A Framework for Trauma-Sensitive Schools

Infusing Trauma-Informed Practices Into Early Childhood Education Systems

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Abstract

Traumatic experiences are common in early childhood and may have enduring consequences on health and development. Cost-effective and developmentally appropriate interventions are needed to support the educational success of children affected by trauma. The Supportive Trauma Interventions for Educators (STRIVE) Project emphasized strategies for teachers to support social-emotional learning through the use of classroom-specific strategies and activities and a toolbox of resources to help students regulate their emotions while remaining in the classroom. This cost-effective and scalable intervention may provide needed supports to children and educators and therefore may be suitable for replication.

Childhood trauma is a significant public health threat that adversely impacts health and social, emotional, and cognitive development. In the United States an estimated 26% of children will witness or experience a traumatic event before they turn 4 years old (National Center for Mental Health Promotion and Youth Violence Prevention, 2012). National data suggest that 1 in 4 children who attends school has experienced a traumatic event (National Child Traumatic Stress Network, 2008). This number is even higher for youth residing in socioeconomically disadvantaged neighborhoods and racial/ethnic minority youth who are at increased risk for chronic or ongoing exposures (Buka, Stichick, Birdthistle & Earls, 2001; Finkelhor, Turner, Shattuck, & Hamby, 2013; Richters & Martinez, 1993).

Disparities in exposure to adverse childhood experiences may contribute to academic inequities, commonly referred to as the achievement gap.

A growing body of research evidence supports the association between social adversities and suboptimal learning, behavior, and performance in school that begins during the early childhood years. Traumatic experiences may directly affect memory, language, emotional, and brain development, all of which interfere with mastery and acquisition of new skills (Child Welfare Information Gateway, 2015). Exposure to multiple adverse and traumatic childhood experiences has been shown to be associated with poor attention and impulse control, difficulties regulating emotions, aggression, and self-harming

behavior that impedes children's ability to interact with others and function in the classroom (Chu & Lieberman, 2010; Cole, Eisner, Gregory, & Ristuccia, 2013). Chronic exposure to trauma can also result in young children experiencing a sense of low self-worth, difficulty trusting others, and misperceiving the intentions and cues of others (Cook, Blaustein, Spinazzola, & van der Kolk, 2003). As a result of these difficulties, children with histories of violence exposure may become stigmatized and excluded by peers due to the dramatic nature of their behavioral challenges.

Experiencing chronic trauma during the early childhood years can be particularly detrimental as the time period between birth and 5 years old is a critical time for growth and development of the brain. It is during this time that the brain is most impressionable to adverse experiences (National Scientific Council on the Developing Child, 2005/2014, 2010; Shonkoff, Boyce, & McEwen, 2009). As a result of the significant neurobiological, social, emotional, and cognitive effects of chronic trauma exposure, it is particularly important to intervene early to promote optimal development and success.

Traditional systems of education have not been structured to address the unique needs of children who have experienced trauma. While there are increasing initiatives to implement programs and services that address these kinds of social-emotional and psychological concerns among elementary, middle, and high school students, initiatives are lacking for children under 5 years old. Early childhood programs are often ill-equipped to manage the kinds of challenging behaviors that children exposed to traumatic events exhibit in the classroom and lack the understanding and training needed to intervene effectively (Osofsky & Lieberman, 2011). Professional development programs for educators have not yet systematically incorporated psycho-education on childhood trauma and how it impacts behavior and learning or classroom-based

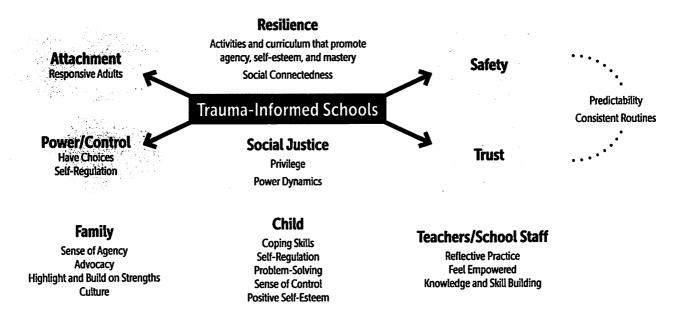
strategies to promote optimal learning among children with a history of trauma.

In this article we discuss a pilot intervention, Supportive Trauma Interventions for Educators (STRIVE), aimed at helping schools and early education systems of care increase their capacity to identify, respond to, and optimally support the unique needs of young children who have been impacted by trauma exposure. Uniquely, this is a universal intervention, delivered at the class level to all classroom students. We review the theoretical framework and collaborative process of developing the STRIVE model. We discuss preliminary findings about the impact of the STRIVE intervention on classroom climate and student-teacher interactions.

Trauma-Sensitive Education Approach and Framework

The current systems that most public schools use to educate their young students who have been exposed to trauma have fallen short in efforts to improve the academic success and social-emotional well-being of these students. Most existing models focus on the individual student, rather than student-teacher interactions. Few programs exist that take a comprehensive approach to address the multiple levels of intervention that are required to adequately result in sustainable and effective practice change. Many tiered models that encompass universal, targeted strategies and intensive supports generally focus on individual needs of children and do not take into account the resources and knowledge acquisition needed by teachers to support the optimal development of their students. An alternative approach is one that considers teacher and student needs as well as the overall structure of the school and its ability to meet the needs of children and their families impacted by trauma. The framework of STRIVE (see Figure 1) is

Figure 1. Supportive Trauma Interventions for Educators (STRIVE) Framework





Disparities in exposure to adverse childhood experiences may contribute to academic inequities, commonly referred to as the achievement gap.

unique in that it is resiliency-based and includes intervention at three different levels: individual student, teacher, and overall school.

Trauma impacts the way children view themselves, other people, and the world. Experiencing toxic stress has the ability to significantly impact the development of healthy attachment and the ability to feel safe, trust others, and feel a sense of power or control over one's self and life. A trauma-sensitive classrooms framework takes this fact into consideration and results in systems creating policies and practices that empower, build resiliency, and support the optimal development of children and their families impacted by trauma. When children's sense of safety and trust in the world and others is restored, and they feel a sense of agency, and they are able to heal and thrive. These and other protective factors can serve as buffers and help mitigate the negative impacts of experiencing trauma.

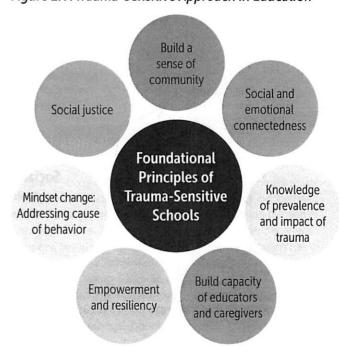
In the process of developing the STRIVE intervention, Vital Village Network helped support partnerships between the Child Witness to Violence Project and several Boston public schools. The goal was to collaborate with schools to help create a system of care in which everyone is trained to respond to a child's needs using a trauma-sensitive approach (see Figure 2). For a school to become trauma-sensitive, there needs to be a shift in thinking about children's behaviors from all staff working in the school including administration, teachers, paraprofessionals, and support staff. Helping staff understand and view behavior as communicating a need for a child rather than seeing the child's behavior as willful or just a "behavior," is one of the foundations of creating a trauma-sensitive school.

The STRIVE intervention provides information about the prevalence of trauma and the association with socioeconomic inequities and neighborhood opportunity structures. An emphasis is placed on raising awareness and understanding about the various ways in which systems can unintentionally re-traumatize children and their families. STRIVE also focused on the socio-political underpinnings of racism, oppression, privilege, and the interconnection to the philosophy of American

education systems of care that are structured around the values and beliefs of the dominant culture. The impact of such a system on children and its relation to trauma exposure are also discussed. By making teachers aware of the problem they can begin to understand behaviors from a social justice perspective and adjust their practice accordingly. Next, STRIVE provides psycho-education on the impact of trauma on health and educational outcomes, specifically by reviewing what is known about neurobiological processes. Then STRIVE provides teachers with this skill set and knowledge by discussing how trauma impacts children's development and ability to self-regulate. Teachers are given suggestions and tools on how to address difficult behaviors in the classroom and are encouraged to use their own creativity to develop trauma-sensitive approaches.

Social and emotional connectedness is a buffer for traumatic events. What is known about trauma exposure and young children is that positive, caring, and supportive relationships with significant adults such as parents, grandparents, and teachers are paramount to help facilitate the healing process (Groves, 2002). Early childhood providers are in one of the most vital positions to (a) teach children affected by trauma exposure coping skills, (b) communicate that they care, and (c) respond in ways that are sensitive to the multiple traumas these children have likely experienced. Such trauma-informed approaches are growing nationally and have been supported by research evidence. When children feel they have a caring and supportive adult, they are able to feel more secure. The STRIVE intervention works with teachers to assure them that their relationship with students can help create resiliency and empowerment. Moreover, relationships that students have with their teachers can create an understanding of healthy relationship, which can help them be more successful with peers and later in life. Next, teachers are taught strategies to use in

Figure 2. A Trauma-Sensitive Approach in Education



the classroom to help children with self—regulation skills and managing their emotions. When children feel like they have the tools to self-regulate they have a sense of accomplishment and empowerment.

Core Principles of Intervention

The STRIVE intervention aims to help educators create an academic atmosphere that draws upon children's strengths to promote resiliency, efficacy, a sense of self-worth, and positive well-being, and to offer a multitude of opportunities for success. It is intended to be infused into the existing curriculum of the early childhood setting. Specific objectives include:

- Increase teachers' and school personnel's understanding and awareness of various kinds of trauma that young children are exposed to and ways this exposure impacts their development and academic functioning and performance.
- Provide teachers with concrete strategies and interventions that they can use in the classroom to support their students and address the behavioral challenges they may exhibit.
- Improve young children's ability to access the curriculum by providing a supportive school atmosphere in which children can feel safe, encouraged, and a sense of agency.

This innovation is structured around five core components: attachment, safety, trust, power/control, and reflective practice. In order for children to begin to heal and thrive in the face of experiencing toxic stress, there must be a restored sense of trust, safety, and power and control in themselves, others, and the word in which they live. Healthy attachment is the hallmark of all future relationships. Teachers and early childhood educators play an important role in the healthy development of young children.

Attachment

Attachment is the building block to all future relationships. Research illustrates that when children who have experienced chronic trauma or toxic stress have positive, healthy, nurturing relationships with significant caregivers it contributes to their healing and ability to thrive. Such positive relationships help to shift a child's view of self, the world, and others in the world. Healthy attachments help to restore a child's sense of safety, trust, and power and control. Engaging in mutually reinforcing interactions serves as a protective factor by facilitating neural activity in the brain that can increase the likelihood of adaptive development of the stress response system (National Scientific Council on the Developing Child, 2010).

Resiliency

The ability to bounce back in the face of adversity develops when children feel safe, loved, and capable (National Child Traumatic Stress Network, 2008). Although children who have experienced trauma and adversity can be negatively impacted, they also come with several strengths and qualities that

serve as protective factors to build resiliency. Resiliency is built and maintained in the context of healthy nurturing relationships that are characterized by emotional attunement and cyclical interactions that communicate a sense of value and respect. Interventions that focus on the skills that children have—and use them as building blocks to intentionally teach self-regulation, problem-solving skills, and emotional literacy—will contribute to the academic success of children.

Reflective Practice

In order for professionals to truly be effective and impactful in the interactions they have with the children and families they serve, they must be honest and authentic about the thoughts, beliefs, and assumptions that influence their practice and the relationships they have with children and their families. Reflective practice provides teachers with the opportunity to reflect on their successes and challenges and aids in the prevention of burnout and vicarious trauma.

Program Development

STRIVE was developed through a collaborative partnership among Boston Medical Center Child Witness to Violence Project, Boston Public Schools, and Vital Village Network. The intervention aims to improve student success, specifically academic performance and attendance, by improving the quality of teacher-student interactions using an evidence-based, trauma-informed model. For several years, the Vital Village Network has collaborated with the Child Witness to Violence Project and the Orchard Gardens Pilot School to engage educators in a process of co-designing resources to support trauma-sensitive classroom environments. What emerged from that engagement process was a series of recommendations by teachers for more professional development on trauma and concrete strategies to use, leading to the design and piloting of an evidence-based curriculum accompanied by a classroom toolkit.

We conducted the pilot intervention among all kindergarten, first, and second grade classrooms at the Orchard Gardens Pilot School. This supported training of 12 educators, across 3 grade levels. Across the classrooms, approximately 250 students were included. The Institutional Review Board of Boston University Medical Center approved this study.

The STRIVE intervention consisted of the following components: (1) developing and implementing a training program for early childhood educators that provides psycho-education about the impacts of trauma on young children and ways to incorporate trauma-informed practices when addressing challenging and disruptive behaviors in the classroom; and (2) infusing a curriculum that promotes feelings of high self-esteem and efficacy among the children in this setting.

Training

Early childhood and elementary providers and administrators received 10 hours of professional development training aimed at building their capacity to foster resiliency and address the

unique needs of the youngsters in their classrooms. Trainings focused on increasing teachers' understanding of ways in which trauma can impact young children's physical, social, emotional, cognitive, neurobiological, and academic functioning. Training workshops also focused on (a) increasing these early childhood educators' understanding and awareness of reactions that are typical among children who have experienced traumatic events and (b) providing them with an understanding of environmental cues/events that may trigger a traumatic response from a child. In addition, these trainings also provided educators with concrete strategies and resources for managing challenging behaviors as well as preventative strategies. Teachers learn about the importance of establishing and maintaining positive, caring, and supportive relationships with their students that will instill a sense of trust, security, safety, and hope among the most vulnerable victims of trauma exposure.

Consultation and Coaching

As part of this intervention, teachers and administrators were provided with ongoing consultation and coaching to help them implement the trauma-informed strategies and practices they were taught. Interventions that include consultation and coaching have been found to be more effective than providing trainings in isolation as they are responsive to the teachers and students' needs, and they provide feedback about practice in context (Li-Grining et al., 2010; Mashburn et al., 2008). Coaching and consultation in the context of a supportive relationship also allows space for teachers to reflect on their practice and apply the knowledge and skills they are learning.

Toolkit

The STRIVE Toolkit (see Table 1) contains a set of concrete. hands-on tools that can help children learn how to identify and self-regulate their emotions. For instance, the toolkit contains a set of emotion flash cards that provide children with shared language around recognizing their emotions and talking about their feelings. The toolkit also contains various coping tools appealing to the different senses, including stress balls, noise-cancelling headphones, calming scents, and visual barriers, to name a few. With effective instruction and support from teachers and classroom staff, the STRIVE Toolkit components can teach children to identify and then regulate their emotions independently. Introducing these tools in the classroom and providing teachers with an awareness of trauma's effects on child development helps schools create a safe and supportive learning environment that not only reduces stigma and associated behavioral challenges for children with trauma history, but also optimally enhances socioemotional development for all children within school systems.

Program Evaluation

A combination of standardized and non-standardized measures and evaluations were used pre-intervention and post-intervention to evaluate the effectiveness of this intervention on children's functioning in the classroom, teachers' feelings about their knowledge of the impacts of trauma, and teachers' perceived level of confidence in their ability to implement trauma-informed practices in their interactions with students.

Student Statements

Qualitative statements from students reflected on the ability to identify and verbalize feelings and affective states.

A kindergarten student said, "It makes me feel happy.
 When I feel happy, I go back to the group."

Students reported the ability to use multiple tools to address needs independently.

 "Sometimes I use putty when I get mad because sometimes people get me mad. Sometimes it makes me feel better, but sometimes, they do it all over again. That's when I use the headphones."

Students also endorsed the community-building aspects of the tools in terms of understanding emotions in other children.

 "If you're sad or mad, you can go and squeeze the squishy ball. Some people in this class have anger issues. If you squeeze the ball, the anger issues will get out of your body."

Table 1. Mean Pre- and Post-Intervention Scores for Quality of Relationships and Difference by Wilcoxan Rank Test

Domain	Baseline	Follow-up	p-value
Educational Support Domain	5.18	6.13	0.0002
Positive classroom climate	5.48	6.38	0.0015
Negative classroom climate	1.43	1.11	0.0078
Teacher sensitivity	5.48	6.5	0.0046
Respect for student perspective	3.18	4.75	0.0002
Classroom Organization Domain	5.47	6.14	0.003
Behavior management	5.41	6.23	0.0009
Productivity	5.84	6.38	0.0045
Instructional learning formats	5.16	5.79	0.004
Instructional Support Domain	2.48	2.46	0.69
Concept development	2.18	2.32	0.5
Quality of feedback	2.54	2.19	0.21
Language modeling	2.73	2.77	0.94

Classroom Assessment Scoring System (CLASS)

Classroom observations were conducted using the Classroom Assessment Scoring System (CLASS; Pianta, La Paro, & Hamre, 2008). Observations took place in each classroom on two occasions: prior to staff training and again several months after the training during the same academic year. The CLASS is a reliable and valid instrument used to assess the quality of relationships in the classroom environment between students and teachers. The CLASS has three domains: Emotional Support, Classroom Organization, and Instructional Support. Within these domains there are 10 dimensions. Scoring ranges from 1 (low) to 7 (high). The CLASS instrument assesses classroom environment, rather than individual students. CLASS observations were conducted by one certified observer (Meghna Nandi) to assess the impact of the STRIVE intervention.

Teacher Questionnaire

Teacher questionnaires were administered prior to the training series and at the end of the intervention to assess teachers' knowledge about trauma and its impacts on young children, trauma-informed strategies, and their confidence in their ability to implement strategies they had learned. The teacher questionnaires assessed teacher's perceptions of their own self-efficacy with respect to managing challenging classroom behaviors, identifying trauma, and responding to the needs of children with trauma. Moreover, the teacher questionnaire assessed teacher's perceptions of school-level efficacy. The follow-up questionnaire also assessed the perceived utility to the training and STRIVE toolkit.

Results

Twelve teachers participated in the STRIVE intervention. Of these, 81% were women and the majority (68%) were from 25–34 years old. The educators worked in approximately 12 classrooms. Two independent CLASS observations were conducted pre-intervention and post-intervention in each classroom by a certified CLASS observer.

We observed an increase in knowledge among educators comparing pre- and post-intervention self-report surveys. At baseline 56% percent of teachers felt they had a good idea of how trauma affects children's development whereas 80% of teachers felt this way at follow-up. At baseline, 75% of educators agreed/strongly agreed that they were aware of the effects of trauma on students' behaviors, as opposed to 90% at follow-up. However, we did not see a significant increase in knowledge of available resources from baseline (56%) to follow-up (60%).

Teachers also endorsed higher self-efficacy and confidence. Only 44% felt prepared to respond to children who have been exposed to trauma at baseline. At follow-up, 60% agreed that they felt prepared to respond to children who have been exposed to trauma. At follow-up, 70% of educators agreed/strongly agreed that the trauma-informed curriculum and professional development tools were an important investment of their time, and 60% agreed/strongly agreed that the trauma-informed classroom tools educators introduced help their students manage their emotions. Qualitative remarks from teachers indicated that the classroom resources (a) helped stu-

Table 2. STRIVE Intervention Toolkit

Tool		Topic/Goal	Directions for Use
Coping Tools	Green barrier	Sight (calming and focusing)	The barrier can block out other visual stimulation and the green color can be soothing for children.
	Calming scent	Smell (calming and relaxing)	The scent can be soothing and relaxing to some children. The act of rolling it onto hands can have a massage effect.
	Low-pitched white noise	Sound (calming and comforting)	This low-pitched white noise sound is similar to the hum of a fan or buzz of a driving car and can be very calming and soothing for some children.
	Noise-cancelling headphones	Sound (calming and focusing)	Headphones will block out and muffle sounds in the classroom, thereby helping children calm themselves and refocus on the task at hand.
	Weighted lap pad	Touch (calming and comforting)	Provides deep pressure, proprioceptive input to muscles and joints, to allow better integration of input in the central nervous system to calm and regulate emotions.
	Kinetic sand	Touch (calming and distracting)	The opportunity to mold the sand creatively can be distracting and redirect their attention away from any stressors.
	Stress "eggs"	Touch (tension release)	Release stress and tension as they tighten and relax their muscles. Different levels of firmness for sensory preferences.
	Theraputty	Touch (tension release)	Useful for releasing tension and may serve as distraction because it can be molded into different shapes.
Express Emotions	Emotion cards	Feeling identification	Build a shared vocabulary to identify and express what they are feeling so that they can better self-regulate those emotions.
	Reflection journal	Identifying coping strategies	Provides children an opportunity to reflect and share their thoughts and concerns with their teacher.



Social and emotional connectedness is a buffer for traumatic events.

dents calm down with minimal transitions; (b) helped students de-escalate without interrupting the class, and (c) provided teachers with an intervention that allowed students to remain in the classroom. They felt the classroom-based materials were used by the majority of students in the class and therefore there was limited stigma, and the toolbox itself was neither a consequence nor an incentive. Teachers felt the emphasis on social-emotional learning helped create a more compassionate and accepting classroom climate. Students also expressed positive reactions (see box Student Statements).

Table 2 demonstrates changes in class scores over time, preversus post-intervention. CLASS scores are rated on a scale of 1–7. We observed statistically significant differences in the CLASS scores for two domains: Educational Support and Classroom Organization. There were also statistically significant differences in pre- and post-intervention CLASS scores for each sub-dimension for the Educational Support and Classroom Organization domains. The most significant differences were in Respect for Student Perspective, Positive and Negative Classroom Climate, and Productivity. No significant difference was observed in the Instructional Support domain or sub-dimensions, as predicted because our intervention did not address these interactions.

Discussion

Our preliminary findings support the impact of the STRIVE program on classroom climate and student-teacher interactions, as well as teacher knowledge and efficacy. Supporting schools to address the impact of trauma on learning by creating safe and supportive learning environments both reduces stigma for children with trauma history and associated behavioral challenges and optimally enhances socio-emotional development for all children within school systems This project is unique in the sense that, rather than being expert-driven and focused, it places an emphasis on collaboration and co-design of the model by engaging educators at the beginning of the process and on iterative changes prior to piloting the program.

Because many young children spend the majority of their time in school or early childhood education settings, school-based interventions are critical to promoting optimal socio-emotional development. Positive, caring, and supportive relationships with significant adults such as parents, grandparents, and teachers are paramount to help facilitate the healing process for young children who have been exposed to trauma (Groves, 2002) by serving as protective factors that help to re-establish a sense of safety, security, and hope within these young children. Positioning early childhood educators to identify and intervene early may help foster the healthy development of these children.

There are limitations of our pilot study. The small sample size limits the generalizability of our findings. Because we worked with a relatively small number of classrooms, there are a very small number of teachers, making it difficult to evaluate statistically significant changes in efficacy. With consideration for these limitations, our study provides preliminary evidence for the impact of improving teacher education, resources, and classroom environments to better address the needs of children exposed to trauma.

Recommendations for Practice

Optimizing trauma-informed approaches within schools and early childhood education systems of care is possible and may help promote successful students, schools, and healthy communities. Building the capacity of teachers to support students by enhancing their understanding of trauma and its impact on learning and behavior is crucial. Supporting schools to address the impact of trauma on learning by creating safe and supportive learning environments reduces stigma for children with trauma histories and associated behavioral challenges, and optimally enhances socio-emotional development for all children in the classroom. Each of these are critical components to improving the educational success of all students. Below are some recommendations for educational systems to consider.

- Schools and early childhood systems of care should be given a readiness assessment to determine whether they have the resources and time to engage in the curriculum. This readiness assessment would help schools begin the process of discussing whether it is feasible for their school to participate in the curriculum in a way that is most effective for their teacher and students. The level of investment from administration should be included in a readiness assessment to evaluate the degree to which administration will support teachers and staff. Changes that occur in a school need to be supported by senior administration so that all staff members can feel their work is appreciated and valued.
- 2. Cultural considerations should be woven throughout the curriculum. When cultures have been discriminated against and marginalized, they can pass down trauma symptoms from generation to generation. This phenomenon is referred to as intergenerational trauma. It is essential to provide teachers with the knowledge and understanding about how intergenerational trauma may

impact the way symptoms may be manifested in children and their parents. Although the children have not directly been impacted by trauma, they have learned ways to deal with stressful situations from their caregivers. If teachers are trained in recognizing intergenerational trauma they can approach the child's behaviors with a trauma lens.

- 3. Awareness of one's own culture and belief system can help with recognizing how they impact the way teachers respond to children. Trainings to bring cultural awareness to schools would help teachers become aware of how they support ethnicity and diversity in the classroom from the visuals displayed around the school to the opportunities they are given for professional development around issues related to culture.
- 4. Attachment to caregivers is a critical protective factor for children who have been exposed to a traumatic event. Incorporating parents in learning the techniques and tools their child may be using in the classroom will help parents continue to support their children in other domains. Supporting parents in understanding how trauma may impact their child's behaviors and emotional responses can help foster the parent-child relationship. Many times, caregivers underestimate how their children may be impacted by the violence they see or hear in their home or in the community. Giving caregivers psycho-education around their children's development can help caregivers feel empowered and competent in their abilities to care for their children.
- 5. Teachers' training is heavily focused on academics, but little of their education is focused on how to support children's social and emotional needs. This is an area that has been found to be problematic. "It is not only teachers' jobs to educate children," Colleen, a Boston public school teacher, stated, "it is their job to support a child's social and emotional needs." (C. Labbe, personal communication, February 4, 2016). Teachers often feel responsible for their students' emotional needs but are not given adequate training or resources to effectively address them. If teacher-training programs include ways to address trauma, teachers may feel more proficient in discussing issues related to trauma with students, parents, and administration.

Conclusion

Improving the health trajectory for children who have experienced trauma in early life remains an underaddressed issue that influences both health and educational outcomes. Our STRIVE intervention is a promising model that shows preliminary evidence for improving classroom environments and increasing teacher knowledge and self-efficacy with classroom management of behavioral issues and meeting the needs of children exposed to trauma. This is a low-cost intervention that can be easily implemented in school environments. Considering the high prevalence of exposure to adversities in early life, particularly for children in urban communities, a school-based inter-

vention is a promising method for reaching greater numbers of youth. In addition to the direct benefits of learned coping skills and improved communication strategies, the indirect benefit of supporting an inclusive classroom environment promotes optimal learning for all children. Infusing trauma-informed strategies and tools into the educational setting may help address some of the root causes of inequities in educational opportunity. Future studies should investigate the long-term impact of this program on educators and students, as well as the impact on classroom instructional hours and school performance.

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Courtney Bailey, MSW, LICSW, graduated from Simmons College in Boston, Massachusetts, and holds a master's degree in social work. She has worked in a variety of settings including outpatient, residential, and community-based programs providing psychotherapy for children and their families. She is currently a clinician at the Child Witness to Violence Project at Boston Medical Center and provides individual and dyadic psychotherapy. Ms. Bailey has provided a variety of trainings to mental health providers on the impact of trauma on children. Ms. Bailey has been involved in training teachers on ways to provide trauma-informed systems of care.

Meghna Nandi graduated from Washington University in St. Louis in 2014 with a bachelor of arts in anthropology and psychology. During her undergraduate career, she engaged in much community-based work and research around domestic violence intervention in both the United States and Chile, where she spent a semester studying abroad. After graduation, her interests in community health along with her desire to understand how to address the impact of trauma on health led her to a year of service as an AmeriCorps VISTA with the Vital Village Network where she helped pilot the STRIVE project. After completing her year of service, Meghna joined the Connors Center for Women's Health and Gender Biology as a research assistant. In the fall, Meghna will start medical school.

References

- Buka, S., Stichick, T., Birdthistle, I., & Earls, F. (2001). Youth exposure to violence: Prevalence, risks, and consequences. *American Journal of Orthopsychiatry*, 71(3), 298–310.
- Child Welfare Information Gateway. (2015). *Understanding the effects of mal-treatment on brain development*. Retreived from https://www.childwelfare.gov/pubs/issue-briefs/brain-development
- Chu, A. T., & Lieberman, A. F. (2010). Clinical implications of traumatic stress from birth to age five. *Annual Review of Clinical Psychology, 6,* 569–494.
- Cole, S. F., Eisner, A., Gregory, M., & Ristuccia, J. (2013). Helping traumatized children learn: Creating and advocating for trauma-sensitive schools, safe, supportive learning environments that benefit all children. Boston: Massachusetts Advocates for Children.
- Cook, A., Blaustein, M., Spinazolla, J., & van der Kolk, B. (Eds.). (2003). Complex trauma in children and adolescents: White paper from the National Child Traumatic Stress Network Complex Trauma Task Force. Retrieved from www.nctsnet.org/nctsn_assets/pdfs/edu_materials/ComplexTrauma_All.pdf
- Finkelhor, D., Turner, H., Shattuck, A., & Hamby, S. L. (2013). Violence, crime, and abuse exposure in a national sample of children and youth: An update. *Pediatrics*, 167 (7), 614–621.

- Groves, B. (2002). Children who see too much: Lessons from the child witness to violence project. Boston, MA: Beacon Press.
- Li-Grining, C., Raver, C., Champion, K., Sardin, L., Metzger, M., & Jones, S. (2010). Understandingand improving classroom emotional climate in the "real world.": The role of teachers' psychosocial stressors. *Early Education and Development*, 21, 65–94.
- Mashburn, A., Pianta, R., Hamre, B., Downer, J., Barbarin, A., Bryant, D., & Howes, C. (2008). Measures of classroom quality in prekindergarten and children's development of academics, language, and social skills. *Child Development*, 79, 732–749.
- National Center for Mental Health Promotion and Youth Violence Prevention. (2012). Childhood trauma and it's effect on healthy development. Retrieved from http://justice.aksummit.com/PDF/081712_childhood_trauma.pdf
- National Child Traumatic Stress Network. (2008). *Toolkit for educators*. Retrieved from http://nctsn.org/sites/default/files/assets/pdfs/Child_Trauma_Toolkit_Final.pdf
- National Scientific Council on the Developing Child. (2005/2014). Excessive stress disrupts the architecture of the developing brain: Working paper no.

 3. Updated Edition. Retrieved from http://developingchild.harvard.edu/wp-content/uploads/2005/05/Stress_Disrupts_Architecture_Developing_Brain-1.pdf
- National Scientific Council on the Developing Child. (2010). Early experiences can alter gene expression and affect long-term development: Working paper no. 10. Retrieved from http://developingchild.harvard.edu/wp-content/uploads/2010/05/Early-Experiences-Can-Alter-Gene-Expression-and-Affect-Long-Term-Development.pdf
- Osofsky, J. D., & Lieberman, A. F. (2011). A call for integrating a mental health perspective into systems of care for abused and neglected infants and young children. *American Psychologist*, 66(2), 120–128.
- Pianta, R. C., La Paro, K. M., & Hamre, B. K. (2008). Classroom Assessment Scoring System (CLASS) manual, K-3. Baltimore, MD: Brookes.
- Richters, J. E., & Martinez, P. (1993). The NIMH Community Violence Project I: Children as victims and witnesses to violence. Psychiatry, Interpersonal and Biological Processes [Special Issue], 56(1), 7–21.
- Shonkoff, J. P., Boyce, W. T., & McEwen, B. S. (2009). Neuroscience, molecular biology, and the childhood roots of health disparities: Building a new framework for health promotion and disease prevention. *Journal of the American Medical Association*, 301(21), 2252–2259.