Ruth Adewuya, MD (host):

Hello, you are listening to Stanford Medcast, Stanford CME Podcast, where we bring you insights from the world's leading physicians and scientists. If you're new here, consider subscribing to listen to more free episodes coming way. I am your host, Dr. Ruth Adewuya. This episode is part of our Pediatric Pulse miniseries, and I will be chatting with Dr. Buysse and Dr. Bentley about adverse childhood experiences or ACEs. Dr. Christina Buysse is a developmental behavioral pediatrician in the Stanford pediatrics department. A primary care pediatrician before she completed her training in developmental behavioral pediatrics, she has a strong interest in supporting primary care clinicians as they manage children's behavioral issues in their clinics. She has a strong interest in helping families use their own strengths to develop resilience in the face of traumatic experiences. Dr. Buysse has worked with Dr. Bentley and the California ACEs Aware Initiative for the past several years on different projects that promote positive responses to stress for children, families, and care providers.

Ruth Adewuya, MD (host):

Dr. Barbara Bentley is a licensed psychologist who provides clinical service and medical education in the developmental and behavioral pediatrics program at Stanford Children's Health. Her expertise includes providing neurodevelopmental evaluations, counseling, and advocacy for children with high-risk conditions, such as prenatal substance abuse, trauma, autism, and complex medical conditions. Dr. Bentley has led a neurodevelopmental foster care program in Santa Cruz county for over 10 years, working with children and families who have experienced trauma. In her role as an affiliated clinical associate professor at Stanford University, she has focused on medical education projects, with Dr. Christina Buysse, to support the implementation of screening for ACEs and mitigating the impact of trauma in the primary care setting. Thank you both for chatting with me today.

Dr. Barbara Bentley (guest speaker):

Thank you for having us.

Dr. Christina Buysse (guest speaker):

Thank you so much for inviting us.

Ruth Adewuya, MD (host):

Well, I'm really excited to dig into this topic of ACEs. Let's start with definitions. Can you define adverse childhood experiences for us, Dr. Buysse?

Dr. Christina Buysse (guest speaker):

Adverse childhood experiences, or ACEs, are stressful or traumatic events that occur before the age of 18. And they were first described in the Centers for Disease Control and Prevention and Kaiser Permanente Adverse Childhood Experiences study that was published in 1998. And, in that study, they defined as 10 specific experiences that happen in childhood. And these were described as physical, emotional, and sexual abuse, physical and emotional neglect, and household challenges that were caused by a household member who was experiencing mental illness, using substances, or experiencing intimate partner violence, or was absent due to divorce, separation, or incarceration.

Ruth Adewuya, MD (host):

I think that's certainly a very wide description of the types of adverse childhood experiences. And it's good to hear that there are some definition around this experience. Can you talk about how often do you see this? What's the prevalence of ACEs maybe in the United States, and if you could drill down to California as well?

Dr. Christina Buysse (guest speaker):

Yeah. So since that study was done, there's been research and prevalence data has been gathered, and it appears that about 60% of adults across most of the US states, including California, report at least one lifetime ACE. And about 16% of adults report four or more ACEs. When we look at children, one in three children have experienced one ACE and about 14% of kids have experienced two ACEs. And that data is accurate for California, as well as across the country.

Ruth Adewuya, MD (host):

Wow. That is a huge number, right? One in three children. I know in today's landscape, there's been a lot of conversation, and rightfully so, around health disparities in this data. As you look at ACEs, are there some populations that are affected disproportionately?

Dr. Christina Buysse (guest speaker):

Yeah. ACEs, obviously, impact all communities, but we know that some populations are affected disproportionately. When you bring in the adverse social determinants of health, such as poverty, systemic racial injustice, housing, or food insecurity, these worsen and exacerbate the negative impact of ACEs on health. And it has been widely established, since 1998 through research, that people who are racially marginalized in lower-income brackets, involved with the justice system, women, members of the lesbian, gay, bisexual, transsexual, and queer community, experience higher rates of ACE exposure than individuals that don't meet any of those characteristics.

Ruth Adewuya, MD (host):

Is race considered a risk factor for ACEs? And if so, how can and should this disparity be addressed?

Dr. Christina Buysse (guest speaker):

The original ACE study was conducted among a population that was largely white, middle-class, college educated, and privately insured. But subsequent studies about this topic have found a higher prevalence of ACEs among individuals who are racially marginalized, who experience a failing education system in their communities, who lack access to quality healthcare, and who are pulled into the justice or child welfare systems, as well as people who are disregarded or harmed because of their gender or sexual identity. It's clear that vulnerable and systematically-overlooked communities bear the brunt of every crisis that comes around, from COVID 19 to climate change, and that these communities deserve a much more effective set of buffering systems and supports.

Dr. Barbara Bentley (guest speaker):

To transform the negative outcomes associated with ACEs, California is leading the way in improving the lives of our most vulnerable residents by investing in a cross-sector framework for preventing, screen for, and treating ACEs and toxic stress. These key components of our overarching efforts to advance equity, improve health, and well-being, reduce homelessness, and other adversities, and move forward to a person-centered value-based care. It's important to recognize exposure to racism and

discrimination as risk factors for toxic stress and acknowledge their long-term impact on health. We must also understand that historical racism can affect how patients relate to healthcare clinical teams, as well as other organizations within the community. With this awareness, we can better promote integrated efforts for its to heal.

Dr. Christina Buysse (guest speaker):

And as we move to gather more data about the prevalence and impact of ACEs on people, political will can be leveraged that supports programs that prevent trauma in the community. Ultimately, it saves society money to prevent and treat toxic stress. And, hopefully, these financial savings may motivate our society to fund programs that can support our most vulnerable populations before ACEs happen.

Ruth Adewuya, MD (host):

That's new language for me here, toxic stress. Can we talk about what is toxic stress physiology, and how does it relate to the conversation of ACEs?

Dr. Christina Buysse (guest speaker):

Yeah. So, as we know, everybody experiences stress. I experienced stress before this interview. People experience stress before a job interview. However, chronic stress that's sustained over time is different. It can be damaging to the body and the brain, particularly for kids because the earliest years are a critical time for brain development. The accumulation of excessive stress in the body interferes with the actual development of healthy neural, immune, and hormonal systems. And new epigenetic research says it can impact the expression of our DNA. A consensus of scientific evidence demonstrates that high doses of cumulative adversity that are experienced during those critical and sensitive periods of brain development can lead to long-term disruptions in brain development. And without the buffering protections of trusted, nurturing caregivers and safe, stable environments, a person's at risk for developing, what's known as, the toxic stress response. We clinically work with parents who have difficulty attaching and connecting to their children. Their own adverse childhood experiences can impact their ability to teach their children healthy coping strategies. There are a number interventions that can interrupt this cycle of toxic stress and lead to healthier communities going forward.

Ruth Adewuya, MD (host):

Thank you. And, Dr. Bentley, you had mentioned earlier that the early focus of research was really on the impact of the 10 specific ACEs, but now you're shifting to look at it more holistically. Can you share what is the current research on the health consequences of ACEs?

Dr. Barbara Bentley (guest speaker):

Sure. Exposure to ACEs has been associated with poor health outcomes, increased behavior risks, and decrease educational and economic outcomes. Adults who experienced four or more ACEs are about one and a half times more likely to have cardiac disease, two times more likely to have cancer, five times more likely to be depressed, and 10 times more likely to become substance dependent than someone with no exposure to ACEs.

Ruth Adewuya, MD (host):

That's mind-blowing. Dr. Buysse, are you seeing that there's also an increased risk outside of the physical space?

Dr. Christina Buysse (guest speaker):

Absolutely. In the field of developmental and behavioral pediatrics, we're learning that children who are exposed to ACEs have an increased risk and an increased association of behavioral, learning, and attention difficulties. And so societal costs of ACEs are in excess of hundreds of billions of dollars every year. When you're counting direct healthcare costs and disability adjusted life years, it's estimated that ACEs cost $748 billion a year in North America. And most of that, 75% of that, is for people who have two or more ACEs.

Ruth Adewuya, MD (host):

I feel like I keep saying that's incredible, that those numbers are staggering. Can you talk about the mechanism of how ACEs is impacting health outcomes?

Dr. Christina Buysse (guest speaker):

Individuals that have many ACEs are more likely to perform poorly in school because they're occupied with other things than focusing on homework. They're more likely to be unemployed, and they're much more likely to develop high-risk health behaviors, such as smoking and drug use. And these high-risk behaviors account for almost 50% of that increased risk of negative consequences that are associated with ACEs because substance use leads to accidents, leads to child abuse, leads to myriad of complications. And so it's really a core difficulty with exposure to ACEs in childhood.

Dr. Barbara Bentley (guest speaker):

Yeah. So when a person doesn't have the ability to mitigate stressful experiences, their ACEs exert effects on their health throughout the development of toxic stress. This prolonged or excessive activation of the stress response system leads to physiological changes in the immune, inflammatory, cardiovascular, and neurological systems.

Ruth Adewuya, MD (host):

What are the implications of the finding that emotional trauma impacts physical health for how we think about the division between physical and mental health?

Dr. Christina Buysse (guest speaker):

I think this is one of the most important things that is arising in this discussion about trauma and ACEs, because talking about trauma and toxic stress flips the script from what's wrong with you to what happened to you. And it adds in the very hopeful, "And what can we do to change the future?" It's really important for clinicians and the general public to recognize that mental health is physical health. I mean, we can't have one without the other. One of the benefits of bringing a screening into the clinic is that, through the discussions that follow, patients start to understand that healthcare providers are interested in their lives, they're interested in the things that matter to them, and they start to realize that it's within their power to learn healthy methods to deal with stress.

Dr. Barbara Bentley (guest speaker):

For patients, this can be a very powerful motivator. For a parent who's working two jobs to make financial ends meet, it might be a paradigm shift to learn that family fun time and getting enough sleep are not luxuries but essential component of health. We can strategize with families to find ways to bring healthy practices in that work in their lives. Traumatic events may have happened to them or their

children, but this doesn't mean that they need to have that be their story. We can learn ways to change the script and develop healthy coping strategies that can change biology moving forward.

Dr. Christina Buysse (guest speaker):

When we, as healthcare providers, acknowledge that link between stress, mitigation, and health, it empowers people to explore and find ways to prevent stress and improve their own long-term health. The next more ambitious step is to raise the national conversation and national awareness so that we can start to really fund programs and community supports adequately that level the playing field, so that all people can experience environments that are safe and healthy, and we can prevent traumatic experiences from happening in the first place.

Ruth Adewuya, MD (host):

Can you talk about what is currently done in the national landscape about ACEs?

Dr. Christina Buysse (guest speaker):

What we've been hearing through our national conferences that we attend for our professional societies is that DEI and ACEs and trauma prevention are really being elevated and discussed at these national conferences where clinicians are coming forth to discuss how they're going to help patients manage their lives. And so I think this national conversation, at least from my perspective, is happening at the national organization for medical providers level. And the California ACEs Aware Initiative has really elevated the topic in California, which is being replicated in other states.

Ruth Adewuya, MD (host):

Have you seen that the past year, where the entire nation has gone through this reckoning around social justice issues, have you seen an impact of that in changing the conversation or at least adding to the elevation of traumatic events and ACEs?

Dr. Barbara Bentley (guest speaker):

So many things have happened that have been traumatizing to our nation. So we've had a lot of the social injustice that's been very in our minds, in our thoughts. We've been in the middle of a worldwide pandemic that's stressed out families very significantly. And so we've been able to have conversations about what's happening in their day-to-day right now because of the world events and how we can use some of the strategies that we use to mitigate the stress response from the ACEs material to help families with whatever is traumatizing or stressful for them, regardless of whether or not it's an ACE-related issue.

Dr. Christina Buysse (guest speaker):

People who have been historically privileged are experiencing a level of trauma through the pandemic. And with school closures and illness and loss of family members, that has opened, I think, acceptability of having these discussions. People are realizing trauma is real, and it's hard, who have not historically experienced trauma to the same degree.

Ruth Adewuya, MD (host):

Why are the health impacts of ACEs particularly significant compared to the trauma that occurs in adulthood?

Dr. Christina Buysse (guest speaker):

Well, as we know, the human brain is developing well into a person's 20s. And so neural networks are connecting and the prefrontal cortex is developing, so young brains are especially vulnerable, during this time of growth, to the impact of stress hormones. And that can lead to epigenetic changes that can become more severe when they're experienced as a child.

Dr. Barbara Bentley (guest speaker):

At the same time, children are learning strategies to cope with stress as they grow up. They're learning about healthy relationships, nutritious eating, good sleep hygiene, regular exercise, and mindfulness that will impact how they deal with stress for the rest of their lives. If children are not in an environment that can protect them from ACEs, they may be less likely to develop these healthy behaviors to allow them to medicate the stress response throughout their lives.

Ruth Adewuya, MD (host):

Is ACEs mainly an issue for pediatrics, or does adult medicine also have a role to play in remedying their consequences later in life?

Dr. Barbara Bentley (guest speaker):

There's definitely a role for treatment and prevention of trauma well into adulthood.

Dr. Christina Buysse (guest speaker):

Many obstetrical practices are using ACE screening regularly in their practices and are doing it not only to help women manage their own trauma and to make referrals for these women but to prevent trauma in the infants that they're caring for as well. This work is definitely about preventing intergenerational transmission of trauma. We can't change what happened to us, but we can change how we act today to make us healthier tomorrow.

Ruth Adewuya, MD (host):

How can clinicians introduce and integrate ACEs and toxic stress screening into clinical care?

Dr. Barbara Bentley (guest speaker):

I think that the specific screener is not as important as opening up the conversation with a person about the impact of toxic stress and also their ability to mitigate that. The reason we want to screen for ACEs is because we know that toxic stress can be treated and prevented.

Dr. Christina Buysse (guest speaker):

ACEs and social determinants of health screening has to be done really carefully and thoughtfully, starting from a place of trauma-informed care throughout the institution. We've been working with primary care practices to roll out ACE screening, and we've learned that this is not super easy work. ACE screening has an impact on everyone, from intake personnel to clinicians to patients, and special attention needs to be paid to training workplace personnel in order to prevent vicarious trauma. And also, attention needs to be paid to having the resources and referral networks established so that we can give people strategies to improve their own health.

Ruth Adewuya, MD (host):

One of the criticisms for a screening has been its imprecision. It's been difficult to precisely predict health risk for a given ACE score. And also, the impacts of an ACE can vary widely, as you mentioned, depending on the intensity, the frequency, and the timing. How can ACE screening address these concerns?

Dr. Barbara Bentley (guest speaker):

It's really hard to study individual outcomes using a public health framework. We know that if we screen for and treat ACEs and toxic stress, people will benefit with healthier lives.

Ruth Adewuya, MD (host):

And two, despite the importance of ACE screening, there are still a lot of clinicians and physicians that do not screen their patients for ACEs. Why do you think screening is uncommon, and what steps do you think need to be taken to generate the necessary awareness and urgency among clinicians?

Dr. Christina Buysse (guest speaker):

We've been thinking about out this pretty hard for the past year and working and listening to clinicians, telling us about the difficulties. And while most clinicians recognize the impact of ACEs and toxic stress on physical and mental health, routine screening for ACEs can feel like a really daunting proposition. It requires a protocol. It requires time for implementation, care coordination, training of staff. You have to compile a list of resources and referral networks for when ACEs are identified. And the bottom line is that we need to provide support to clinicians in order to roll this out. They need money, they need time, and they need care coordination and support to really be effective in this process.

Dr. Barbara Bentley (guest speaker):

Yes, I think without proper preparation and ongoing support, there's a high risk for vicarious traumatization that's very real for medical assistants and providers who conduct screenings. So, most notably, busy caring clinicians are sometimes afraid of what they're going to uncover if they ask the question. And so that makes it very difficult to feel up to the task when you have very short clinical visits.

Ruth Adewuya, MD (host):

So, on a more practical level, can you share clinical best practices for treating ACEs? I'll start with you, Dr. Bentley.

Dr. Barbara Bentley (guest speaker):

We think that it's really important for anybody even contemplating doing ACE screening that their entire organization needs to be trained on trauma-informed care. And this framework really involves a number of general ideas. So we know that the entire organization will have to have an understanding of the high prevalence of trauma and adversity and the impact on health and behavior. We want, organizationally, for everyone to recognize the effect of trauma and adversity on health and behavior. It's important that training includes leadership providers and staff on responding to patients with best practices and trauma-informed care. And that includes integrating knowledge about trauma and adversity into the policies, procedures, and practices in treatment planning. And finally, it's critical to avoid re-traumatization by approaching patients who've experienced ACEs and/or other adversities with nonjudgmental support.

Dr. Christina Buysse (guest speaker):

The model used by the California ACEs Aware Initiative is screen, treat, heal, and they're using that to call clinicians to action. And this simple series of steps starts with universal screening to identify which individuals are at risk and to start the conversation with them about why adverse experiences may impact their health. Treatment, which can involve simple interventions that take only minutes in the clinic, like a referral to a food bank or a discussion about mindfulness, comes next. Treatment may be more intensive, such as referral for intensive mental health or substance use therapies. These need to be provided to patients. And it needs to be a very thoughtful approach to what are the difficulties and what is needed right now and what can we do right now, and what do we need to schedule an appointment to bring them back to do later? Last is heal, where a patient or a clinician or a staff member internalizes the knowledge that stress can be managed in a positive way and that they can use tools every day to move towards health.

Ruth Adewuya, MD (host):

You've underscored the importance of trusted, nurturing care caregivers in a safe and stable environment. How do you engage parents in the prevention and treatment of ACEs?

Dr. Barbara Bentley (guest speaker):

Parents are absolutely essential partners in this process of healing for themselves and their children. Parents are the ones who model healthy strategies to reduce stress response by making daily choices, such as developing healthy relationships, exercising, pushing the benefits of exposure to nature. Every person has something that helps them wind down and disrupt that cycle of toxic stress.

Dr. Christina Buysse (guest speaker):

For me, the fun part about ACE screening and treatment is sharing practices that are known to interrupt the toxic stress cycle with a family and working with them to choose which goals they would like to work on to better manage their lives and stressful experiences. Something as simple as playing Pokemon Go with their child can be protective for both the parent and the child against stress by building on the parent-child relationship, having fun, being outside in nature, and exercising their bodies. Parents can get really creative in finding solutions for their own lives. They know themselves and their children best, and it doesn't take much prompting to help them find a way forward towards health for themselves. And that's been the piece about this work that has been the most illuminating to me, that one short conversation, just saying, "Let's choose one of these topics. What do you want to do to get more healthy week?" And letting parents run with that, that's super effective.

Ruth Adewuya, MD (host):

What about clinicians? Is there a role for clinicians in the prevention of ACEs in their patient populations?

Dr. Barbara Bentley (guest speaker):

I think definitely. Prevention is so much more effective than treatment. Our entire society needs to be moving towards prevention of trauma at all levels by bringing trauma-informed theory to schools, to the justice system, and to our economic system. If a clinician can prevent a child from suffering abuse by referring a patient for mental health or substance abuse therapy or by referring to community programs

so a family can remain housed, we can protect children and save billions of dollars in tertiary care, mental health therapy, substance use programs, and medical bills.

Dr. Christina Buysse (guest speaker):

Clinicians are often unknowingly preventing ACEs when they refer a family to a food bank or recommend a parenting support program or supporting a pregnant woman to find substance abuse treatment. We really never know how close a family is to an adverse event, but cumulatively, we can prevent ACEs through basic kindness and recognizing that human needs are medical needs.

Ruth Adewuya, MD (host):

What is the role of trauma-informed care in clinical applications of ACEs?

Dr. Barbara Bentley (guest speaker):

So we really want to think of it from an institutional perspective. Ideally, trauma-informed care should be found at all levels of clinical care, from a well-lit parking lot to a welcoming and culturally-relevant signage in exam rooms, from respectful greetings in the waiting area, and use of appropriate pronouns, and a willingness to listen without judgment.

Dr. Christina Buysse (guest speaker):

I think trauma-informed care means we see your humanity. We acknowledge your experiences. Let's partner together to prevent more bad experience and find your way back to health.

Ruth Adewuya, MD (host):

What would be a key clinical takeaway for a clinician who may not have an ACEs program in their organization, but who's listening to this episode and saying, "Yes, I can see how this is beneficial"? I'll start with you, Dr. Bentley, and then I'll go to Dr. Buysse.

Dr. Barbara Bentley (guest speaker):

I think we say this frequently and not everyone believes it, but ACEs are people. We have strategies that many clinicians are already using in their clinical practices. If they can understand how they can teach their patients how to mitigate the stress response, then I think they'd be less concerned or worried about asking the questions.

Dr. Christina Buysse (guest speaker):

I think you're already doing this. You're addressing these needs every day in your clinic, but when you reframe it with this format of them being treatable, it will make your job, as a clinician, more enjoyable and easier, because you will walk away from a really difficult situation, knowing that there is a positive, helping the family realize where the positives exist in their lives, and what tiny step they can take towards health that you could help guide them towards.

Ruth Adewuya, MD (host):

Excellent. So thank you both for joining me today and sharing your insights on this very important topic.

Dr. Christina Buysse (guest speaker):

Thank you for having us.

Dr. Barbara Bentley (guest speaker):

It was a pleasure to be with you.

Ruth Adewuya, MD (host):

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