 Setting, #3 Coregulation, #4 Youth Self-Regulation

All searches before duplicates removed: 1,329; after duplicates removed: 1,108

Scopus Search 04/07/2020

Search	Query	Items Found
#1	TITLE-ABS-KEY (adolesc* OR youth OR "young adult" OR "transition age")	2,855,670
#2	TITLE-ABS-KEY ("foster care" OR "foster home" OR "foster family" OR "foster parent" OR "kinship care" OR "kin care" OR "out of home care" OR "out of home placement" OR "relative care" OR "family placement" OR "emancipation" OR "aging out of care" OR "independent living services" OR "foster system" OR "group home" OR "residential care")	38,179
#3	TITLE-ABS-KEY ("co-regulat*" OR "transactional regulat*" OR "positive parenting" OR "positive discipline" OR "bond" OR "reciprocal relationship" OR "supportive relationship" OR "warm relationship" OR "responsive relationship" OR "developmental relationship" OR "positive relationship" OR "positive regard" OR "warm regard" OR "cohesive relationship" OR mindful* OR empath* OR acceptance OR "student engagement" OR "collective socialization" OR "belonging" OR "peer support" OR praise OR encourage* OR affirm* OR "social support" OR "emotional support" OR routines OR structure OR "clear expectations" OR "safe risks" OR "class norms" OR "co-creat*" OR scaffold* OR prompt* OR rehears* OR model* OR coach* OR mentor* OR "anticipate problems" OR feedback OR reflect*)	22,004,117
#4	TITLE-ABS-KEY ("self-regulat*" OR "emotion* regulat*" OR "behavior* regulat*" OR coping OR identity OR "possible selves" OR "self-efficacy" OR "self-awareness" OR "self evaluat*" OR "perspective taking" OR "executive function*" OR "problem solv*" OR "decision making" OR "future orient*" OR "goal setting" OR "goal orient*" OR "learning orient*" OR "stress management" OR "sustained engagement" OR "goal commitment" OR persistence OR "effortful" OR "self control" OR "calm down" OR resilien*)	2,204,328
#5	#1 AND #2 AND #3 AND #4 TITLE-ABS-KEY (adolesc* OR youth OR "young adult" OR "transition age") AND TITLE-ABS-KEY ("foster care" OR "foster home" OR "foster family" OR "foster parent" OR "kinship care" OR "kin care" OR "out of home care" OR "out of home placement" OR "relative care" OR "family placement" OR "emancipation" OR "aging out of care" OR "independent living services" OR "foster system" OR "group home" OR "residential care") AND TITLE-ABS-KEY ("co-regulat*" OR "transactional regulat*" OR "positive parenting" OR "positive discipline" OR "bond" OR "reciprocal relationship" OR "supportive relationship" OR "warm relationship" OR "responsive relationship" OR "developmental relationship" OR "positive relationship" OR "positive regard" OR "warm regard" OR "cohesive relationship" OR mindful* OR empath* OR acceptance OR "student engagement" OR "collective socialization" OR "belonging" OR "peer support" OR praise OR encourage* OR affirm* OR "social support" OR "emotional support" OR routines OR structure OR "clear expectations" OR "safe risks" OR "class norms" OR "co-creat*" OR scaffold* OR prompt* OR rehears* OR model* OR coach* OR mentor* OR "anticipate problems" OR feedback OR reflect*) AND TITLE-ABS-KEY ("self-regulat*" OR "emotion* regulat*" OR "behavior* regula*" OR coping OR identity OR "possible selves" OR "self-efficacy" OR "self-awareness" OR "self evaluat*" OR "perspective taking" OR "executive function*" OR "problem solv*" OR "decision making" OR "future orient*" OR "goal setting" OR "goal orient*" OR "learning orient*" OR "stress management" OR "sustained engagement" OR "goal commitment" OR persistence OR "effortful" OR "self control" OR "calm down" OR resilien*)	474

Scopus before duplicates removed: 474; Scopus after duplicates removed: 474

Search	Query	Items
#1	(adolesc* OR youth OR "young adult" OR "transition age")	133,851
#2	("foster care" OR "foster home" OR "foster family" OR "foster parent" OR "kinship care" OR "kin care" OR "out of home care" OR "out of home placement" OR "relative care" OR "family placement" OR "emancipation" OR "aging out of care" OR "independent living services" OR "foster system" OR "group home" OR "residential care")	7,076
#3	("co-regulat*" OR "transactional regulat*" OR "positive parenting" OR "positive discipline" OR "bond" OR "reciprocal relationship" OR "supportive relationship" OR "warm relationship" OR "responsive relationship" OR "developmental relationship" OR "positive relationship" OR "positive regard" OR "warm regard" OR "cohesive relationship" OR mindful* OR empath* OR acceptance OR "student engagement" OR "collective socialization" OR "belonging" OR "peer support" OR praise OR encourage* OR affirm* OR "social support" OR "emotional support" OR routines OR structure OR "clear expectations" OR "safe risks" OR "class norms" OR "co-creat*" OR scaffold* OR prompt* OR rehears* OR model* OR coach* OR mentor* OR "anticipate problems" OR feedback OR reflect*)	527,601
#4	("self-regulat*" OR "emotion* regulat*" OR "behavior* regulat*" OR coping OR identity OR "possible selves" OR "self-efficacy" OR "self-awareness" OR "self evaluat*" OR "perspective taking" OR "executive function*" OR "problem solv*" OR "decision making" OR "future orient*" OR "goal setting" OR "goal orient*" OR "learning orient*" OR "stress management" OR "sustained engagement" OR "goal commitment" OR persistence OR "effortful" OR "calm down" OR "self control" OR resilien*)	241,413
#5	#1 AND #2 AND #3 AND #4 (adolesc* OR youth OR "young adult" OR "transition age") AND ("foster care" OR "foster home" OR "foster family" OR "foster parent" OR "kinship care" OR "kin care" OR "out of home care" OR "out of home placement" OR "relative care" OR "family placement" OR "emancipation" OR "aging out of care" OR "independent living services" OR "foster system" OR "group home" OR "residential care") AND ("co-regulat*" OR "transactional regulat*" OR "positive parenting" OR "positive discipline" OR "bond" OR "reciprocal relationship" OR "supportive relationship" OR "warm relationship" OR "responsive relationship" OR "developmental relationship" OR "positive relationship" OR "positive regard" OR "warm regard" OR "cohesive relationship" OR mindful* OR empath* OR acceptance OR "student engagement" OR "collective socialization" OR "belonging" OR "peer support" OR praise OR encourage* OR affirm* OR "social support" OR "emotional support" OR routines OR structure OR "clear expectations" OR "safe risks" OR "class norms" OR "co-creat*" OR scaffold* OR prompt* OR rehears* OR model* OR coach* OR mentor* OR "anticipate problems" OR feedback OR reflect*) AND ("self-regulat*" OR "emotion* regulat*" OR "behavior* regulat*" OR coping OR identity OR "possible selves" OR "self-efficacy" OR "self-awareness" OR "self evaluat*" OR "perspective taking" OR "executive function*" OR "problem solv*" OR "decision making" OR "future orient*" OR "goal setting" OR "goal orient*" OR "learning orient*" OR "stress management" OR "sustained engagement" OR "goal commitment" OR persistence OR "effortful" OR "calm down" OR "self control" OR resilien*)	148


ERIC before duplicates removed: 148;ERIC after duplicates removed: 130

Search	Query	Items Found
#1	(adolesc* OR youth OR "young adult" OR "transition age")	609,230
#2	("foster care" OR "foster home" OR "foster family" OR "foster parent" OR "kinship care" OR "kin care" OR "out of home care" OR "out of home placement" OR "relative care" OR "family placement" OR "emancipation" OR "aging out of care" OR "independent living services" OR "foster system" OR "group home" OR "residential care")	31,974
#3	("co-regulat*" OR "transactional regulat*" OR "positive parenting" OR "positive discipline" OR "bond" OR "reciprocal relationship" OR "supportive relationship" OR "warm relationship" OR "responsive relationship" OR "developmental relationship" OR "positive relationship" OR "positive regard" OR "warm regard" OR "cohesive relationship" OR mindful* OR empath* OR acceptance OR "student engagement" OR "collective socialization" OR "belonging" OR "peer support" OR praise OR encourage* OR affirm* OR "social support" OR "emotional support" OR routines OR structure OR "clear expectations" OR "safe risks" OR "class norms" OR "co-creat*" OR scaffold* OR prompt* OR rehears* OR model* OR coach* OR mentor* OR "anticipate problems" OR feedback OR reflect*)	1,533,667
#4	("self-regulat*" OR "emotion* regulat*" OR "behavior* regulat*" OR coping OR identity OR "possible selves" OR "self-efficacy" OR "self-awareness" OR "self evaluat*" OR "perspective taking" OR "executive function*" OR "problem solv*" OR "decision making" OR "future orient*" OR "goal setting" OR "goal orient*" OR "learning orient*" OR "stress management" OR "sustained engagement" OR "goal commitment" OR persistence OR "effortful" OR "self control" OR "calm down" OR "self control" OR resilien*)	600,496
#5	#1 AND #2 AND #3 AND #4 (adolesc* OR youth OR "young adult" OR "transition age") AND ("foster care" OR "foster home" OR "foster family" OR "foster parent" OR "kinship care" OR "kin care" OR "out of home care" OR "out of home placement" OR "relative care" OR "family placement" OR "emancipation" OR "aging out of care" OR "independent living services" OR "foster system" OR "group home" OR "residential care") AND ("co-regulat*" OR "transactional regulat*" OR "positive parenting" OR "positive discipline" OR "bond" OR "reciprocal relationship" OR "supportive relationship" OR "warm relationship" OR "responsive relationship" OR "developmental relationship" OR "positive relationship" OR "positive regard" OR "warm regard" OR "cohesive relationship" OR mindful* OR empath* OR acceptance OR "student engagement" OR "collective socialization" OR "belonging" OR "peer support" OR praise OR encourage* OR affirm* OR "social support" OR "emotional support" OR routines OR structure OR "clear expectations" OR "safe risks" OR "class norms" OR "co-creat*" OR scaffold* OR prompt* OR rehears* OR model* OR coach* OR mentor* OR "anticipate problems" OR feedback OR reflect*) AND ("self-regulat*" OR "emotion* regulat*" OR "behavior* regulat*" OR coping OR identity OR "possible selves" OR "self-efficacy" OR "self-awareness" OR "self evaluat*" OR "perspective taking" OR "executive function*" OR "problem solv*" OR "decision making" OR "future orient*" OR "goal setting" OR "goal orient*" OR "learning orient*" OR "stress management" OR "sustained engagement" OR "goal commitment" OR persistence OR "effortful" OR "self control" OR "calm down" OR "self control" OR resilien*)	671

PsycINFO before duplicates removed: 671;PsycINFO after duplicates removed: 468

Search	Query	Items Found
#1	(adolesc* OR youth OR "young adult" OR "transition age")	175,856
#2	("foster care" OR "foster home" OR "foster family" OR "foster parent" OR "kinship care" OR "kin care" OR "out of home care" OR "out of home placement" OR "relative care" OR "family placement" OR "emancipation" OR "aging out of care" OR "independent living services" OR "foster system" OR "group home" OR "residential care")	1,278
#3	("co-regulat*" OR transactional NEXT regulat* OR "positive parenting" OR "positive discipline" OR "bond" OR "reciprocal relationship" OR "supportive relationship" OR "warm relationship" OR "responsive relationship" OR "developmental relationship" OR "positive relationship" OR "positive regard" OR "warm regard" OR "cohesive relationship" OR mindful* OR empath* OR acceptance OR "student engagement" OR "collective socialization" OR "belonging" OR "peer support" OR praise OR encourage* OR affirm* OR "social support" OR "emotional support" OR routines OR structure OR "clear expectations" OR "safe risks" OR "class norms" OR "co-creat" OR scaffold* OR prompt* OR rehears* OR model* OR coach* OR mentor* OR "anticipate problems" OR feedback OR reflect*)	216,058
#4	(self-regulat* OR emotion* NEXT regulat* OR behavior* NEXT regulat* OR coping OR identity OR "possible selves" OR "self-efficacy" OR "self-awareness" OR self NEXT evaluat* OR "perspective taking" OR "executive function*" OR problem NEXT solv* OR "decision making" OR future NEXT orient* OR "goal setting" OR goal NEXT orient* OR learning NEXT orient* OR "stress management" OR "sustained engagement" OR "goal commitment" OR persistence OR "effortful" OR "self control" OR "calm down" OR resilien*)	48,143
#5	#1 AND #2 AND #3 AND #4 (adolesc* OR youth OR "young adult" OR "transition age") AND ("foster care" OR "foster home" OR "foster family" OR "foster parent" OR "kinship care" OR "kin care" OR "out of home care" OR "out of home placement" OR "relative care" OR "family placement" OR "emancipation" OR "aging out of care" OR "independent living services" OR "foster system" OR "group home" OR "residential care") AND ("co-regulat*" OR transactional NEXT regulat* OR "positive parenting" OR "positive discipline" OR "bond" OR "reciprocal relationship" OR "supportive relationship" OR "warm relationship" OR "responsive relationship" OR "developmental relationship" OR "positive relationship" OR "positive regard" OR "warm regard" OR "cohesive relationship" OR mindful* OR empath* OR acceptance OR "student engagement" OR "collective socialization" OR "belonging" OR "peer support" OR praise OR encourage* OR affirm* OR "social support" OR "emotional support" OR routines OR structure OR "clear expectations" OR "safe risks" OR "class norms" OR "co-creat" OR scaffold* OR prompt* OR rehears* OR model* OR coach* OR mentor* OR "anticipate problems" OR feedback OR reflect*) AND (self-regulat* OR emotion* NEXT regulat* OR behavior* NEXT regulat* OR coping OR identity OR "possible selves" OR "self-efficacy" OR "self-awareness" OR self NEXT evaluat* OR "perspective taking" OR "executive function*" OR problem NEXT solv* OR "decision making" OR future NEXT orient* OR "goal setting" OR goal NEXT orient* OR learning NEXT orient* OR "stress management" OR "sustained engagement" OR "goal commitment" OR persistence OR "effortful" OR "self control" OR "calm down" OR resilien*)	59

Cochrane before duplicates, protocols, trials removed: 59; Cochrane after duplicates, protocols, trials removed: 36



Appendix D. Programs Identified in the Program Scan

ARC Reflections
Better Futures
Caring Adults ‘R’ Everywhere (C.A.R.E.)
Children and Residential Experience (CARE)
Citrus Helping Adolescents Negatively Impacted by Commercial Exploitation (CHANCE)
Connect: An Attachment-Based Program for Parents/Caregivers
Connecting
Connections/CAVE
Family Check Up
Family Ties
Foster Parent College
GenerationPMTO
Guardian Scholars Program (at CSU Fullerton)
Homebuilders
Intensive Parent Model
KEEP SAFE
Let's Connect
Mockingbird Family Model
Multidimensional Family Therapy
Resource Parent Curriculum
RISE
Risk Detection/Executive Function Intervention and Social Learning/Feminist Intervention
Sieta Scholars
Structured Psychotherapy for Adolescents Responding to Chronic Stress (SPARCS)
Threshold Mothers Project Transitional Living Program (TLP)
Together Facing the Challenge
Transition to Independence
Treatment Foster Care Oregon
Youth Transitions Partnership Program
Youth-Nominated Support Team-Version II
SARHM

^{xix} Given the emerging nature of the literature, we are not attempting to define “core components” of programs.