

CENTER ON POVERTY and INEQUALITY

GEORGETOWN LAW



GENDER & TRAUMA

Somatic Interventions for Girls in Juvenile Justice:
Implications for Policy and Practice

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The **Georgetown Law Center on Poverty and Inequality** works with policymakers, researchers, practitioners, and advocates across the country to develop effective policies and practices that alleviate poverty and inequality in the United States. Our Project on Marginalized Girls produces original research and program and policy recommendations aimed at helping improve health and education outcomes for low-income girls and girls of color.

The lead author of this report is **Rebecca Epstein**, the Executive Director of the Center on Poverty and Inequality; the co-author is **Thalia González**, Associate Professor at Occidental College, currently serving as a Visiting Researcher at Georgetown University Law Center.

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GENDER & TRAUMA

**Somatic Interventions for Girls in Juvenile Justice:
Implications for Policy and Practice**



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EXECUTIVE SUMMARY



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Complex childhood trauma can have long-term effects on a wide range of physical and mental health outcomes, including impaired self-regulation and diminished self-esteem. For system-involved youth who disproportionately experience trauma, these effects can be especially acute.

The impact of gender on the experience of trauma is less widely discussed, though it is significant in scope. In multiple studies, girls have reported higher adverse childhood experiences than boys in all categories, especially girls in the juvenile justice system. Girls report sexual abuse at disproportionate levels—and are more likely than boys to experience such violence within intimate relationships. Girls are also at greater risk of developing negative mental health outcomes from traumatic experiences. Trauma even has unique physical effects on the female brain. Finally, the multiple layers of girls' identity—including the interplay among the factors of sex, race, ethnic-

ity, sexual orientation, and gender identity—further shape their experience of trauma.

In light of the prevalence of trauma exposure among system-involved youth and the significant differences between girls' experience and boys', this report provides a foundational understanding of the relationship between trauma and gender—with a focus on system-involved girls—and provides an analysis of a vitally needed, promising approach: somatic interventions. In particular, the report maps the ways in which trauma-informed, gender-responsive, and culturally competent yoga and mindfulness programs can address the short- and long-term impacts of trauma on girls in the juvenile justice system. Its analysis is based on two original pilot studies conducted by the Center on Poverty and Inequality, as well as an extensive literature review and more than a dozen interviews with experts across the country. Drawing from these sources, the report defines the core components of somatic interven-

tions for traumatized girls, presents data documenting positive effects, and makes specific policy and practice recommendations to increase access for system-involved girls.

THIS REPORT PRESENTS THREE KEY FINDINGS:

- Trauma-informed, gender-responsive, and culturally competent somatic interventions can serve as a critical component of physical and mental health approaches for system-involved girls by offering key coping strategies and skills vital for future development, as well as improved health outcomes. Demonstrated positive effects discussed in this report include: (1) improved self-regulation and other emotional development; (2) improved neurological and physical health; and (3) healthier relationships and parenting practices.
- The positive benefits of trauma-informed, gender-responsive, and culturally competent somatic interventions for

girls give rise to two critical needs: (1) developing new programs serving system-involved girls in juvenile justice facilities and residential placement programs; and (2) scaling up existing programs, with a focus on sustainability.

- Additional research should be conducted to develop a more comprehensive picture of how juvenile justice systems can fully integrate trauma-informed, gender-responsive, and culturally competent somatic interventions to address girls' trauma and support their resilience.

Gender-specific somatic interventions can be transformative for system-involved girls who have experienced trauma. Through the research, analysis, and recommendations presented in this report, the Center on Poverty seeks to expand the understanding of such programs and make their healing potential accessible to all girls in the juvenile justice system.



THE ART OF YOGA PROJECT

INTRODUCTION



In recent years, our understanding of the prevalence of childhood trauma and its effect on the brain and body has significantly expanded.¹ A groundbreaking study on the prevalence and impact of trauma exposure, the Adverse Childhood Experiences (ACE) Study, revealed that the experience of acute and chronic trauma is shockingly commonplace for children in the United States.² Of over 17,000 adult participants in the survey—who were primarily white and middle-class—21 percent reported sexual abuse during childhood; 26 percent reported physical abuse; and 14.8 percent reported experiencing emotional neglect.³ While those outcomes alone are staggering, an equally provocative result of the study was the association between the rates of childhood trauma and the risk of not only negative long-term mental health outcomes,⁴ including depression and even suicide, but also negative long-term physical health outcomes, such as heart disease, cancer, and liver disease.⁵ In fact, the study reported a “dose-response” relationship: the more categories of ACE a participant experienced, the greater the likelihood of negative impact on physical, mental, and behavioral health outcomes.⁶ It is now widely accepted that a strong connection exists between experiences of trauma—including forms not explored in the ACE survey, such as historical trauma⁷—and physical and emotional effects.⁸

The National Child Traumatic Stress Network defines complex trauma as “children’s exposure to multiple or prolonged traumatic events and the impact of this exposure on their development. Typically, complex trauma exposure involves the simultaneous or sequential occurrence of child maltreatment—including psychological maltreatment, neglect, physical and sexual abuse, and domestic violence—that is chronic, begins in early childhood, and occurs within the primary caregiving system. Exposure to these initial traumatic experiences—and the resulting emotional dysregulation and the loss of safety, direction, and the ability to detect or respond to danger cues—often sets off a chain of events leading to subsequent or repeated trauma exposure in adolescence and adulthood.”⁹

Despite the negative outcomes that stem from complex childhood trauma, research has also demonstrated the resilience of youth, especially when they have access to interventions¹¹ tailored to meet their needs.¹² Interventions during adolescence, in particular, are critical to building a foundation that supports health and wellbeing throughout adulthood.

■ Trauma “affect[s] our innermost sensations and our relationship to our physical reality—the core of who we are. ... [It] is not just an event that took place ... in the past; it is also the imprint left by that experience on the mind, brain, and body.”¹⁰ Symptoms of trauma “can be transformed by having physical experiences that directly contradict the helplessness, rage, and collapse that are part of trauma, and thereby regain self-mastery.”¹⁷ *Bessel van der Kolk, M.D.*

Increasing awareness of the connection between trauma’s mental and physical health effects has led researchers and policymakers to explore new approaches that are physically based, or centered on the body, rather than the mind—also known as **somatic**.¹³ As research has shown, somatic interventions that include three core components—yoga poses, regulated and focused breathing, and meditation or mindfulness—can improve resilience and help youth learn coping mechanisms and self-regulation skills,¹⁴ improve self-esteem,¹⁵ and increase concentration.¹⁶

Research documenting the effectiveness of yoga, meditation, and mindfulness to improve mental health has grown accordingly. More than 40 published studies have evaluated the use of yoga to address mental health conditions, including controlled clinical trials,¹⁸ and all reported some measure of positive benefits.¹⁹ Indeed, the Substance Abuse and Mental Health Services Administration (SAMHSA) recently recognized the Trauma-Sensitive Yoga curriculum developed at the Trauma Center at Justice Resource Institute (JRI) as an evidence-based intervention.²⁰ While most research has centered on adult populations,²¹ there is increasing focus on the use of trauma-informed somatic interventions to

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Adolescence is a period of fundamental physical and emotional growth. There is little dispute that experiencing trauma at this time can negatively affect emotional, cognitive, and behavioral development.²⁶ One of the most pronounced effects in adolescents is a decreased ability to self-regulate—i.e., manage emotions, impulses, and behavior.²⁷

serve youth,²² particularly in the school context.²³ But such programs need not be limited to schools, and in fact are garnering increased attention among judges, probation officials, policymakers and others interested in best practices for addressing the needs of system-involved youth.²⁴



REBECCA EPSTEIN

FOR FURTHER THOUGHT

BRINGING MINDFULNESS INTO SCHOOLS

Across the country, educators have introduced mindfulness and yoga in schools not only as a targeted intervention to support children and adolescents with aggression, anxiety, and ADHD, but also to improve self-regulation and attention, reduce stress, and support socio-emotional learning for all students. A recent survey found that more than 940 schools across the United States include yoga in their curriculum, employing over 5400 instructors trained to offer yoga in educational settings.²⁵

Somatic interventions are most needed for youth in our juvenile justice system, who have experienced disproportionately high rates of severe or chronic trauma. According to the Office of Juvenile Justice and Delinquency Prevention (OJJDP), at least 75% of youth in the juvenile justice system have experienced traumatic victimization.²⁸ While few juvenile justice facilities currently provide trauma-informed somatic programs, those facilities have shown encouraging results: improved mood and self-regulation skills, as well as fewer physical altercations, health complaints, and requests for medicine.²⁹



REBECCA EPSTEIN

The first randomized controlled trial of school-based mindfulness and yoga intervention for urban youth found that these practices not only reduce problematic physiological and cognitive patterns of response to stress among youth, but also are cost-effective and feasible to implement.³⁰

However, existing programs rarely account for gender, race, ethnicity, and other layers of identity and experience. Yet girls are the fastest growing segment in the juvenile justice system, and girls of color, in particular, are overrepresented in the population.³¹ As stated by the National Child Traumatic Stress Network (NCTSN): “Recognition of the distinct pathways girls take toward delinquency has led to a call for gender-responsive intervention and prevention efforts that are directly concerned with the role of trauma in justice-involved girls’ lives.” NCTSN defines gender-responsiveness as holistic, safe, strengths-based, relational, and culturally responsive. OJJDP characterizes gender-responsiveness as “designed to meet the unique needs of young, delinquent, and at-risk females; that value the female perspective; that celebrate and honor the female experience; that respect and take into account female development; and that empower young women to reach their full potential.”³²

Studies show that girls in the juvenile justice system report comparatively high rates of trauma.³⁵ For example, in 2004, NCTSN reported that 70 percent of girls in a study of system-involved youth had been exposed to some form of trauma.³⁶ Another study revealed that 42 percent of system-involved girls reported past physical abuse, compared to 22 percent of boys. An even greater discrepancy was found in reporting of past sexual abuse: 35 percent of girls compared to 8 percent of boys.³⁷

This report seeks to fill this gap, first by expanding the understanding of how trauma uniquely affects girls, then by exploring the effectiveness of how trauma-informed, gender-responsive, culturally competent somatic interventions,

and finally by identifying some of the strategies needed to implement and scale up such programs. This work is key to the development and implementation of effective juvenile justice programming for girls, given the extent to which most delinquency intervention studies have overlooked the unique experiences of girls.³³ It is also important to future research, in light of the frequent absence of measurements of positive indicators such as resilience and wellbeing.³⁴

Girls’ mental health outcomes from trauma are also more pronounced than their male peers: over 65 percent of girls in the NCTSN’s study had experienced symptoms of post-traumatic stress disorder (PTSD) at sometime in their lives.³⁸ Meanwhile, a 2006 study found that 80 percent of justice-involved girls exhibited criteria corresponding to at least one mental health diagnosis compared to 67 percent of boys.³⁹ These profound gender distinctions and the social and cultural context in which girls experience trauma—especially the trauma rooted in sexual violence—highlight the critical need for girls in juvenile justice to access effective somatic interventions that are gender-responsive and culturally competent models.

The first of its kind, this report is based on two pilot programs conducted by the Center on Poverty and Inequality in residential programs for girls in Connecticut and Pennsylvania, as well as an extensive literature review and comprehensive interviews with experts in trauma-informed yoga programs across the country. Drawing from these resources, it seeks to inform policymakers, judges, juvenile justice facility administrators and staff, and others working with system-involved girls about the importance of viewing girls’ trauma through a gendered and an intersectional lens. In addition, this report introduces trauma-informed, gender-responsive yoga as a somatic intervention that can significantly support the diverse mental and physical health needs of system-involved girls. Finally, it highlights key policy considerations and recommendations for those working with girls in the juvenile justice system to develop and scale-up somatic interventions.

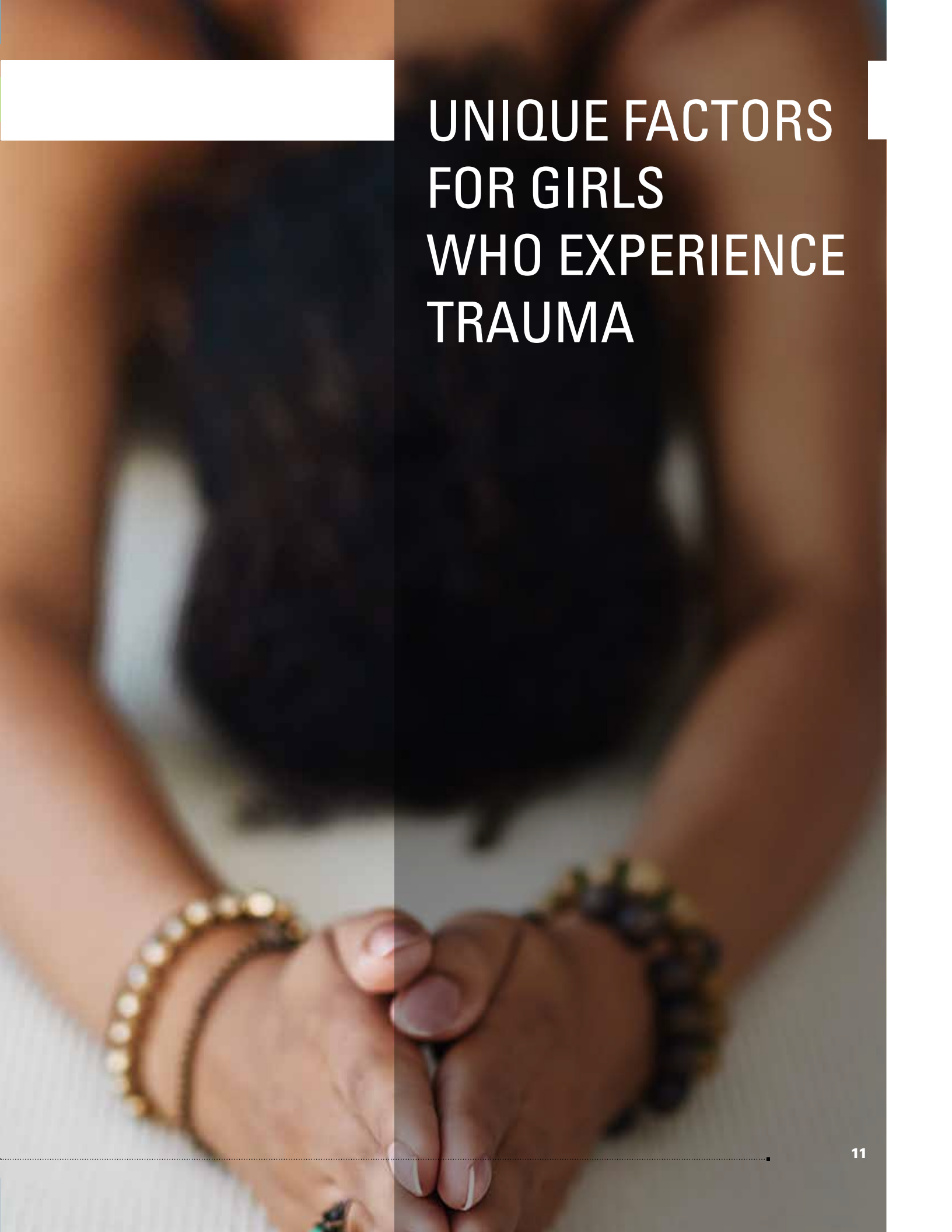
INTRODUCTION



THE ART OF YOGA PROJECT

FOUNDATIONAL RECOMMENDATIONS

- Use research on trauma and adolescent development to inform the development of somatic interventions
- Address the unique and intersectional experiences of traumatized girls
- Increase access within public systems to trauma-informed somatic interventions for girls
- Support research on the effectiveness of trauma-informed somatic programs for girls



UNIQUE FACTORS FOR GIRLS WHO EXPERIENCE TRAUMA

Because childhood is a time of significant growth, complex trauma experienced by youth can have a profound effect on the development of physical and emotional systems.⁴⁰

“Simply stated, children reflect the world in which they are raised. If that world is characterized by threat, chaos, unpredictability, fear and trauma, the brain will reflect that by altering the development of the neural systems involved in the stress and fear response.” *Bruce Perry, M.D., Ph.D.*⁴¹

Although a comprehensive clinical survey of all the potential effects of complex childhood trauma lies beyond the scope of this report,⁴² for our purposes, some of the most relevant possible effects include the following: (1) impairment of cognitive function development, including difficulty with concentration and learning; (2) increased risk for long-term physical illness, including impairment of the immune system; (3) disruption of emotional and behavioral regulation and stress responses; (4) decreased self-awareness; (5) diminished capacity for self-care; and (6) impairment of the ability to connect with others.⁴³

Dissociation—described by Bessel van der Kolk as “the essence of trauma”⁴⁴—is characterized by mentally separating from the traumatic experience as it occurs.⁴⁵ While dissociation can help victims survive the immediate moment of the experience, it can become maladaptive if it persists after the causal episode subsides.

While these general outcomes are well known, full consideration of gender and cultural factors are not always elevated in research and policy development. Yet a robust body of work demonstrates that girls—especially those involved in the juvenile justice system—experience distinct rates, forms, types, and responses to trauma compared to boys, and those experiences are further shaped by socio-cultural factors and context. These key distinctions merit deliberation in treating trauma and developing trauma-responsive systems of care.

DIFFERENCES IN PREVALENCE AND TYPES OF TRAUMA

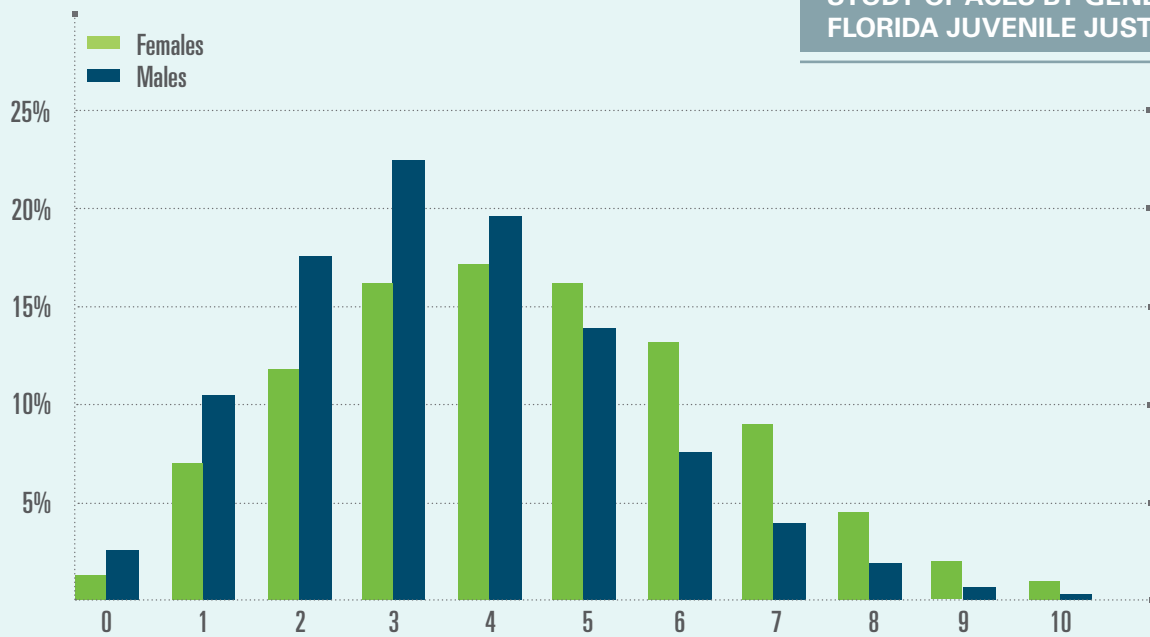
The prevalence of adverse childhood experiences and trauma for system-involved girls cannot be overstated.⁴⁶ Recently, researchers working in collaboration with the New Mexico Sentencing Commission found that girls in the juvenile justice system reported higher ACE “scores” (i.e., greater incidence of trauma) than their male counterparts: 23 percent of females reported scores of 9 or 10—the highest and most vulnerable extreme of the trauma spectrum—compared to just 3 percent of boys.⁴⁷ Similarly, a 2014 study of youth in Florida’s juvenile justice system by the OJJDP showed that girls reported higher scores across all ten categories of ACE than boys.⁴⁸

Study after study has shown that sexual abuse is the form of trauma most disproportionately experienced by girls. The original ACE study was an early indicator, showing a 9 percent discrepancy: girls reported 25 percent and boys, 16 percent.⁴⁹ Recent research by The National Crittenton Foundation found a 32 percent differential.⁵⁰ The discrepancy holds for system-involved youth. In 2013, a NCTSN study found that girls in the juvenile justice system were twice as likely as boys to report sexual abuse (31.8 percent versus 15.5 percent) and over four times as likely as boys to have experienced sexual assault (38.7 percent versus 8.8 percent).⁵¹ The OJJDP’s 2014 study of youth in Florida’s juvenile justice system found an even greater discrepancy, with the largest ACE gender gap in the category of sexual abuse: 31 percent of girls compared to 7 percent of boys.⁵²

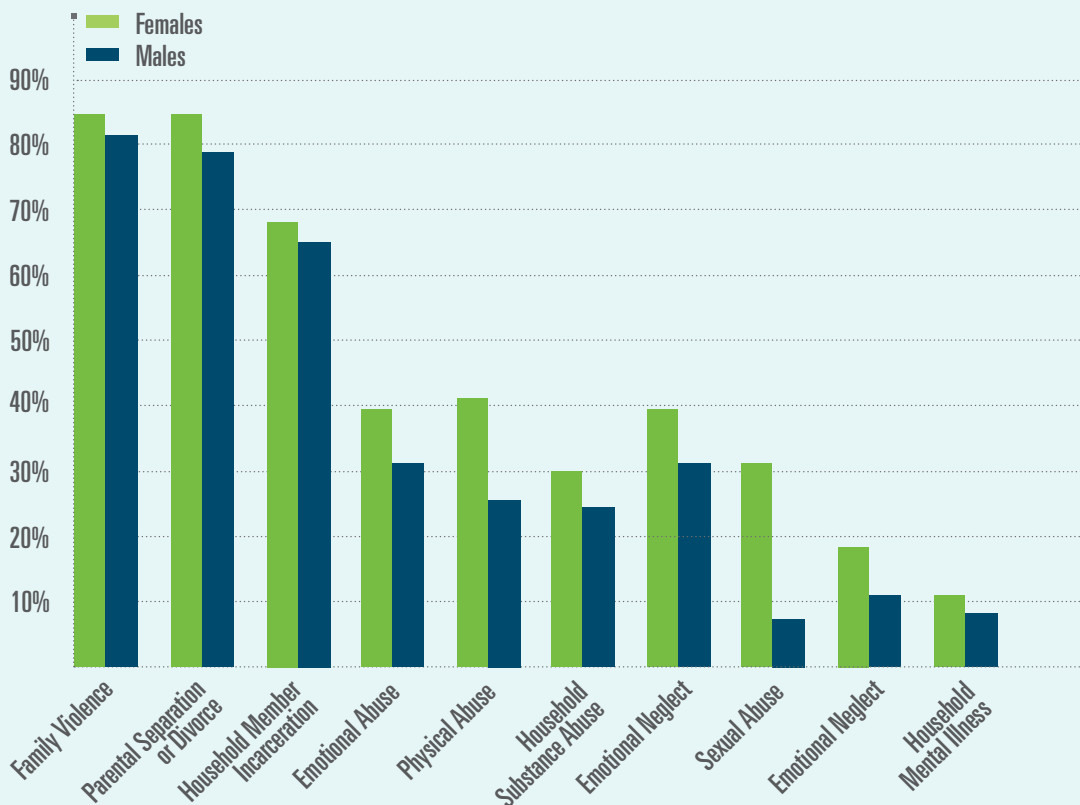
DISTINCTIONS IN RESPONSES TO TRAUMA

Research reveals distinct gendered responses to trauma that include neurobiological and mental health effects.⁵³ For example, estrogen activates a larger field of neurons in women’s brains during adverse incidents than in men, resulting in women’s experiencing stress in greater and more precise detail.⁵⁴ Similarly, adult women who experienced childhood trauma exhibit greater sensitization of neuroendocrine and autonomic stress responses.⁵⁵ Women are also more susceptible to post-traumatic stress disorder (PTSD) as a result of sexual

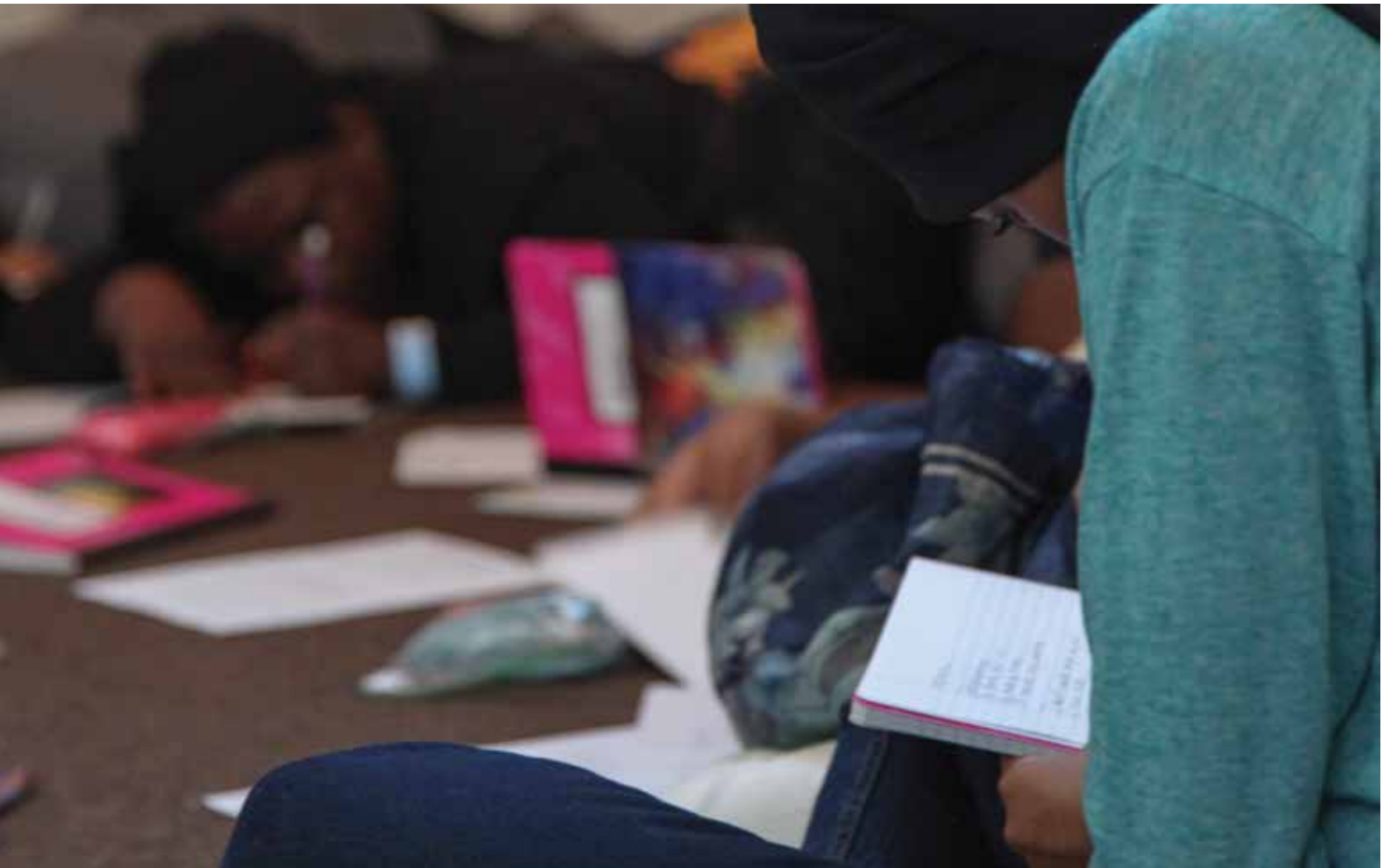
STUDY OF ACES BY GENDER IN THE FLORIDA JUVENILE JUSTICE SYSTEM



PREVALENCE OF ACE INDICATORS BY CATEGORY



Source: Michael Baglivio, et al., *The Prevalence of Adverse Childhood Experiences (ACE) in the Lives of Juvenile Offenders*, 3 J. Juv. Just. 1, 8–9 (2014)



REBECCA ERSTEIN

violence.⁵⁶ And they are more likely to engage in disassociative responses to traumatic experiences.⁵⁷ According to one expert at JRI, “Experientially, women with complex trauma histories often feel disconnected from their bodies and struggle to feel safe in their own skin. This type of trauma exposure inhibits the development of a basic sense of security and trust in oneself and others.”⁵⁸

Similar differences also present in girls. For example, girls who experience trauma exhibit decreased surface area and volume of the brain’s insula, a region responsible for interoceptive processing,⁵⁹ emotion awareness, and attention to salient stimuli. This response was not exhibited by boys who had experienced trauma.⁶⁰ Given these divergent effects on the brain, the lead researcher of the study noted the potential benefits of gender-specific treatment.⁶¹

System-involved girls are also at greater risk of negative mental health outcomes from traumatic experiences than system-involved boys and their non-system-involved peers. A recent report released by the U.S. Department of Justice (DOJ) noted:

Girls present to the juvenile justice system with high rates of mental health problems and depression. In their adolescence, girls are more likely than boys to attempt suicide and to self-mutilate. Negative body image, low self-concept, and acute substance abuse aimed at self-medication, which so often results from stress and trauma, are issues that must be addressed differently in the future. Girls in the juvenile justice system are in critical need of programming . . . that is gender responsive.⁶²

RACE AND ETHNICITY

Complex layers of identity also influence girls' experience of trauma. The identity of girls of color is intersectional—that is, shaped by the interplay of their race, ethnicity, and gender.⁶³ Intersectional experiences and identity play important roles in the rates and forms of trauma that girls of color experience,⁶⁴ as well as the response of the victim and those interacting with her. As noted in a 2006 report by The Women of Color Network on sexual violence: “For a woman of color, often her response is both an individual and cultural one,” requiring her to confront issues of family, community, society, and cultural norms and values.⁶⁵ Monique W. Morris, co-founder of the National Black Women's Justice Institute, has highlighted the distinct cultural response to Black girls who are victims of sexual violence, citing the observation that for victims of child sexual exploitation, “the public fail[s] to embrace Black girls as trafficked”; instead, people are more likely to assume voluntary complicity on the part of the victims.⁶⁶

In addition, girls of color experience forms of trauma that are often overlooked in mainstream analyses, such as historical trauma⁶⁷ and discrimination on the basis of sex, ethnicity, and race.⁶⁸ According to a recent report:

The modern-day experiences of trauma and violence impacting African American girls . . . cannot be adequately addressed without acknowledging African American women's historical experiences with sexual assault . . . In that era (and even today), issues of race and gender intersected to perpetuate stereotypes of black female sexuality, to justify sexual assault and to preserve racially-biased social and power structures that discounted sexual violence against black women and allowed such assaults to persist unpunished.⁶⁹

These considerations manifest to an even greater degree in the juvenile justice system, where girls of color are over-represented.⁷⁰

“Black girls are at once female and Black, and their presence in correctional facilities has always been informed by their status as both.” *Monique Morris, Ed.D.*⁷¹

FOR FURTHER THOUGHT

CRIMINALIZATION OF GIRLS WHO SURVIVE SEXUAL VIOLENCE AND OTHER TRAUMA

Girls are frequently sent into the juvenile justice system because they are victims of violence—including sexual abuse. Thus, girls are effectively criminalized for the violence they survive. The most stark example of this phenomenon is the practice of detaining sex trafficking victims on charges of prostitution. Blamed for their abuse, once in the juvenile justice system, girls' trauma symptoms are likely to be exacerbated. Mental healthcare, from screening to treatment, is often inadequate or even non-existent; standard procedures and the institutional environment can threaten to re-trigger girls' prior experience of trauma; and new incidents of abuse may occur when inside the system.⁷²

GIRLS OF COLOR: DISPROPORTIONATE REPRESENTATION IN JUVENILE JUSTICE

Rates of Girls' Court Referrals by Race

Black girls are

2.74
TIMES

as likely as white girls to be referred to juvenile court for a delinquency offense

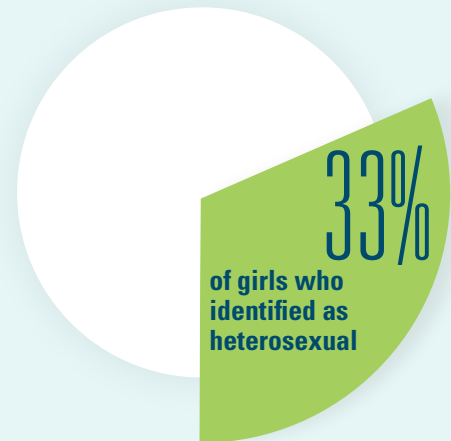
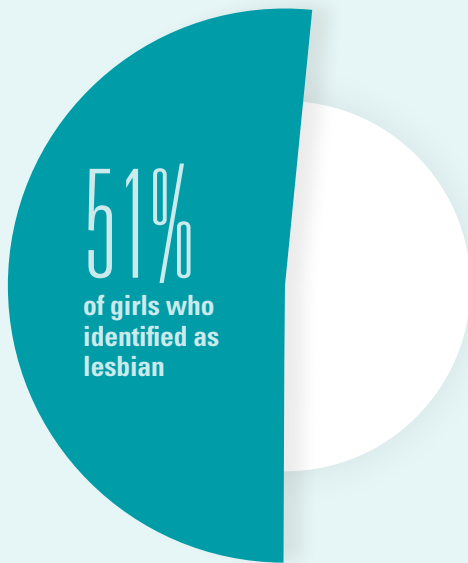
Native Alaskan &
American Indian girls
are

1.36
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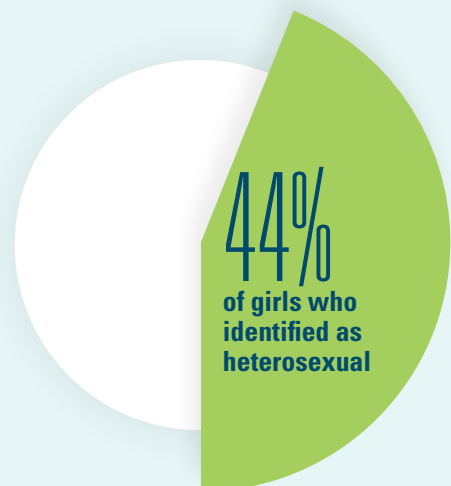
as likely as white girls to be referred to juvenile court for a delinquency offense

Source: *National Disproportionate Minority Contact Databook*, Office of Juvenile Justice and Delinquency Prevention (2016), available at https://www.ojjdp.gov/ojstatbb/dmcdcb/asp/display.asp?display_in=3.

GIRLS REPORTED EXPERIENCING
NON-SEXUAL VIOLENCE



GIRLS REPORTED EXPERIENCING
SEXUAL VIOLENCE



Source: Bernhard, L. A., *Physical and Sexual Violence Experienced by Lesbian and Heterosexual Women Violence Against Women* 6, 68-79 (2000)

SOCIAL AND CULTURAL CONTEXT

Girls experience trauma through a distinct social and cultural lens. For girls, sexual violence, in particular, often comes at the hands of caretakers or otherwise within intimate relationships. According to Stephanie Covington, a national expert on gender and trauma, “In adolescence, girls are more likely than boys to continue to be abused or assaulted, more often in private and by someone close to them, such as a family member or date.... [Boys’] risk comes from peers who dislike them or rivals (as in gangs). When males are assaulted or abused, it is more likely to be done in public and by strangers.”⁷³ This interpersonal aspect of sexual abuse has a unique and complex effect on girls, which can influence the services necessary for healing.⁷⁴

The experience of such traumatic incidents is also shaped by external factors that normalize violence against girls by pathologizing and even criminalizing girls for their victimization. According to one study:⁷⁵

[C]haracteristic female responses to [sexual] trauma (e.g., running away from home, acting out, aggression, etc.) are often viewed as symptoms of conduct disorder or problematic antisocial behavior, and thus are criminalized, [and so] traumatized girls become entangled in the justice system without adequate attention to gender-specific needs such as trauma-focused treatment.⁷⁶

SEXUAL ORIENTATION AND GENDER IDENTITY

Sexual orientation and gender identity should also be considered in order to comprehensively understand the trauma experienced by system-involved girls. LGBT youth are disproportionately represented in the juvenile justice system. Some studies estimate that these youth comprise as much as 15 percent of the total juvenile justice population.⁷⁷ Targeted because of their identity, girls who are lesbian, bisexual, transgender, or non-conforming report trauma at particularly high rates. In a study of over 200 women, 51 percent who identified as lesbian experienced non-sexual violence, compared to 33 percent of their heterosexual peers.⁷⁸ The study also found that 54 percent of lesbian respondents reported experiencing sexual

violence, compared to 44 percent of their heterosexual peers.⁷⁹ Further, a recent meta-analysis of 75 studies supported these findings by suggesting that those who identify as lesbian, gay, or bisexual face an increased risk of sexual violence.⁸⁰

Because girls experience and respond to trauma in complex and distinct ways—especially during adolescent development—the design of trauma-informed interventions must account for these differences to be effective. SAMHSA has recognized the importance and validity of comprehensive approaches that include “cultural, historical, and gender issues” as a key principle of trauma-informed interventions.⁸¹ It defines this principle as “actively mov[ing] past cultural stereotypes and biases, consider[ing] language and cultural considerations in providing support, offer[ing] gender-responsive services, leverag[ing] the healing value of traditional cultural and peer connections, and recogniz[ing] and address[ing] historical trauma.”⁸²

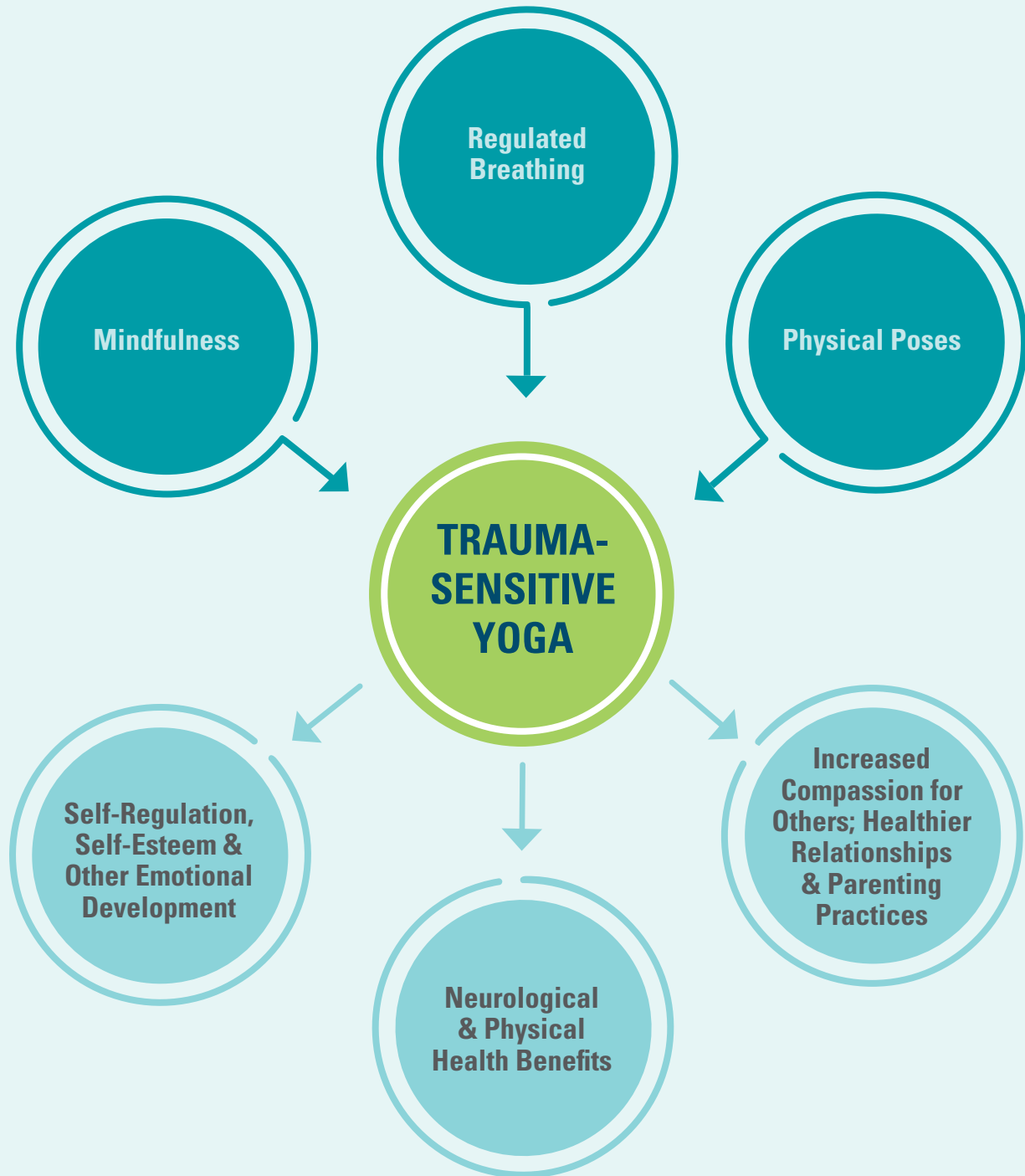
RECOMMENDATIONS

Based on these distinct factors, we make the following recommendations specific to trauma-informed, gender-responsive somatic interventions to guide policy and practice.

- Account for differences in types of trauma experienced by girls based on their intersectional identity
- Acknowledge the social and cultural contexts in which girls experience trauma
- Ensure that interventions are culturally competent and trauma-informed with attention to the unique needs of girls based on gender, race, ethnicity, and sexual identity

A young woman with dark hair is shown from the chest up, wearing a grey tank top. She is in a yoga pose, with her hands pressed together in a prayer position (Anjali Mudra) near her chest. Her left arm is bent, with her hand resting on her right thigh. The background is a solid teal color. The title text is overlaid on the right side of the image.

TRAUMA- INFORMED YOGA: AN EFFECTIVE SOMATIC INTER- VENTION FOR GIRLS IN JUVENILE JUSTICE



Somatic interventions that include three core components—yoga poses, regulated and focused breathing, and meditation or mindfulness—have well-documented benefits that promote resilience and address the symptoms of trauma. More specifically, trauma-informed somatic interventions that are gender-responsive and culturally competent can target the distinct differences in types, rates, prevalence, and responses to trauma for adolescent girls, as well as the unique social context of their lives. For these reasons, an examination of the benefits specifically for girls—especially system-involved girls, who experience trauma at particularly high rates—is critical. To do so, this report synthesizes existing research with primary data from two pilot programs conducted by the Center on Poverty and Inequality in residential programs for girls in Pennsylvania and Connecticut,⁸³ field interviews with experts across the country, and interviews with girls themselves.

The National Training and Technical Assistance Center, a project of OJJDP, defines gender-responsive programming as “intentionally allowing gender to affect and guide services, creating an environment . . . that reflects an understanding of the realities of girls’ lives, and is responsive to the issues and needs of the girls and young women being served. [It] requires attending to girls’ needs so that programs and policies can be designed to address girls’ development and help them establish and sustain consistent, supportive relationships. Gender-responsive programming provides girls with safe opportunities to heal from trauma without fear that disclosure and discussion will carry negative consequences. It also provides girls with opportunities for success in which they can produce something of value to themselves and those around them.”⁸⁴

Given the emerging nature of somatic interventions for system-involved girls, our findings are preliminary and based on limited pilot data, but reflect the significant promise of future expansion. We identify three key types of positive outcomes supported by our research: (1) self-regulation and other emotional development; (2) neurological and physical

health; and (3) interpersonal relationships and parenting practices. We note, however, that this list is not exhaustive, nor does it define the universe of possible benefits for system-involved girls. Similar to somatic interventions for adults, future studies will undoubtedly identify many more, especially with the advantage of longitudinal studies of multiple cohorts, given the distinct short- and long-term benefits of somatic programs.⁸⁶

The Trauma Center at JRI highlights the following elements as core components of trauma-informed yoga: “Th[e] model of a gentle yoga practice, versus the fixed or universal administration of specific exercises or techniques per se, are the most critical aspects of [the] characterization as a trauma-informed intervention. These processes include use of invitational language; emphasis on personal experimentation, choice, curiosity, and self-care; individually tailored selection of postures, pacing, and challenge level; repetition of specific postures and forms to build incremental mastery; application of yoga elements (breathing, meditation, postures) as primary vehicles of self-control and self-regulation (affective, somatic, behavioral, cognitive); and provision of contained opportunities for social learning, attunement and modeling, co-regulation, and peer support.”⁸⁵

SELF-REGULATION, SELF-ESTEEM, AND OTHER EMOTIONAL DEVELOPMENT

As described above, childhood trauma can disrupt the development of self-regulation skills, the foundation for controlling thinking and behavior.⁸⁸ While this report is limited in scope due to the small number of sites currently offering trauma-informed yoga with gender-responsive elements, we found

“This is the game-changer, and it is quickly gaining momentum.” *Chandlee Kuhn, Former Chief Judge Family Court, State of Delaware / Founder, Delaware Girls’ Initiative*⁸⁷



REBECCA EPSTEIN

We used to do yoga, me and my roommates, and I used it for when I used to get angry. I was always an angry person and I used to do the breathing, and I remembered the kind words—the cuing of the teachers that was so calming—and it made me relaxed, and it made me watch the words that I use, and how to think before I jump into action.”

Roczana Enriquez, Yoga Instructor, The Art of Yoga Project / Parent Leader, Innovate Public

that such programs appear to have a significantly positive impact on girls’ development of self-regulation by providing skills that help them recognize and counteract automatic reactions to perceived stress.

The benefits of learning these skills are manifested in multiple contexts. For example, girls report using breath regulation techniques to adapt and respond to the stress of appearing in court⁸⁹ and to avoid engaging in aggressive responses to provocation by peers within facilities.⁹⁰ Hala Khouri, a nationally recognized trauma-informed yoga teacher, observed that staff at a Los Angeles facility reported that youth are calmer after class.⁹¹ Fran Frazier, founder of the Rise Sister Rise Network, described, “I’ve seen our girls take a deep breath before they go in that [negative] direction. They calm themselves down and then ask questions before reacting.”⁹² Melissa Pelletier, the director of Journey House, a residential facility for girls in Connecticut, described the behavioral results of a small pilot program as “transformative.”⁹³ Mary Lynn Fitton, founder

of The Art of Yoga Project, reflected: “This work is foundational. Girls in the juvenile justice system need to be given critical mindfulness-based practices to shift negative patterns of over or underreacting to their circumstances. They need to learn to take that crucial moment to pause and respond productively. It all comes down to better decision making, in the short and long term.”⁹⁴

Participation also results in other positive outcomes that address the higher rates of depression and decreased self-concept that girls experience as a result of trauma.⁹⁵ For example, post-participation analysis of the Center on Poverty and Inequality’s Connecticut pilot study, in which girls engaged in a modified version of the Trauma Center Trauma-Sensitive Yoga program, revealed significant increases in self-esteem.⁹⁶ This result is consistent with an evaluation conducted by The Art of Yoga Project, which found statistically significant improvement in girls’ self-respect after completion of its curriculum.⁹⁷

Studies of other populations yield similar results. A recent report that analyzed trauma-informed yoga programs for youth in the Alameda County Juvenile Justice Center noted a significant decrease in perceived stress and an increase in self-control.⁹⁸ Staff also observed “improved conflict resolution and ability to identify maladaptive behavior patterns, improved self-awareness, peer leadership, and daily transformation (i.e., a notable shift in overall well-being following a session).”⁹⁹ Other studies have similarly demonstrated that somatic interventions—especially the component of regulating breathing—can decrease anger, depression, and anxiety.¹⁰⁰

In addition, trauma-informed yoga can help improve girls’ sense of agency. David Emerson, co-developer of the Trauma Center Trauma-Sensitive Yoga curriculum, has noted: “Th[e] profound lack of choice is a common denominator among trauma survivors Part of the process of healing from trauma involves regaining that sense of agency and a sense of felt control.”¹⁰¹ Addressing this issue for girls, the Attorney General’s Task Force on Children Exposed to Violence endorsed gender-responsive programming that “encourage[es] [girls] to take leadership roles ... [and] promotes the personal development of girls’ individual strengths.”¹⁰² Somatic interventions for girls can help achieve this goal in various ways: by providing them with options as they participate, permitting them to lead parts of the class, and by explaining the benefits of yoga in order to make a more informed choice about participating. An increased sense of agency, among other benefits discussed in this report, may help explain the results observed in the pilot study conducted at Journey House, in which participants recounted fewer flashbacks and nightmares and disclosed to staff previously unreported incidents of sexual violence.¹⁰³

“Girls need skills; they need tools. And yoga and mindfulness are tools. They just have to be tools that they can see the value of using. So it [the teaching] has to be from their lens, and not from ours.” *Fran Frazier, Founder, Rise Sister Rise Network*¹⁰⁴

NEUROLOGICAL AND PHYSICAL HEALTH

Trauma-informed, gender-responsive yoga can have a wide range of neurological and physical health benefits for system-involved girls. For example, it can restore neurological pathways in the brain affected by trauma, including changes that are specific to women and girls. Research on students practicing somatic interventions, for example, found increased activity in the insula.¹⁰⁶ As stated above, the insula is the area of the brain used for awareness of our own body and for linking bodily sensations to emotions, and was shown to decrease in volume girls who have experienced trauma.¹⁰⁷ Thus, trauma-informed yoga can also improve women’s and girls’ interoception—the sensory system that facilitates awareness of one’s inner sensations, sometimes referred to as the sense of self.¹⁰⁸ As Mary Lynn Fitton noted: “Utilizing sensory-integrating and self-regulating strategies with careful neurobiologically-informed sequencing creates new, healthier neural networks for traumatized teen girls, thus providing essential healing.”¹⁰⁹

“The system of interoception . . . relates to how we perceive feelings from our bodies that determine our mood, sense of well-being and emotions.” *Allison Rhodes, Ph.D., MSW, Ed.M.*¹¹⁰

A significant body of research also demonstrates the physical and medical benefits associated with participation in somatic programs. According to Allison Rhodes, an expert at JRI, “Research demonstrates the efficacy of yoga in treating numerous physical health problems that are common among trauma survivors such as chronic pain, gastrointestinal problems, and insomnia, and for improving the body’s response to stress, which is often dysregulated among trauma survivors.”¹¹¹ The practice of breath regulation, in particular, which is a critical element of trauma-informed yoga, has been shown to help balance the heart rate and the automatic nervous system,¹¹² ultimately leading to a greater ability to evaluate and respond to stress, as well as to relax.¹¹³ Research has also shown that yoga is effective among adolescents in improving body image, managing emotions, promoting optimism, reducing anxiety, and addressing broader clusters of risk behaviors, including

eating disorders and obesity.¹¹⁴ Results of the Journey House pilot study demonstrated some of these benefits. Girls were observed to sense “a greater connection to their body; they were not requesting [medicine] for somatic complaints, such as stomach ache treatments.”¹¹⁵

RELATIONSHIPS AND PARENTING PRACTICES

Trauma-informed yoga for girls and teen mothers can help address the negative impact of violence, which is often perpetrated against girls within relationships, and has positive secondary effects on their children and in their communities.

I ... use yoga all the time, I don't know what I would do without it. I think that I need it I have taught it to my kids, and it helps them so much I think if we teach kids yoga and they see us doing it, you can break the cycle of trauma. They're doing it at their school and it can help them with their focus, and listening. So I'm not just using it for me, but also giving to others including kids and the community.¹¹⁶

Similar results were found in the Center on Poverty's pilot study in Pennsylvania, which utilized The Art of Yoga Project curriculum in a program for pregnant and parenting teens enrolled in Youth Service Inc., a Crittenton agency.¹¹⁷ One participant recounted:

Before when my daughter [would] cry, I don't like hearing kids cry, like it would irritate me. I'd be like, “Oh my god, little girl, would you PLEASE be quiet!” and now when my daughter cr[ies], ... I get into . . . a yoga motion or something like that and I'm like “Listen,” [(pauses and takes deep breath)] “child of mine, please hush.”¹¹⁸

The US Department of Justice has listed relationship-building as a core component of gender-responsive programming for girls, including “weav[ing] together family, community, and systems of care ... , and ... support[ing] ongoing, positive relationships between girls and older women, family, and community.”¹¹⁹ According to Suzanne Jones, founder of yoga HOPE and the TIMBo program, “women and girls develop in relationship to the people around them,” rendering the re-establishment of connections with others a particularly critical aspect of somatic interventions for girls.¹²⁰ Research has corroborated the importance of these benefits for women. In a study of women with PTSD, for example, researchers observed that participants in a trauma-informed yoga program demonstrated improved self-care and relationships with others.¹²¹

I started thinking about using yoga when I was pregnant. [During class in juvenile hall] while being in those poses, I felt better about myself. So [later] when I was pregnant, and getting abused while pregnant, I kept thinking “You're better than that. You need to change, you need to walk away. You are someone.” *Rocsana Enriquez, Yoga Instructor, The Art of Yoga Project / Parent Leader, Innovate Public Schools*¹²²



CONSIDERATIONS FOR POLICY AND PRACTICE



REBECCA EPSTEIN

Somatic interventions are remarkably effective in helping address trauma and increasing resilience in system-involved youth, which can ultimately reduce medical and mental health care costs for the juvenile justice system. From this perspective, promoting trauma-informed yoga for system-involved girls is a wise investment in the future not only for girls, but also the systems that serve them. We make the following recommendations.

EVALUATE EXISTING PROGRAMS TO DETERMINE VIABILITY (OR INTRODUCE NEW PROGRAMS) AND BRING THEM TO SCALE

Reform efforts, and by extension the level of investment, will necessarily vary according to the needs and existing resources of each facility or jurisdiction. In the San Francisco Bay area, for example, at least three juvenile facilities already implement a trauma-informed, gender-responsive yoga program, supported by multiple counties and the state of California.¹²³ The program, The Art of Yoga Project, is notable because it

is designed specifically for adolescent girls in juvenile justice facilities and residential programs.¹²⁴ Promising programs like these should be brought to scale. Meanwhile, while not specifically created as gender-responsive intervention, a modified version of the Trauma Center Trauma-Sensitive Yoga model, the subject of randomized controlled trials, now includes relationship-orienting programming and is being implemented in multiple residential facilities in New England.¹²⁵ We recommend reviewing this curriculum for the development of future interventions.¹²⁶ Finally, in facilities like the Clark County Juvenile Hall in Las Vegas, Nevada and the Bon Air Juvenile Correctional Center in Richmond, Virginia, which offer general yoga programs, we recommend incorporating trauma-informed, gender-responsive elements that address the needs of girls and promote their development; culturally adaptive elements that embody a respect for and understanding of cultural difference; and a commitment to “demonstrating respect and support for sexual orientation ... in order to end norms based on stigma.”¹²⁷

In jurisdictions that do not offer somatic programs, we recommend reviewing existing programs to evaluate the potential for integrating trauma-informed, gender-responsive somatic elements into their design. The Art of Yoga Project curriculum, for example, was recently integrated into Voices, a nationally implemented self-empowerment curriculum for girls authored by Stephanie Covington.¹²⁸

ENACT LEGAL AND POLICY REFORM TO SUPPORT SOMATIC INTERVENTIONS

Because systemic change requires policy reform, we conducted a survey of state juvenile justice, mental health, and education laws to identify opportunities grounded in law to support somatic interventions. Two significant areas emerged as having the potential to form the foundation for future growth in this area.

1. Explicitly Enumerate Meditation and Yoga as Acceptable Programming in Juvenile Justice Facilities. Louisiana provides an example of codifying specific approval of the use of gender-responsive, culturally competent yoga in the juvenile justice system. The Administrative Code states:

“Staff, volunteers, and community groups shall provide additional programming reflecting the interests and needs of various racial and cultural groups within the facility and are gender-responsive. The facility activities may include art, music, drama, writing, health, fitness, meditation/yoga, substance abuse prevention, mentoring, and voluntary religious or spiritual groups.”

L.a. Admin. Code tit. 67 § 7517(E)(8) (2016) (emphasis added). This language can serve as a model for providing somatic interventions to system-involved girls to help reverse the effects of early childhood adversity, trauma, and toxic stress, improving long-term health and mental health outcomes.

2. Interpret General Laws Governing Behavior Management and Mental and Physical Education in Juvenile Justice Facilities to Include Somatic Interventions.

Given the body of research that has shown yoga and other

somatic programs to be effective tools in improving outcomes in physical,¹²⁹ mental, and behavioral health, laws governing these areas can form the basis for implementing trauma-informed and gender-responsive somatic interventions. Nebraska law provides one example. Its requirement that treatment and services for children in the care of the Office of Juvenile Services include classes in “behavior management and modification” and “physical education” could be interpreted to include yoga, given its demonstrated benefits in these areas.¹³⁰ This approach to reform is not novel. Many state departments of education, for example, have interpreted the scope of physical and mental health education standards to include yoga, meditation and mindfulness activities in schools.¹³¹

INVEST IN SUSTAINABLE PROGRAMMING AND INFRASTRUCTURE

Investment is essential to establishing consistent, reliable, and high-quality trauma-informed programs. Unlike many interventions, the implementation of trauma-informed somatic programs is surprisingly cost-effective and highly sustainable. Trauma-informed yoga interventions in public systems are typically external programs, with associated costs largely limited to training expenditures and supervisor/instructor time and materials.

We recommend consideration of state and county government support for these programs, as well as funding from private foundations. San Francisco County’s juvenile hall yoga program and programs in San Mateo County, for example, operate under a block grant funded by California Board of State and Community Corrections; the Greater Cedar Rapids Community Foundation recently funded expansion of the yoga program in Linn County Juvenile Detention Center.¹³² Funding and infrastructure development can also be designed as public-private partnerships, because trauma-informed yoga programs for system-involved girls could be eligible for funding from private foundations that maintain health and wellness portfolios.

But support for trauma-informed yoga need not be limited to traditional revenue streams available to juvenile justice and corrections. Given the benefits of somatic interventions, resources from federal, state, and local governments aimed at improving physical, mental, and behavioral health outcomes are also viable funding streams.¹³³ For example, Alameda County receives funding from the County's Office of Education, Probation and Health Care Services Agency to offer yoga and mindfulness classes in its juvenile hall.¹³⁴ Federal agencies such as the US Department of Health and Human Services' Administration for Children and Families (ACF) and Centers for Disease Control, as well as SAMHSA, prioritize interventions for children and youth who have experienced trauma and early childhood adversity, as well as interventions that reduce health disparities. In fact, in 2016, the city of Baltimore's Health Department received a five-year \$5 million grant from SAMHSA to implement trauma-informed community-based services, including yoga and mindfulness, which includes assistance in evaluating progress milestones.¹³⁵

Regardless of the specific source, trauma-informed yoga must be fully funded. Such support is key to realizing successful outcomes with traumatized youth, who require consistency and trust in relationships and programming.¹³⁶ Funding is also critical to the development of sustainable programs, establishing necessary infrastructure, and fostering buy-in from leadership and personnel.

BUILD CAPACITY AND FACILITY SUPPORT

Trauma-informed somatic interventions for system-involved girls require support and cooperation from frontline facility staff and leadership. Two key means of building such support are outlined below.

1. Programmatic support. Key personnel should be educated about the research supporting somatic interventions and provided with a clear vision for implementation and the internal structures necessary for success. Such communication can lead to greater support for the program and ensure sustainability.¹³⁷

2. Coordination with mental health professionals. Our research has revealed the importance of consultation and cooperation between somatic program staff and facilities' mental health specialists. These partnerships are for program effectiveness and ensuring coordinated treatment plans as well as continuity of care.¹³⁸

ENSURE HIGH-QUALITY CURRICULA AND TRAINING

Our research has identified a set of key programmatic elements for trauma-informed, gender-responsive somatic interventions. To follow these best practices, we recommend that programs for girls in juvenile justice facilities adhere to the following principles. These recommendations aim to ensure fidelity of practice, sustainability, and accessibility.

- 1. Gender-responsiveness.** Curricula should include elements that emphasize healing from sexual violence; promote the development of girls' strengths and leadership; and help foster healthy relationships.¹³⁹ Teachers should receive intensive training in trauma specific to girls, including adolescent brain development, neurobiological and psychological effects of trauma, multiple forms of trauma, gender-specific dimensions of trauma, and socio-emotional and cultural contexts in which trauma occurs.
- 2. Cultural competency.** Curricula should incorporate cultural sensitivity, support, and responsiveness to maximize accessibility for all girls. In addition, we recommend active recruitment of teachers who represent diverse racial and ethnic backgrounds and sexual orientation, as well as various body types and ages. The curriculum of teacher trainings should also address implicit bias and inclusivity so that instructors will "have respect for and understanding of cultural differences between themselves" and the girls they serve.¹⁴⁰
- 3. LGBTQ-responsiveness.** Curricula should "demonstrate[e] respect and support for the sexual orientation [and gender identity] ... in order to end norms based on stigma."¹⁴¹ Inclusivity can help establish a sense of safety and security for girls and improve program effectiveness.



REBECCA EPSTEIN

INCREASE RESEARCH SUPPORT

Gaps remain in existing research on the benefits of trauma-informed, gender-responsive somatic interventions for girls in the juvenile justice system. To address this need, we recommend further research in three broad areas:

1. **In-depth analysis** of neurobiological, behavioral, and emotional responses to trauma disaggregated by gender;
2. **Multi-tiered evaluation** of the effectiveness of trauma-informed yoga specific to adolescent girls, including but not limited to its connection to decreased stress, anxiety, and recidivism, and to improved self-regulation and neurobiological systems;
3. **Identification of strategies** to improve the development, implementation, and delivery of culturally competent programs and curricula, with a specific focus on intersectional identities and the different types and rates of trauma experienced by girls of color.

These recommendations are not intended to be exhaustive, but instead aim to foster innovative inquiries and valuable insights for the field to meet the needs of system-involved girls. Future research can be supported by a broad range of sources. We recommend that government programs, including OJJDP's Field-Initiated Research and Evaluation Programs and discretionary grants, the National Institute of Justice's funding solicitations, and the competitive discretionary grants offered by ACF, as well as philanthropic organizations that prioritize youth health and wellness, fund research and pilot programs on these and related topics.

CONCLUSION

A full-page background image showing a person lying on their stomach on a light-colored, textured surface. Their hands are clasped together in front of them, and their head is resting on their arms. The image is split vertically down the middle, with the left half being slightly darker and more shadowed than the right half.

Childhood adversity can create unique challenges for girls, but research has also demonstrated youths' resilience, especially when supported by interventions tailored to meet their needs. Interventions during adolescence can be critical to establishing a foundation for physical and mental health and wellbeing throughout adulthood.

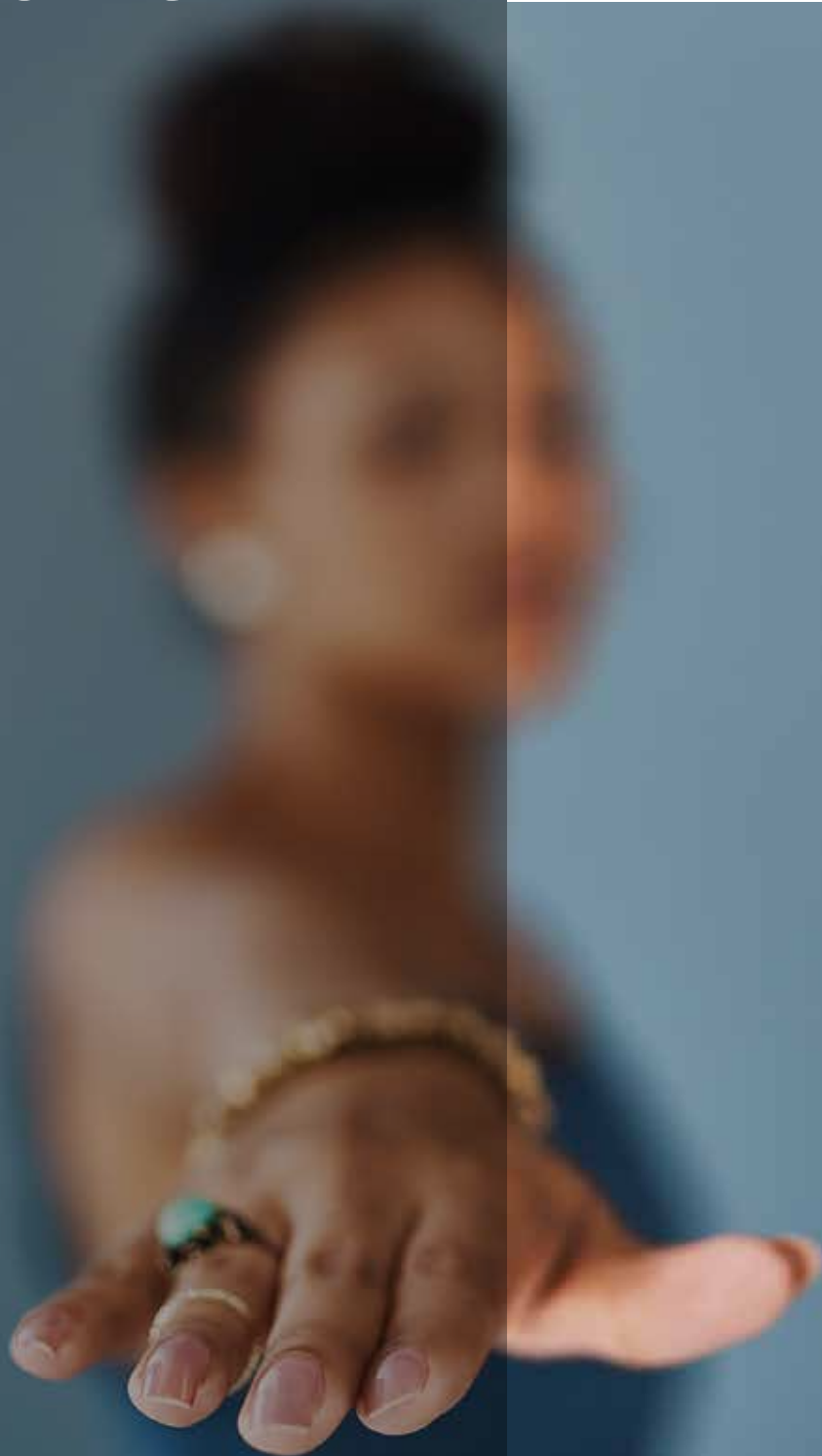
While this report does not endorse a specific model of somatic intervention, three core elements—trauma sensitivity, gender-responsiveness, cultural competency—are essential to supporting the diverse needs of girls who have experienced trauma. Programs with these components can provide effective integrative physical and mental health strategies for sys-

tem-involved girls, providing key skills that are vital for future development.

Because few current programs contain all of these elements, there is a significant need to develop new programs or modify existing ones, with a focus on sustainability. While we have outlined foundational considerations and provided legal and policy recommendations, we note that existing practices and policies can guide policy development, pilot programs, and advocacy. Future research and development can further determine how interventions can best improve outcomes for system-involved girls and be integrated into juvenile justice systems to address trauma and support resilience.



ENDNOTES



1. See discussion Section II.
2. Vincent J. Felitti et al., *Relationship of Childhood Abuse & Household Dysfunction to Many of the Leading Causes of Death in Adults: The Adverse Childhood Experiences (ACE) Study*, 14 AM. J. PREV. MED. 245 (1998).
3. *Id.* at 251-5.
4. *Id.* at 251-2.
5. *Id.* at 251. According to the National Child Traumatic Stress Network (NCTSN), “Children with complex trauma histories may develop chronic or recurrent physical complaints, such as headaches or stomachaches. Adults with histories of trauma in childhood have been shown to have more chronic physical conditions and problems. They may engage in risky behaviors that compound these conditions (e.g., smoking, substance use, and diet and exercise habits that lead to obesity).” THE NAT’L CHILDHOOD TRAUMATIC STRESS NETWORK, *The Effects of Complex Trauma* (last visited Mar. 10, 2017), <http://www.nctsn.org/trauma-types/complex-trauma/effects-of-complex-trauma>. See also Robert Anda, PREVENT CHILD ABUSE AM., *The Adverse Childhood Experiences Study: Child Abuse & Public Health* (Feb. 5, 2016), http://www.preventchildabuse.org/images/docs/anda_wht_ppr.pdf; Danya Glaser, *Child Abuse & Neglect & the Brain—A Review*, 41 J. CHILD PSYCHOL. & PSYCHIATRY 97, 98-99, 103, 106-109, 111 (2000); Davis N. Breslau et al., *Risk Factors for PTSD-related Traumatic Events: A Prospective Analysis*, 152 AM. J. PSYCHIATRY 529 (1995); Bessel van der Kolk et al., *Yoga as an Adjunctive Treatment for Posttraumatic Stress Disorder: A Randomized Controlled Trial*, 75 J. CLIN. PSYCHIATRY e559 (2014).
6. Anda, *supra* note 5 (discussing ACE study and noting that “[a]s the number of adverse childhood experiences increases, the risk of developing significant health problems increases in a strong and graded fashion; this is called a ‘dose- response’ reaction.”).
7. “Historical trauma can be conceptualized as an event or set of events perpetrated on a group of people . . . who share a specific group identity (e.g., nationality, tribal affiliation, ethnicity, religious affiliation) with genocidal or ethnocidal intent (i.e., annihilation or disruption to traditional lifeways, culture, and identity)”. Karina L. Walters et al., *Bodies Don’t Just Tell Stories: They Tell Histories*, 8:1 DU BOIS REV.: SOC. SCI. RES. ON RACE 179, 181 (2011). “After controlling for contemporary lifetime trauma, historical trauma related to land loss, displacement, and neglect had a significant effect on physical and mental health.” Karina L. Walters et al., *Dis-Placement and Dis-Ease: Land, Place, & Health Among Am. Indians & Alaska Natives, in Communities, Neighborhoods, & Health*, SOC. DISPARITIES IN HEALTH & HEALTH CARE (L.M. Burton et al. eds., 2011). See also Maria Yellow Horse Braveheart, *Gender Differences in the Hist. Trauma Response among the Lakota*, 10 J. HEALTH SOC. POL’Y 1 (1999).
8. It is important to note that the physical and mental effects of trauma do not manifest as not stand-alone typologies, but instead are inextricably intertwined.
9. THE NAT’L CHILDHOOD TRAUMATIC STRESS NETWORK, *Types of Traumatic Stress* (last visited Mar. 3, 2017), <http://www.nctsn.org/trauma-types#q2>.
10. BESSEL VAN DER KOLK, *THE BODY KEEPS THE SCORE: BRAIN, MIND, & BODY IN THE HEALING OF TRAUMA* 21 (2014).
11. For purposes of this report, the terms intervention and program are used interchangeably.
12. Bonnie Benard, RESILIENCY IN ACTION, *The Founds. of the Resiliency Framework* (2014), www.resiliency.com/free-articles-resources/the-foundations-of-the-resiliency-framework/.
13. See, e.g., Elizabeth Warner et al., *The Body Can Change the Score: Empirical Support for Somatic Reg. in the Treatment of Traumatized Adolescents*, 7 J. CHILD ADOLESCENT TRAUMA 238-39 (2014).
14. See Rebecca Matthew, NIROGA INST., *Alameda County Juv. Just. Ctr. Unit 6 Transformative Life Skills (TLS) Program June 2008 – December 2009* (2010), http://www.niroga.org/wp/research/acjic6_results2010.pdf. Analysis of pre- and post-test results concerning perceived stress, revealed a significant decrease. Self-control data analyses revealed a significant increase in self-control among youth participants. All participants were system-involved youth held in Alameda County Juvenile Justice Center Unit 6. See also Sam Himelstein et al., *Mindfulness Training for Self-Reg. & Stress with Incarcerated Youth: A Pilot Study*, 59 PROB. J. 151 (2011) (analyzing data from a 10-week mindfulness intervention with incarcerated adolescents in San Francisco Bay Area finding, “that self-regulation and perceived stress significantly changed from pretest to posttest in psychological enhancing directions.”).
15. Laura Feagans Gould et al., *A School-Based Mindfulness Intervention for Urban Youth: Exploring Moderators of Intervention Effects*, 40 J. COMMUNITY PSYCH. 968 (2012); Shari Miller et al., *Use of Formative Res. to Develop a Yoga Curriculum for High-Risk Youth: Implementation Considerations*, 7 ADVANCES IN SCHOOL MENTAL HEALTH PROMOTION 171, 172 (2014); Joseph Spinazzola et al., *Application of Yoga in Residential Treatment of Traumatized Youth*, 17 J. AM. PSYCH. NURSES ASS’N 431, 434 (2011). These examples are not exhaustive; they are provided to illustrate that research suggests that mindfulness and yoga interventions hold promise for helping youth learn to calm down, respond effectively to stress, and focus attention.
16. Miller et al., *supra* note 15 at 171; Spinazzola et al., *supra* note 15.
17. VAN DER KOLK, *supra* note 10, at 4.
18. Sat Bir S. Khalsa et al., *Evaluation of the Mental Health Benefits of Yoga in a Secondary School: A Preliminary Randomized Controlled Trial*, 39 J. BEH. HEALTH SERVS. & RES. 81 (2012).
19. Sat Bir S. Khalsa, *Yoga as a Therapeutic Intervention: A Bibliometric Analysis of Published Res. Studies*, 48 INDIAN J. OF PHYSIOLOGY & PHARMACOLOGY 269 (2004).
20. SUBSTANCE ABUSE & MENTAL HEALTH SERVS. ADMIN., NAT’L REGISTRY OF EVIDENCE-BASED PROGRAMS & PRACS. (Jan. 20, 2017). SAMHSA describes trauma-informed approaches as including the following elements: (1) Realizes the widespread impact of trauma and understands potential paths for recovery; (2) Recognizes the signs and symptoms of trauma in clients, families, staff, and others involved with the system; (3) Responds by fully integrating knowledge about trauma into policies, procedures, and practices; and (4) Seeks to actively resist re-traumatization. NAT’L CTR. FOR TRAUMA INFORMED CARE, *TRAUMA-INFORMED APPROACH & TRAUMA-SPECIFIC INTERVENTIONS* (Aug. 14, 2015).
21. See, e.g., Cari Jo Clark, *Trauma-Sensitive Yoga as an Adjunct Mental Health Treatment in Group Therapy for Survivors of Domestic Violence: A Feasibility Study*, 20 COMPLEMENTARY THERAPIES IN CLINICAL PRAC. 152, 152-58 (Aug. 2014); Robert Whitaker, *Adverse Childhood Experiences, Dispositional Mindfulness, & Adult Health*, 67 PREVENTIVE MED. 147, 147-53 (Oct. 2014).
22. Telephone Interview with Bidyut Bose, Bidyut K. Bose, Ph.D., Founder and Executive Director, NIROGA INST. (Nov. 8, 2016); Gina Biegel et al., *Mindfulness-Based Stress Reduction for the Treatment of Adolescent Psychiatric Outpatients: A Randomized Clinical Trial*, 77 J. CONSULTING & CLIN. PSYCH. 5 (2009); Gurjeet Birdee et al., *Clinical Applications of Yoga for the Pediatric Population: A Systematic Review*, 9 ACAD. PEDIATRICS 212 (2009); Mary Lou Galantino et al., *Therapeutic Effects of Yoga for Children: A Systematic Review of the Literature*, 20 PEDIATRIC PHYSICAL THERAPY 66 (2008); Laura Santangelo White, *Yoga for Children*, 35 PEDIATRIC NURSING 227, 295 (2009); Erica M. Sibinga et al., *A Small Mixed-Method RCT of Mindfulness Instruction for Urban Youth*, 10 EXPLORE: J. OF SCIENCE & HEALING 3 (2014).
23. Rena Deitz & Sonali Rajan, *Access & Barriers to Implementing Yoga-Based Interventions for At-Risk Adolescent Youth*, 55 INT’L J. HEALTH PROMOTION & EDUC. 30 (2017); Laura Feagans Gould et al., *supra* note 15; Diana Fishbein et al., *Behav. & Psychophysiological Effects of a Yoga Intervention on High-Risk Adolescents: A Randomized Control Trial*, 25 J. CHILD. FAM. STUD. 518 (2016); P. S. Jensen et al., *Respiratory Patterns in Students Enrolled in Schools for Disruptive Behaviour Before, During, & After Yoga Nidra Relaxation*, 21 J. CHILD. FAM. STUDIES 667 (2012); Shari Miller et al., *supra* note 15; Sat Bir S. Khalsa et al., *supra* note 19; Tamar Mendelson et al., *Feasibility*

24. Himelstein, *supra* note 14; Ramesh Ramadoss & Bidyut K. Bose, *Transformative Life Skills: Pilot Studies of a Yoga Model for Reducing Perceived Stress and Improving Self-Control in Vulnerable Youth*, 20 INT'L J. YOGA THERAPY 75 (2010); Spinazzola, *supra* note 15.
25. Bethany Butzer, *School-based Yoga Programs in the United States: A Survey*, 29 ADV. MIND BODY MED. 18 (Fall 2015). See also Sat Bir Khalsa & Bethany Butzer, *Yoga in School Settings: A Res. Rev.*, 1371 ANN. NEW YORK ACAD. SCI. 45 (June 2016) (stating in systematic review of research on school-based yoga interventions that “these publications suggest that yoga in the school setting is a viable and potentially efficacious strategy for improving child and adolescent health and therefore worthy of continued research.”).
26. See *infra* Section I.
27. Desiree W. Murray et al., ADMIN. FOR CHILDREN & FAMILIES, OFF. OF PLANNING, RES. & EVALUATION, SELF-REG. & TOXIC STRESS REPORT 4: IMPLICATIONS FOR PROGRAMS & PRAC. (Dec. 2, 2016).
28. As OJJDP studies show, at least 75% of youth in the juvenile justice system have experienced traumatic victimization and 50% experience negative mental and physical health outcomes. See David Finkelhor et al., OFF. JUV. JUST. & DELINQ. PREVENTION PROGRAMS, POLY-VICTIMIZATION: CHILDREN'S EXPOSURE TO MULTIPLE TYPES OF VIOLENCE, CRIME, & ABUSE (2011). Further, as NCTSN has reported, 93% of youth in an urban juvenile detention center had experienced at least one traumatic event in the previous year, with 10% meeting criteria for PTSD in the previous year. See Cally Sprague, NAT'L CHILD TRAUMATIC STRESS NETWORK, JUDGES & CHILD TRAUMA: FINDINGS FROM THE NAT'L CHILD TRAUMATIC STRESS NETWORK/NAT'L COUNCIL OF JUV. & FAMILY CT. JUDGES FOCUS GROUPS (Aug. 2008).
29. See *infra* Section III. Decisions about mental health treatment and interventions can only be determined on an individual basis. One expert has noted that his clients typically require a combination of methods. VAN DER KOLK, *supra* note 10, at 3.
30. Mendelson et al., *supra* note 23, at 990.
31. OFF. OF JUV. JUST. & DELINQUENCY PREVENTION, *Policy Guidance: Girls in the Juv. Just. Sys.*, 0https://www.ojjdp.gov/policyguidance/girls-juvenile-justice-system (last visited Feb. 26, 2017). For example, in 2013 Black girls were almost three times as likely as white girls to be referred to juvenile court and American Indian/Alaska Native girls were 1.4 times more likely to be referred. Francine T. Sherman & Annie Balck, THE NAT'L CRITTENTON FOUND., *Gender Injustice: Sys. -Level Juv. Just. Reforms for Girls* (Sept. 24, 2015), <http://nationalcrittenton.org/gender-injustice/>.
32. Marianne Hennessey, Julian D. Ford, Karen Mahoney, Susan J. Ko & Christine Siegfried, NAT'L CHILD TRAUMATIC STRESS NETWORK, *TRAUMA AMONG GIRLS IN THE JUV. JUST. SYS.* 7-8 (2004), http://www.nctsn.org/sites/default/files/assets/pdfs/trauma_among_girls_in_the_jj_system_2014.pdf; DOJ, BUREAU OF JUST. ASSISTANCE, NAT'L TRAINING & TECH. ASSISTANCE CTR., *Handout 2-1: Gender-Responsive Definition & Program Components*, https://www.nttac.org/views/docs/jabg/grpcurriculum/track2/mod2/Handout_2-1.pdf.
33. See Ashley M. Mayworm & Jill D. Sharkey, *Gender-Specific Mental Health Outcomes of a Community-Based Intervention*, 3 J. OF JUV. JUST. 15 (Fall 2013).
34. Betsy Matthews & Dana Jones Hubbard, *Moving Ahead: Five Essential Elements for Working Effectively with Girls*, 36 J. OF CRIM. JUS. 494 (2008).
35. Juliette Noel Graziano & Eric F. Wagner, *Trauma Among Lesbians & Bisexual Girls in the Juv. Just. Sys.*, 17 TRAUMATOLOGY 45 (2011).
36. Malika Saada Saar, Rebecca Epstein, Lindsay Rosenthal & Yasmin Vafa, GEORGETOWN LAW CTR. ON POVERTY & INEQUALITY, *The Sexual Abuse to Prison Pipeline: The Girls' Story* 12 (2015) (citing Hennessey et al., *supra* note 32, at 4 (2004)).
37. Sherman & Balck, *supra* note 31 (citing Andrea J. Sedlak & Karla S. McPherson, U.S. DEP'T OF JUST., OFF. OF JUST. PROGRAMS, OFF. OF JUV. JUST. & DELINQUENCY PREVENTION YOUTH NEEDS & SERVS., FINDINGS FROM THE SURVEY OF YOUTH IN RESIDENTIAL PLACEMENT 6 (2010)).
38. Saada Saar et al., *supra* note 36, at 12.
39. *Id.* (citing Jennie L. Shuffelt & Joseph J. Cocozza, NAT'L CTR. FOR MENTAL HEALTH & JUV. JUST., *Youth with Mental Health Disorders in the Juv. Just. Sys.: Results from a Multi-State Prevalence Study* 4 (June 2006), <https://www.ncmhj.com/resources/youth-mental-health-disorders-juvenile-justice-system-results-multi-state-prevalence-study/>).
40. Bruce Perry, *Traumatized Children: How Childhood Trauma Influences Brain Dev.*, 11 J. CALIFORNIA ALLIANCE FOR THE MENTALLY ILL 48 (2000).
41. *Id.*
42. The explanations provided here are simplified versions of complicated scientific and psychological processes, intended to provide a basic, common understanding of trauma and the brain limited to the purposes of this report.
43. See NAT'L CHILD TRAUMATIC STRESS NETWORK, *Understanding the Link Between Adolescent Trauma & Substance Abuse* 4 (June 2008), http://www.nctsn.org/nctsn_assets/pdfs/SAToolkit_ProviderGuide.pdf; NAT'L CHILD TRAUMATIC STRESS NETWORK, *supra* note 2; PETER LEVINE, *WAKING THE TIGER: HEALING TRAUMA* 157, 160 (1997); DAVID EMERSON & ELIZABETH HOPPER, *OVERCOMING TRAUMA THROUGH YOGA: RECLAIMING YOUR BODY* xxii-xxiii, 18-21, 23 (2012); MARY NURRIESTEARN & RICK NURRIESTEARN, *YOGA FOR EMOTIONAL TRAUMA* 65-66, 69 (2013); VAN DER KOLK, *supra* note 10, at 273; Jessica Feierman & Laura Fine, JUV. LAW CTR., *Trauma & Resilience: A New Look at Legal Advocacy for Youth in the Juv. Just. & Child Welfare Sys.* 3 (2014); Felitti, *supra* note 2; *Effects of Complex Trauma*, *supra* note 5.
44. VAN DER KOLK, *supra* note 10, at 66.
45. *Effects of Complex Trauma*, *supra* note 6. The precise definition of dissociation has been the subject of some debate. See Ellert R. S. Nijenhuis et al., *Dissociation in Trauma: A New Definition & Comparison with Previous Formulations*, 12 J. OF TRAUMA & DISSOCIATION 416 (2011) (proposing a definition that characterizes dissociation as “a core feature of trauma. It evolves when the individual lacks the capacity to integrate adverse experiences in part or in full, can support adaptation in this context, but commonly also implies adaptive limitations.”). See also EMERSON & HOPPER, *supra* note 43, at 21-23.
46. All system-involved youth – both boys and girls – report higher levels of trauma than their non-system involved peers. See, e.g., Carly B. Dierkhsing et al., *Trauma Histories Among Just.-Involved Youth: Findings from the Nat'l Child Traumatic Stress Network*, 4 EUR. J. PSYCHOTRAUMATOLOGY 1 (2013).
47. Yael Cannon et al., NEW MEXICO SENTENCING COMM'N, *Adverse Childhood Experiences in the New Mexico Juv. Just. Population* 1 (2016), <http://nmssc.unm.edu/reports/2016/adverse-childhood-experiences-in-the-new-mexico-juvenile-justice-population.pdf>. The National Crittenton Foundation revealed comparable findings. For example, its 2012 study determined that 62% of girls scored 4 or more, 44% scored 5 or more, and 4% scored 10. THE NAT'L CRITTENTON FOUND., *Summary of Results: Crittenton Adverse Childhood Experiences (ACE) Pilot* 4 (2012), <http://www.nationalcrittenton.org/wp-content/uploads/2015/03/ACEResults.pdf>. In 2016, meanwhile, the ACE scores for youth enrolled in Crittenton programs revealed that girls reported higher ACE scores than boys across the board, especially in the ACE score range of 8

- to 10, which comprised 27% of girls' scores. THE NAT'L CRITTENTON FOUND., *Beyond Ace: Summary Findings from the Crittenton Family of Agencies 2014-2015 Admin. of the Adverse Childhood Effects (ACE) Survey* 8 (2016), http://nationalcrittenton.org/wp-content/uploads/2016/09/ACE_REPORT_finalsm.pdf.
48. Michael T. Baglivio et al., *The Prevalence of Adverse Childhood Experiences (ACE) in the Lives of Ju. Offenders*, 3 J. OF JUV. JUST. 1, 8 (2014).
49. Felitti, *supra* note 2, at 252. See also Rebecca M. Shansky, *Sex Differences in PTSD Resilience & Susceptibility: Challenges for Animal Models of Fear*, 1 NEUROBIOLOGY OF STRESS 60 ("Women who suffer from PTSD undoubtedly will be best served by treatments that take into consideration ... the unique experiences of a woman in combat (e.g. the disproportionately high incidence of Military Sexual Trauma in women") (citing Naomi Himmelfarb, Deborah Yaeger & Jim Mintz, *Posttraumatic Stress Disorder in Female Veterans with Military and Civilian Sexual Trauma*, 19 J. OF TRAUMATIC STRESS 837 (Dec. 2006)).
50. THE NAT'L CRITTENTON FOUND. (2016), *supra* note 47, at 8.
51. *Id.*
52. Baglivio et al., *supra* note 48, at 8.
53. Raul Almazar, NAT'L CTR. FOR TRAUMA INFORMED CARE, *Enhancing Recovery in a Trauma Informed Sys. of Care* 47, <https://cabhp.asu.edu/sites/default/files/session-26-trauma-informed-care-the-basics.pdf>. See, e.g., Shansky, *supra* note 49 ("Women who suffer from PTSD undoubtedly will be best served by treatments that take into consideration ... the distinct neurobiological background against which those experiences take place.").
54. Christine Heim, et al., *Pituitary-Adrenal and Autonomic Responses to Stress in Women After Sexual and Physical Abuse in Childhood*, 284 JAMA 592 (2000).
55. Miranda Olff et al., *Gender Differences in Posttraumatic Stress Disorder*, 133 PSYCHOL. BULL. 183 (Mar. 2007).
56. *Id.*
57. Bruce D. Perry, THE CHILD TRAUMA ACAD., *The Fear Response: The Effects of Trauma on Children* 17 (2004), http://www.lfcc.on.ca/Perry_Core_Concepts_FearResponse.pdf ("There appear to be gender differences in adaptive response in the acute event (females dissociate more than males)"); Dorte Christiansen & Ask Elklit, *Sex Differences in PTSD, in POST-TRAUMATIC STRESS DISORDERS IN A GLOBAL CONTEXT* (Emilio Ovuga ed., 2012), http://cdn.intechopen.com/pdfs/26608/InTech-Sex_differences_in_ptsd.pdf ("females report higher levels of traumatic dissociation than do males"); NURRIESTEARN & NURRIESTEARN, *supra* note 43, at 66. Some scientists have suggested that cultural context can be important in determining girls' response to trauma as well as biological factors. See Christiansen & Elklit, *supra* ("It has been suggested that sex differences in PTSD are particularly evident in communities that emphasize traditional gender roles (Norris et al., 2007). This suggests that social gender and biological sex are both important in making up such differences.").
58. Allison Rhodes, *Claiming Peaceful Embodiment Through Yoga After Trauma*, 21 COMPLEMENTARY THERAPIES IN CLINICAL PRAC. 247 (2015). See also Telephone Interview with Hala Khouri, M.A., SEP, E-RYT, Co-Founder and Director, Off the Mat, Into the World® (Dec. 21, 2016).
59. Interoceptive processes are defined as multi-sensory, proprioceptive, vestibular, cardiovascular, pulmonary, and musculoskeletal. See Tim Gard et al., *Potential Self-Regulatory Mechanisms of Yoga for Psychol. Health*, 8 FRONTIERS IN HUMAN NEUROSCIENCE 1, 6 (2014).
60. Klabunde et al., *The Moderating Effects of Sex on Insula Subdivision Structure in Youth with Posttraumatic Stress Symptoms*, 34 DEPRESSION & ANXIETY 51 (Nov. 2016).
61. Tim Newman, *Trauma Affects Girls' & Boys' Brains Differently*, MED. NEWS TODAY, Nov. 12, 2016, <http://www.medicalnewstoday.com/articles/314060.php>.
62. OFF. OF THE ATT'Y GEN., REPORT OF THE ATT'Y GEN. NAT'L TASK FORCE ON CHILDREN EXPOSED TO VIOLENCE 182 (Dec. 12, 2012).
63. MONIQUE W. MORRIS, PUSHOUT: THE CRIMINALIZATION OF BLACK GIRLS IN US SCHOOLS 23-24 (2016) (citing Kimberlé Crenshaw's coining of the concept and related work).
64. See WOMEN OF COLOR NETWORK, *Facts & Stats Collection: Sexual Violence in Communities of Color* 5 (June 2006), http://www.doj.state.or.us/victims/pdf/women_of_color_network_facts_sexual_violence_2006.pdf. See also, e.g., THE NAT'L CRITTENTON FOUND. (2016), *supra* note 47, at 8 (discussing importance of disaggregating data by racial and ethnic groups future studies of ACE because "gender and class is essential in understanding and developing effective means of interrupting the cycles of childhood adversity.").
65. *Id.*
66. See MORRIS, *supra* note 63 (citing views of Nola Brantley, co-founder and former executive director of Motivating, Inspiring, Supporting and Serving Sexually Exploited Youth (MISSSEY)).
67. "Many Native and non-Native allied public health professionals have begun to ... develop[] intervention programs that integrate theories of historical trauma, community capacity and community empowerment." Michelle Sotero, *A Conceptual Model of Histor. Trauma: Implications for Public Health Prac. & Res.*, 1 J. HEALTH DISPARITIES RES. & PRAC. 93 (2006).
68. See Monique Morris, Transcript of Webinar: *Countering School Pushout & the Criminalization of Girls of Color* 8-9 (May 24, 2016), https://www.ntac.org/media/trainingCenter/1639/Transcript_CounteringSchoolPushoutofGOC_052416_508c_KC.pdf ("in communities of African descent where individuals are starting to deconstruct really what does this relationship with trauma look like when we are talking about whole populations that have experienced segregated opportunities in schools, or whole populations that have been rendered invisible by dominant structures in curriculum that is supposed to teach them about their work and engagement and practice in society?"). See also David R. Williams et al., *Discrimination & Racial Disparities in Health: Evidence & Needed Res.*, 32 J. BEHAV. MED. 20 (2008).
69. NAACP LEGAL DEF. FUND & NAT'L WOMEN'S LAW CTR., *Unlocking Opportunity for African Am. Girls: A Call to Action for Educ. Equity* 21 (2014), http://www.nwlc.org/sites/default/files/pdfs/unlocking_opportunity_for_african_american_girls_final.pdf.
70. OFF. OF JUV. JUST. & DELINQUENCY PREVENTION, *supra* note 31.
71. MORRIS, *supra* note 63, at 143.
72. See Saada Saar et al., *supra* note 36.
73. STEPHANIE COVINGTON, VOICES: A PROGRAM OF SELF-DISCOVERY & EMPOWERMENT FOR GIRLS 16 (2017).
74. *Id.* See also Sherman & Balck, *supra* note 31 ("When girls and boys experience similar unhealthy, dangerous, or damaging social contexts, they are affected differently and react differently as a result of different socialization and girls' increased focus on relationships"); Christie Kim, NEW YORK U. DEP'T OF APPLIED PSYCHOL., *Self-Efficacy in Victims of Child Sex Abuse* (2017), <http://steinhardt.nyu.edu/appsycho/opus/issues/2015/spring/kim>; NURRIESTEARN & NURRIESTEARN, *supra* note 43, at 30 (discussing development of self-concept during adolescence and trauma's effect on self-worth).
75. "The end product of these cultural and social influences is that girls today are vulnerable to a variety of physical and psychological risks that threaten their health and well-being." COVINGTON, *supra* note 73. See also Khouri, *supra* note 58 (recognizing importance of understanding the institutionalized and collective causes of trauma).
76. Graziano & Wagner, *supra* note 35 (citing Chesney-Lind & Shelden, 2004; Simkins & Katz, 2004); see also Saada Saar et al., *supra* note 36.

77. See, e.g., James Swift, JUV. JUST. INFO. EXCHANGE, *LGBT Youth Over-Represented in Juv. Just. Sys.* (July 27, 2012), <http://jjie.org/2012/07/17/lgbt-youth-overrepresented-juvenile-justice-system/>; DEV. SERVS. GROUP, INC., OFF. OF JUV. JUST. & DELINQUENCY PREVENTION, *LGBTQ YOUTHS IN THE JUV. JUST. SYS.* (Aug. 2014).
78. Linda A. Bernhard, *Physical & Sexual Violence Experienced by Lesbian & Heterosexual Women*, 6 VIOLENCE AGAINST WOMEN 68 (Jan. 1 2000).
79. *Id.*
80. Emily F. Rothman, Deineria Exner & Allyson Baughman, *The Prevalence of Sexual Assault against People who Identify as Gay, Lesbian, or Bisexual in the United States: A Systematic Review*, 12 TRAUMA, VIOLENCE, & ABUSE 55 (Apr. 2011); Graziano & Wagner, *supra* note 35.
81. SUBSTANCE ABUSE & MENTAL HEALTH SERVS. ADMIN., 22 GUIDING PRINCIPLES OF TRAUMA-INFORMED CARE 2 (Spring 2014), https://www.samhsa.gov/samhsaNewsLetter/Volume_22_Number_2/trauma_tip/guiding_principles.html.
82. *Id.*
83. The Pennsylvania pilot study was conducted with young mothers in the residential program Youth Service Inc., a member of the Crittenton family of agencies, using The Art of Yoga Project curriculum. The Connecticut pilot study was conducted in several agencies across the state. Some girls in the Connecticut study received a nationally recognized self-empowerment curriculum, Voices, developed by Stephanie Covington; others received that curriculum plus a modified version of the Trauma Center Trauma-Sensitive Yoga program.
84. OFF. OF JUV. JUST. & DELINQUENCY PREVENTION, *supra* note 31.
85. Spinazzola et al., *supra* note 15.
86. A handful of studies, for example, suggest an association between participation in yoga and mindfulness interventions and reduced recidivism. See Pashupati Steven Landau et al., *Low Reincarceration Rate Associated with Ananda Marga Yoga & Meditation*, 18 INT'L J. YOGA THERAPY 43 (2008) (finding in a five-year study of 190 male inmates that those who were taught yoga were significantly less likely to be re-incarcerated upon release).
87. Telephone Interview with Chandlee Kuhn, Former Chief Judge, Family Court, State of Delaware / Founder, Delaware Girls' Initiative (Dec. 1, 2016).
88. Murray et al., *supra* note 27, at 7.
89. Telephone Interview with Nicole Steward, MSW, Art of Yoga Project and Piedmont Yoga (Feb. 16, 2017).
90. Telephone Interview with Leslie Booker, Founder, Urban Sangha Project (Dec. 5, 2016).
91. Khouri, *supra* note 58.
92. Telephone Interview with Fran Frazier, Founder, Rise Sister Rise Network (Jan. 30, 2017).
93. Telephone Interview with Melissa Pelletier, Clinical Director, Journey House (Nov. 6, 2014).
94. Email from Mary Lynn Fitton, RN, FNP, Founder, The Art of Yoga Project, to Rebecca Epstein, Feb. 21, 2017 (on file with author).
95. See *supra* Section II; OFF. OF THE ATT'Y GEN., *supra* note 62, at 181 ("Girls present to the juvenile justice system with high rates of mental health problems and depression."). See also Khouri, *supra* note 58 ("We are living in a world that is generally disempowering and unsafe for girls. [Trauma-informed, gender-responsive yoga] is about making clear to girls that they are in charge of their bodies, and they decide what they want to do."); Steward, *supra* note 89; Booker, *supra* note 90.
96. E-mail from Linda Frisman, Research Professor, U. of Connecticut School of Social Work, to Rebecca Epstein (Feb. 14, 2017) (on file with author).
97. Danielle A. Harris, *Evaluating The Art of Yoga Project: Improving Mindfulness, Self-Respect, & Self-Control in Incarcerated Adolescent Girls* (undated) (unpublished report) (on file with author).
98. See Matthew, *supra* note 14, at 6-9 (2009) (on file with author).
99. *Id.*
100. VAN DER KOLK, *supra* note 10, at 269; Bessel van der Kolk et al., *Yoga as an Adjunctive Treatment for Posttraumatic Stress Disorder: A Randomized Controlled Trial*, 75 J. CLIN. PSYCHIATRY e559 (2014).
101. EMERSON & HOPPER, *supra* note 43, at 44.
102. OFF. OF THE ATT'Y GEN., *supra* note 62, at 192.
103. Pelletier, *supra* note 93 ("Within the first week, we had three girls make disclosures that we weren't aware of. Within four weeks, I worried about how I was filling up the hotline three times per week because of these disclosures.").
104. Frazier, *supra* note 92.
105. Telephone Interview with Rocana Enriquez, Yoga Instructor, The Art of Yoga Project / Parent Leader, Innovate Public Schools (Feb. 19, 2016).
106. See Kieran C.R. Fox et al., *Is Meditation Associated with Altered Brain Structure? A systematic review and meta-analysis of morphometric neuroimaging in meditation practitioners*, 43 NEUROSCI. BIOBEHAV. REV. 48 (2014) (reviewing and meta-analyzing neuroimaging studies of meditation, finding that differences in insula were the most consistent structural alterations); William R. Marchand et al., *Neural Mechanisms of Mindfulness & Meditation: Evidence from Neuroimaging Studies*, 6 WORLD J. PSYCHOL. 471 (2014) (finding that literature review "revealed compelling evidence that mindfulness impacts the function of the medial cortex and associated default mode network as well as insula and amygdala"); Yi Yuan-Tang et al., *Short-Term Meditation Increases Blood Flow in Anterior Cingulate Cortex and Insula*, 6 FRONTIERS IN PSYCHOL. 212 (2015) (showing integrative body-mind training improved cerebral blood flow in insula after 5-day course).
107. Klabunde et al., *supra* note 60.
108. Rhodes, *supra* note 58, at 251 (finding that "Increased interoceptive awareness cultivated through practicing yoga was common among all the women [studied.]"). See also VAN DER KOLK, *supra* note 10, at 272-734.
109. Fitton, *supra* note 94.
110. Rhodes, *supra* note 58, at 251 (citing Clare J. Fowler, *Visceral Sensory Neuroscience: Interoception*, 126 BRAIN 1505 (June 2003)).
111. *Id.* at 248.
112. VAN DER KOLK, *supra* note 10, at 267; Hala Khouri & Kyra Haglund, *Trauma-Informed Yoga: Concepts, Tools, & Skills* 26 (2016). See also NURRIESTEARNS & NURRIESTEARNS, *supra* note 43, at 74. Other demonstrated health benefits of yoga include, among other benefits, improved muscle tone, reduction in chronic pain and fatigue, lower heart and breath rates, increased oxygenation, and improved cardiovascular functioning. See Catherine Woodyard, *Exploring the therapeutic effects of yoga & its ability to increase quality of life*, 4 INT'L J. YOGA. 49 (2011) (reporting results of literature review); Alyson Ross & Sue Thomas, *The Health Benefits of Yoga & Exercise: A Rev. of Comparison Studies*, 16 J. OF ALT. & COMPLEMENTARY MED. 1, 4 (2010).
113. VAN DER KOLK, *supra* note 10, at 267; Khouri & Haglund, *supra* note 112. See also NURRIESTEARNS & NURRIESTEARNS, *supra* note 43, at 74.
114. See Tiffany R. Carci, Amber L. Fyfe-Johnson, Cora Collette Breuner & Margaret A. Marshall, *Randomized Controlled Clinical Trial of Yoga in the Treatment of Eating Disorders*, 46 J. OF ADOLESCENT HEALTH 346 (2010); Lisa A. Conboy, *Qualitative Evaluation of a High School Yoga Program: Feasibility and Perceived Benefits*, 9 EXPLORE: J. OF SCIENCE & HEALING 171 (May 2013); Allison Hall et al., *Use of Yoga in Outpatient Eating Disorder Treatment: a Pilot Study*, 4 J. OF EATING DISORDERS 38 (Dec. 2016); Lindy Weaver et al., *Systematic Review of Yoga Interventions for Anxiety Reduction Among Children & Adolescents*, 69 AM. J. OF OCCUPATIONAL THERAPY 1 (Nov. 2015).

115. Pelletier, *supra* note 93.
116. See Enriquez, *supra* note 105. Such results, of course, are not limited to women. Bidyut Bose, an expert working with youth in juvenile justice facilities in California, noted that “program officers in the field reported that the kids were taking the yoga with them, trying to teach siblings and families.” Bose, *supra* note 22.
117. YOUTH SERVICE, INC., *Our Mission* (last visited Mar. 16, 2017), <http://ysiphilly.org/>.
118. THE ART OF YOGA PROJECT, *Teen Success and the Art of Yoga Project* 16 (unpublished document) (on file with author).
119. OFF. OF THE ATT’Y GEN., *supra* note 62, at 182.
120. Telephone Interview with Suzanne Jones, Founder, yogaHOPE (Dec. 1, 2016).
121. Rhodes, *supra* note 58, at 252-53 (noting “participants’ improved sense of their own needs in relation to their interactions with others” and the finding that “With greater comfort and safety established within their own bodies and minds, the women felt more comfortable in their relations with others.”).
122. See Enriquez, *supra* note 105.
123. See, e.g., THE ART OF YOGA PROJECT, *Juv. Correctional Facilities* (last visited Mar. 5, 2017), <http://theartofyogaproject.org/where-we-are/juvenile-correctional-facilities/>; Matthew, *supra* note 14 (describing the Niroga Institute’s yoga and meditation program in Alameda County Juv. Just. Ctr.).
124. THE ART OF YOGA PROJECT, *Yoga & Creative Arts Curriculum* (2017), <http://theartofyogaproject.org/what-we-do/our-curriculum/>.
125. Spinazzola et al., *supra* note 15.
126. This report is not intended to endorse a particular curriculum. Instead, it is intended to set forth promising practices and core components of gender-responsive, trauma-sensitive somatic interventions.
127. OFF. OF THE ATT’Y GEN., *supra* note 62, at 182-83.
128. E-mail from Marina Tolou-Shams, Associate Professor, U. of California, San Francisco Med. Ctr., to Rebecca Epstein (Mar. 6, 2016) (on file with author).
129. See *supra* Section III.
130. R.R.S. Neb. § 43-407 (2014).
131. ALASKA DEP’T OF EDUC. & EARLY DEV., ALASKA PHYSICAL EDUC. STANDARDS (2013) (yoga is an activity students can engage in to demonstrate competency in motor and movement skills); ARIZONA DEP’T OF EDUC., ARIZONA STANDARDS FOR K-12 PHYSICAL EDUC. (May 2015) (grade 6-8 standards include “demonstrate[ing] basic movements used in other stress reducing activities such as yoga, tai chi, and deep breathing”); ARKANSAS DEP’T OF EDUC., K-8 PHYSICAL EDUC. & HEALTH CURRICULUM FRAMEWORK (2011) (grade 6 standards include “Participate in exercises that can successfully increase flexibility (e.g., yoga, stretching)”); CALIF. STATE BOARD OF EDUC., PHYSICAL EDUC. MODEL CONTENT STANDARDS FOR CALIFORNIA SCHOOLS (Jan. 2005) (yoga is a recommended activity for high schoolers); COLORADO DEP’T OF EDUC., NEW COLORADO P-12 ACAD. STANDARDS (8th graders to “engage in wellness behavior such as yoga or meditation that acknowledges its holistic nature”); D.C. OFFICE OF THE STATE SUPERINTENDENT OF EDUC., DIST. OF COLUMBIA PHYSICAL EDUC. STANDARDS 25 (2008) (high schoolers must demonstrate knowledge and skills in at least two activities, one of which may be yoga); GEORGIA DEP’T OF EDUC., GEORGIA PERFORMANCE STANDARDS (2008) (physical education standards for 6th grade and high school list yoga as a potential activity); KENTUCKY DEP’T OF EDUC., KAS PHYSICAL EDUC. STANDARDS & ALIGNMENT TO NAT’L PHYSICAL EDUC. STANDARDS (2015) (Kansas physical education standards note that high schoolers should be aware of yoga as a possible “lifetime activity”) La. Admin. Code tit. 28, § 1507(D)(1)(b) (2016) (yoga is a recommended activity for grade 3); NORTH DAKOTA DEP’T OF PUB. INSTRUCTION, PHYSICAL EDUC. STANDARDS (2015) (the Physical Education Standards for 8th grade include “demonstrate[ing] basic movements used in other stress-reducing activities such as yoga and tai chi” as a stress management technique); OHIO DEP’T OF EDUC., OHIO PHYSICAL EDUC. STANDARDS (July 2015) (Ohio physical education standards offer yoga as a potential activity for multiple grade levels); OREGON DEP’T OF EDUC., PHYSICAL EDUC. CONTENT STANDARDS (2017) (yoga is a recommended activity for several grades); SOUTH CAROLINA DEP’T OF EDUC., ACAD. STANDARDS FOR PHYSICAL EDUC. (2014); (yoga is listed as a possible activity); COMMONWEALTH OF VIRGINIA BOARD OF EDUC., PHYSICAL EDUC. STANDARDS OF LEARNING FOR VIRGINIA PUBLIC SCHOOLS (2015) (students should be able to explain the benefits of “stress-reducing activities” including yoga); WEST VIRGINIA DEP’T OF EDUC., HIGH SCHOOL PHYSICAL EDUC. CONTENT STANDARDS & OBJECTIVES (2008) (high-school standards include “rhythmic activities” such as yoga); WISCONSIN DEP’T OF PUB. INSTRUCTION, STANDARDS FOR PHYSICAL EDUC. (2010) (yoga is a recommended activity with which students should be familiar).
132. See Dave Franzman, *Yoga Classes Helping Teens in Custody at Juv. Detention Ctr.*, KCRG-TV9, Jan. 27, 2016, <http://www.kcrg.com/content/news/Yoga-classes-helping-teens-in-custody-at-juvenile-detention-center-366760491.html>.
133. The most common source of funding for mental health and health services are in the form of state grants and other fund allocations. Many states also receive matching grants from the federal government, as well as local special taxes and allocations from general tax funds.
134. The county pays for these classes with funds from Measure A, a 2004 ballot proposal that slightly increased sales tax, with the proceeds from the increase going to mental health services in the county. See ALAMEDA COUNTY HEALTH CARE SERVS. AGENCY, *Measure A* (last visited Mar. 5, 2017), <https://www.acgov.org/health/indigent/measureA.htm>.
135. E-mail from Karen Gentile, Public Health Advisor, Substance Abuse & Mental Health Servs. Admin., to Rebecca Epstein (Mar. 8, 2017) (on file with author).
136. Rhodes, *supra* note 58, at 253; Jones, *supra* note 120 (stating that the most important values of the yogaHOPE program are “predictability, structure, and repetition.”).
137. In addition, making somatic practices available to staff can provide tools for self-care to address the secondary trauma that they may experience from their work in facilities, as well as trauma they may have directly experienced.
138. Most of the experts we interviewed maintain such partnerships with mental health professionals on staff. Khouri, *supra* note 58; Fitton, *supra* note 94; Telephone Interview with David Emerson, Director of Yoga Services, The Trauma Center at JRI (Dec. 8, 2016).
139. OFF. OF THE ATT’Y GEN., *supra* note 62, at 182.
140. *Id.* at 180. See also Diane Bondy, *Confessions of a Fat, Black Yoga Teacher*, DECOLONIZING YOGA (Oct. 16, 2014), <http://www.decolonizingyoga.com/confessions-fat-black-yoga-teacher/> (“The key to bringing diversity to yoga is to have a diversity of teachers.... Have more bigger-bodied teachers.... [T]rain culturally diverse yoga teachers”).
141. OFF. OF THE ATT’Y GEN., *supra* note 62, at 183.

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