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Buffering Childhood Stress

Safe, Secure Relationships For Better Health

All kids feel stressed from time to time. They may worry about friends, homework, or a big test. Stress is normal. But some kids go through extremely stressful or traumatic situations. These can lead to physical and mental health conditions later in life. Scientists are studying the long-term consequences of early life difficulties. And they're looking for ways to protect kids from the health effects.

"Normal stressors, or stressful experiences, that we all experience on a regular basis tend to be things that one can reasonably manage. Or, in the case of a child, with the help of a supportive caregiver," says Dr. Nim Tottenham, a professor of psychology at Columbia University.

"Normal stress is essential in life for growth and learning," explains Dr. Jing Yu, an NIH expert on child development. "Positively adapting to normal stress can promote a child's performance and skill development."

But stress can become toxic if it lasts for extended periods or results from traumatic experiences. For children, examples include physical, sexual, or emotional abuse. Or, it can be growing up in a family with a lot of conflict between people. Living with people who have severe mental health or substance use disorders can also be a cause. So can neighborhood violence, discrimination, and significant poverty. These circumstances can put kids at risk for mental health disorders. They can also lead to academic or social difficulties.

"Children are still developing the skills to respond to stress," Yu says. "When children experience heightened or chronic stress, it can affect their ability to respond. That can have a long-term negative impact on their future health."

Not all kids who face early life difficulties have health issues later on. Positive life experiences and relationships can also shape youth outcomes. Safe, stable, and trusting relationships can help guard against stressful circumstances.

Stress and Adversity • Many people experience extremely stressful or traumatic situations as children. These are referred to as adverse childhood experiences. Studies estimate about 2 out of 3 adults have had one such experience. And nearly 1 out of 6 adults report four or more.

Children who've had four or more adverse experiences are at higher risk for chronic health conditions as an adult. These include heart disease, diabetes, obesity, and stroke. The risk for mental health conditions, like anxiety, depression, or substance use disorder, is also higher.

"Adversity is the presence of something that shouldn't be there, like abuse," Yu explains. "But it could also be the absence of something good, like parents' care and affection. Children need **cognitive** stimulation and emotional attention to thrive."

In the past, scientists mainly looked at the number of adversities kids had. Now, they're untangling differences between the types of experiences. For example, some adversities may primarily affect kids' cognitive development. Others may mainly impact emotional or social development.

Yu's team recently studied a group of over 49,000 children. They tracked the type of adversities the kids experienced. Then, they looked at their cognitive functioning at age 7. Their adverse experiences could be grouped into six distinct patterns. For example, some kids

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Definitions

Cognitive
Related to the ability to think, learn, and remember.

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only experienced family instability. This involves two or more changes in their family structure. Others experienced family instability, family loss, and poverty together. Each distinct combination of adversities impacted kids' brains differently.

But kids don't all respond to life events in the same way. "It may depend on children's own interpretation of the events and how their brain adapts to them," Yu explains.

Other researchers are looking at the positive outcomes of overcoming adversity. "Our brains try to adapt to our situation," Tottenham says. "Early adversity does not just have a single outcome. Our developing brains are doing their best to fit the environment."

For example, kids may be living in an environment where things are changing in an unpredictable way, Tottenham explains. "This may lead to an improved ability to be flexible and change tasks rapidly," she says.

One thing that makes a difference in how kids respond is a good support system. Tottenham has found that strong relationships with caregivers are especially helpful.

Protective Relationships • "One of the most important positive childhood experiences is having an adult who cares about you," says Dr. Caitlin Canfield, a child development researcher at NYU Grossman School of Medicine. "Someone who can help you through stressful situations, or even just through regular life. That could be a parent. But it could be a teacher, a coach, or any adult in a child's life."

Adults who can model and teach healthy coping skills are key. Canfield's team is working with pediatric clinics to offer parent education programs. They're testing a program called PlayReadVIP. It uses videos of parents playing and reading with their kids. This helps reinforce parents' strengths and set goals.

Canfield's team is also testing a program called Smart Beginnings. This program pairs PlayReadVIP with one called Family Check Up. Family Check Up uses home visits to build skills to get kids ready for school and to thrive in learning. The home visits also aim to improve family challenges. Examples include increasing family communication or reducing parental depression.

"If parents are depressed, they may not be able to do all of the things that they would like to do. That might interfere with their ideal parenting," Canfield explains. "Social support and resources that break the pattern of depression can impact parenting practices. That can impact kids' outcomes."

Canfield is also looking for ways to provide families with local community resources. "We've shown that social support for parents can help shield kids against stressors," she says. "Parents need to feel like their neighborhoods are safe. Or, that they have social networks in their neighborhood. Then, when they are facing stressors—financial or otherwise—they're more able to protect their kids from those impacts."

Kids have the ability to adapt and overcome difficult situations. Adults can help kids build upon these abilities. "Supportive networks and other protective practices in their lives can help kids adapt and build resilience. This helps counter the effects of adverse childhood experiences," says Yu. See the Wise Choices box for tips on building positive childhood experiences. ■

Wise Choices

Build Positive, Healthy Childhood Experiences

- **Use positive parenting practices.** Help nurture, protect, and guide kids. Learn positive parenting tips at go.nih.gov/NIHNiHJul24PositiveParenting.
- **Create predictable routines and schedules.** Knowing what to expect for the day helps kids thrive. Use the same routines every day when you can. If you need to change the schedule or routine, let your child know in advance whenever possible.
- **Teach your kids healthy habits.** Parents play a big role in guiding kids toward healthy behaviors. Be sure your kids get enough sleep. Provide them with healthy foods. Encourage them to get an hour of physical activity each day. Learn more about teaching kids healthy habits at go.nih.gov/NIHNiHJul24HealthyHabits.
- **Model healthy coping skills.** Learn healthy emotional coping skills. Model these for your kids to help teach them healthy ways to cope. Build a social support network for yourself. And talk to a health care provider about treating mental health issues, like depression, anxiety, and substance use disorders.

Web Links

For more about childhood stressors, see "Links" in the online article: newsinhealth.nih.gov/2024/07/buffering-childhood-stress

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When Blood Vessels Grow Awry

Understanding Vascular Malformations

Blood vessels wind all throughout your body. They ensure that blood, and the oxygen it carries, reaches all your body's cells and tissues. Arteries carry oxygen-rich blood from your heart to organs and tissues. Veins carry blood back to your heart to pick up more oxygen. And tiny vessels called capillaries connect the arteries to the veins.

But sometimes, the blood vessels don't grow quite right. When blood vessels in the brain form in an abnormal way, it's called a vascular malformation.

Several types of vascular malformations exist. Some pose little risk. But two types can be at increased risk of leaking or breaking open. This can cause bleeding in the brain, which can lead to brain damage or death. These are arteriovenous malformations, or AVMs, and cerebral cavernous malformations, or CCMs (also called cavernous angiomas).

In AVMs, arteries bypass capillaries and connect directly to veins. They're like short circuits in your circulation. Blood then rushes into veins much faster than usual. This leads to high blood pressure in the vessels.

In CCMs, capillaries in the brain can balloon over 20 times their usual width. Blood pools in these enlarged capillaries. The walls can get stretched to the breaking point.

Both AVMs and CCMs strain blood vessel walls, increasing the chance of the vessels breaking. They can also put pressure on parts of the brain.

AVMs and CCMs are rare. Each affects less than 1% of people. Many people who have them may not know it. Most people with AVMs or CCMs have only mild symptoms, such as headaches or dizziness. They may have no symptoms at all. But once a malformation starts to leak out blood, it can cause seizures or strokes. It also becomes more likely to bleed again. See the Wise Choices box for more symptoms.

Vascular malformations can sometimes be removed or repaired with surgery. Doctors may also be able to use a focused beam of radiation to destroy them. Some AVMs can be plugged with a type of glue delivered through a tube inserted in an artery. But these procedures can be risky, especially if the malformation is deep inside the brain.

If a malformation has not already bled, the safest course may be to just keep an eye on it. Medications can help with some symptoms, like headaches and seizures.

"It all depends on where the malformation is in the brain, and what is the risk of treatment versus watching," explains Dr. Issam Awad, a neurosurgeon at the University of Chicago.

Awad researches the underlying causes of vascular malformation development and bleeding. Sometimes gene abnormalities are involved. His team is looking at whether gut bacteria may play a role. They've shown that people with CCMs have different kinds of gut bacteria than those without CCMs. They've also found certain molecules in the blood that are linked with these bacteria. His team hopes that these molecules might someday be used to test whether someone will develop CCMs, or whether a CCM is likely to bleed.

But for now, talk with your health care provider if you're concerned about a family history or symptoms of a vascular malformation. ■

Wise Choices

Symptoms of Vascular Malformations

- Seizures that can involve convulsions, a loss of control over movement, or a sudden change in alertness or awareness.
- Headache, especially if it's consistently in the same place.
- Vision problems.
- Muscle weakness in part of the body or face.
- Problems with hearing or understanding speech.
- Problems with walking or other complex movements.
- Numbness or tingling in part of the body.
- Thinking difficulties, such as confusion, memory problems, or hallucinations.
- Dizziness.
- Loss of consciousness.

Web Links

For more about vascular malformations, see "Links" in the online article: newsinhealth.nih.gov/2024/07/when-blood-vessels-grow-awry

Health Capsules

For links to more information, please visit our website and see these stories online.

Urine Test Detects High-Risk Prostate Cancers

Prostate cancer is a leading cause of cancer death among men. Scientists have developed a urine test that could help some men avoid unnecessary biopsies.

Screening for prostate cancer usually involves a blood test. The test measures levels of a substance called prostate specific antigen (PSA). High PSA levels may require more tests, such as a biopsy. A biopsy involves removing small samples from the prostate gland. Doctors then look for cancer cells.

Biopsies are generally safe. But they are sometimes painful. And they can lead to side effects like a fever or urinary tract infection.

Scientists have been looking for ways to avoid unnecessary biopsies. A decade ago, a research team created a urine test to detect prostate cancer. It could identify prostate cancer in its early stages. But the test could not tell the difference between serious cancers and slow-growing cancers. Slow-growing cancers may never need treatment.

In their latest study, the scientists created an improved urine test. They analyzed genes from hundreds of patients with prostate cancer. They found 18 genes in urine that could be used in combination to spot the presence of serious cancers.

They next used the new test to assess the urine of over 700 men with high PSA levels. The test could distinguish aggressive cancers from low-risk cancers. And it could rule out the presence of aggressive cancer with 97% accuracy.

"In nearly 800 patients with an elevated PSA level, the new test was capable of ruling out the presence of clinically significant prostate cancer with remarkable accuracy," says study co-lead Dr. Jeffrey Tosoian of Vanderbilt University. "This allows patients to avoid more burdensome and invasive tests."

Step-by-Step Guide to Advance Care Planning

As we get older, it's important to plan for future decisions about medical care. And it's a good idea to discuss those decisions with loved ones. This is called advance care planning.

Advance care planning includes preparing documents like a living will. This tells doctors how you want to be treated if you can't make your own decisions about emergency care.

Research shows that you're more likely to get the care you want if you've discussed your future medical care and put a plan in place. It may also help loved ones with their grief and to feel less burden and guilt.

NIH has created a seven-week email series to help older adults and caregivers create an advance care plan. It's called "Ready, Set, Plan! A Step-by-Step Guide to Advance Care Planning." The subscription is free.

Subscribers receive weekly emails. These help you consider your preferences for future care and treatment. You'll learn about the common medical decisions living wills cover. And you'll learn about the responsibilities of a health care proxy. That's someone who can make medical decisions for you when needed. The emails will also help you prepare to talk with a health care provider about your plan.

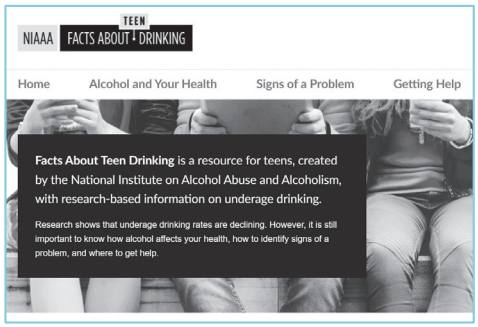
Subscribe at go.nia.nih.gov/acp. Read more at www.nia.nih.gov/health/advance-care-planning.

Featured Website

Facts About Teen Drinking

niaaaforteens.niaaa.nih.gov

NIH has a new resource for teens to learn about underage alcohol misuse. How does alcohol affect the body? How do you detect an alcohol problem in yourself or a loved one? What resources are available to teens with alcohol-related issues? Get answers to these important questions and more.



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