



# Health Impacts from Toxic Stress

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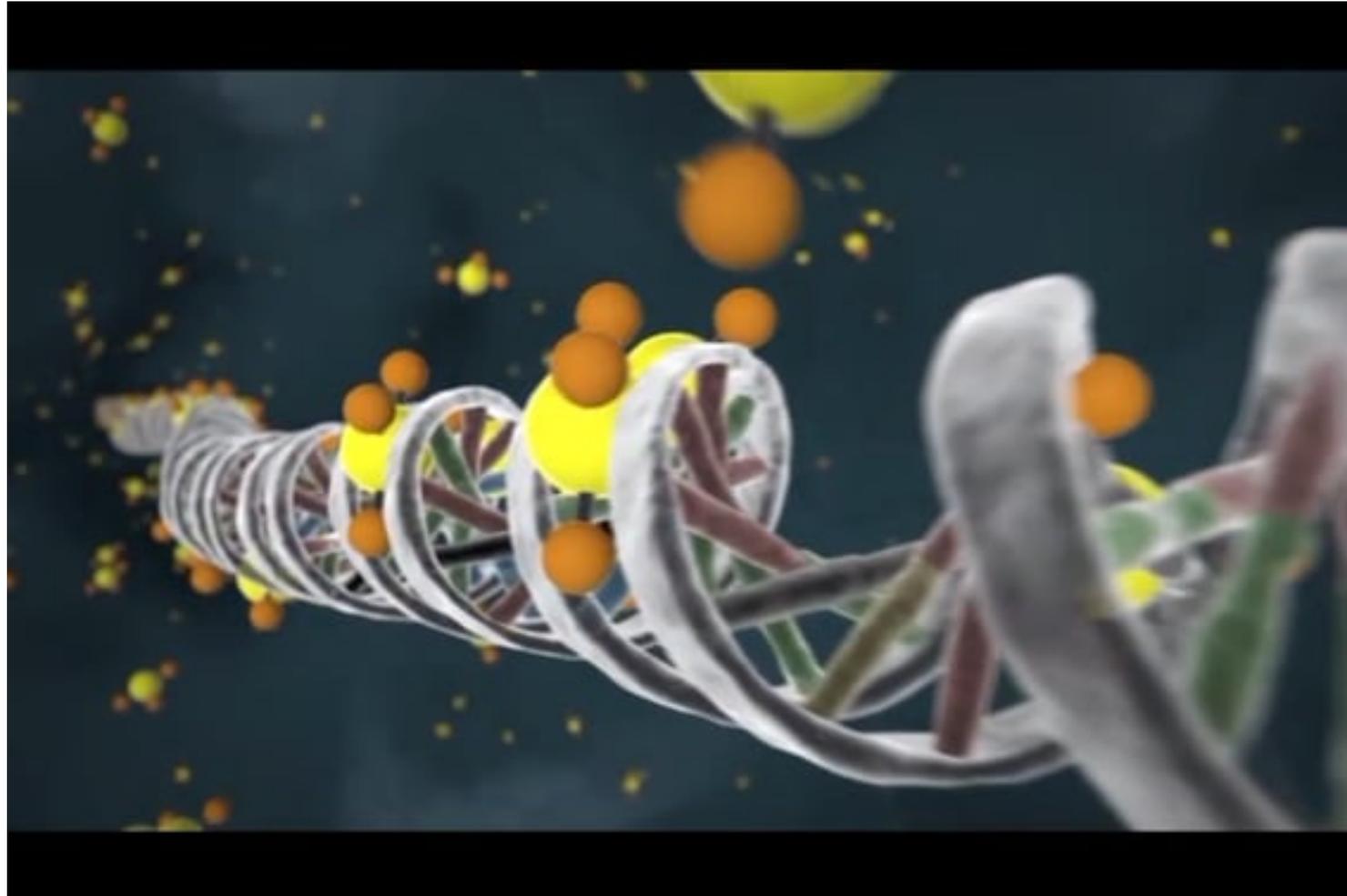
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# Relationships and Experiences get built into the body

- Relationships and experiences influence lifelong health and social outcomes
- Brains adapt– nurturing or hostile environments
- Chemical and structural makeup of brain changes



# Adaption to our Environment



<https://vimeo.com/137009740>

# Adaptation vs. Expectations



Adaptation to the environment is critical for human survival. Problems arise when adaptive skills do not match current environment or expectations.

# NURTURING RELATIONSHIPS BUFFER STRESS

“The central significance of close relationships for resilience has been noted in virtually every review on resilience in development over the past half-century.

Relationships can work in many ways to facilitate resilience in children. Most fundamentally, they provide the sense of security and belonging that frees a child to explore and learn.”

-Ann Masten,

Regents Professor, UMN Institute for Child Development

Author of Ordinary Magic

# Diseases of Disconnection and Despair

## Adverse Childhood Experiences

## Adverse Societal Conditions

- MOTOR VEHICLE CRASHES • OBESITY • HOMICIDES
- PTSD • ANXIETY • DEPRESSION • DEMENTIA
- STDS • SUICIDES • MENTAL HEALTH CRISES
- INJURIES • HIV • HEPATITIS C • CIRRHOSIS
- UNWANTED PREGNANCIES • DIABETES
- SUBSTANCE ABUSE (ATOD) • ADDICTIONS (ALCOHOL, DRUGS, FOOD, SEX, GAMBLING, SCREENS)

- DIVORCE/SEPARATION • ALCOHOL ABUSE
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- MENTAL ILLNESS • DOMESTIC VIOLENCE
- ABUSE (PHYSICAL, SEXUAL, VERBAL, EMOTIONAL)

- INEFFECTIVE SCHOOLS • INCOME INEQUALITY
- CRIME • POVERTY • SOCIAL EXCLUSION • RACISM
- SEXISM • UNEMPLOYMENT • SCHOOL SUSPENSIONS
- HOMOPHOBIA • FOOD INSECURITY • LACK OF HOPE
- ENVIRONMENTAL CONTAMINATION • DISRUPTED FAMILIES
- CLIMATE VULNERABILITY • RED LINING • VIOLENT NEIGHBORHOODS
- HOUSING INSECURITY • POOR ACCESS TO HEALTH AND HUMAN SERVICES

# Environmental Factors Impact Relationships, Health

## Relationships Between Poverty and Psychopathology

### A Natural Experiment

E. Jane Costello, PhD

Scott N. Compton, PhD

Gordon Keeler, MS

Adrian Angold, MRCPsych

THE ASSOCIATION BETWEEN POVERTY and mental illness has been described throughout the world and throughout history.<sup>1-9</sup> Clinicians and researchers have noted the difficulty of untangling the effects of “social causation, . . . adversity and stress associated with low social statuses” from those of “social selection, [which] posits that genetically predisposed persons drift down to or fail to rise out of” poverty.<sup>10</sup>

Recent research has emphasized the role played by genetics in an individual's vulnerability to a wide range of psychiatric disorders. Social selection is an example of a theory consistent with gene-environment correlation, in that affected individuals, and often their family members with them, drift down into poverty (and thus into environments that in themselves increase risk for mental illness), while social causation theories reflect a gene-environment interaction in which genetic risk remains latent unless individuals are ex-

**Context** Social causation (adversity and stress) vs social selection (downward mobility from familial liability to mental illness) are competing theories about the origins of mental illness.

**Objective** To test the role of social selection vs social causation of childhood psychopathology using a natural experiment.

**Design** Quasi-experimental, longitudinal study.

**Population and Setting** A representative population sample of 1420 rural children aged 9 to 13 years at intake were given annual psychiatric assessments for 8 years (1993-2000). One quarter of the sample were American Indian, and the remaining were predominantly white. Halfway through the study, a casino opening on the Indian reservation gave every American Indian an income supplement that increased annually. This increase moved 14% of study families out of poverty, while 53% remained poor, and 32% were never poor. Incomes of non-Indian families were unaffected.

**Main Outcome Measures** Levels of *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*, psychiatric symptoms in the never-poor, persistently poor, and ex-poor children were compared for the 4 years before and after the casino opened.

**Results** Before the casino opened, the persistently poor and ex-poor children had more psychiatric symptoms (4.38 and 4.28, respectively) than the never-poor children (2.75), but after the opening levels among the ex-poor fell to those of the never-poor children, while levels among those who were persistently poor remained high (odds ratio, 1.50; 95% confidence interval, 1.08-2.09; and odds ratio, 0.91; 95% confidence interval, 0.77-1.07, respectively). The effect was specific to symptoms of conduct and oppositional defiant disorders. Anxiety and depression symptoms were unaffected. Similar results were found in non-Indian children whose families moved out of poverty during the same period.

**Conclusions** An income intervention that moved families out of poverty for reasons that cannot be ascribed to family characteristics had a major effect on some types of children's psychiatric disorders, but not on others. Results support a social causation explanation for conduct and oppositional disorder, but not for anxiety or depression.

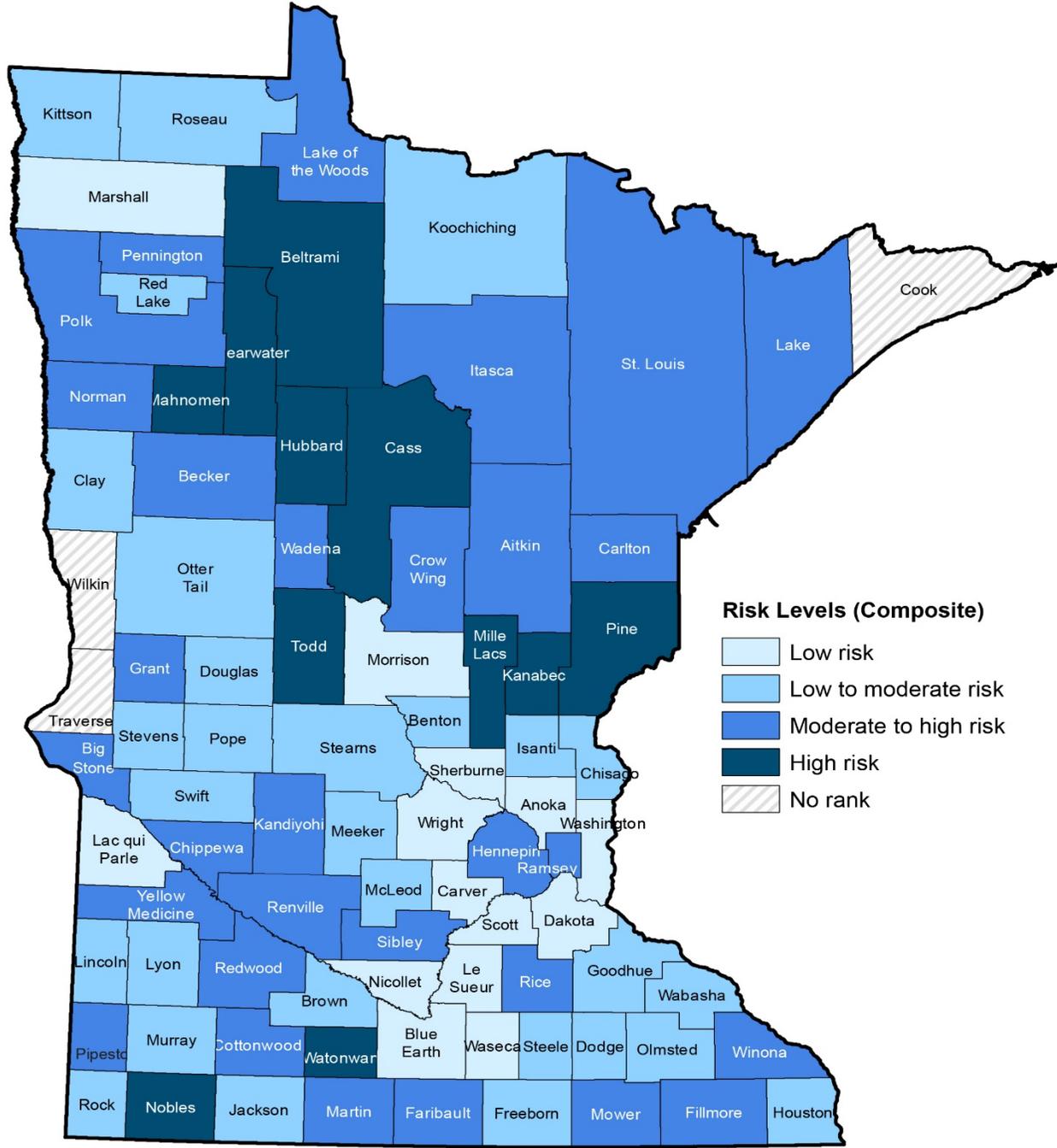
JAMA. 2003;290:2023-2029

www.jama.com

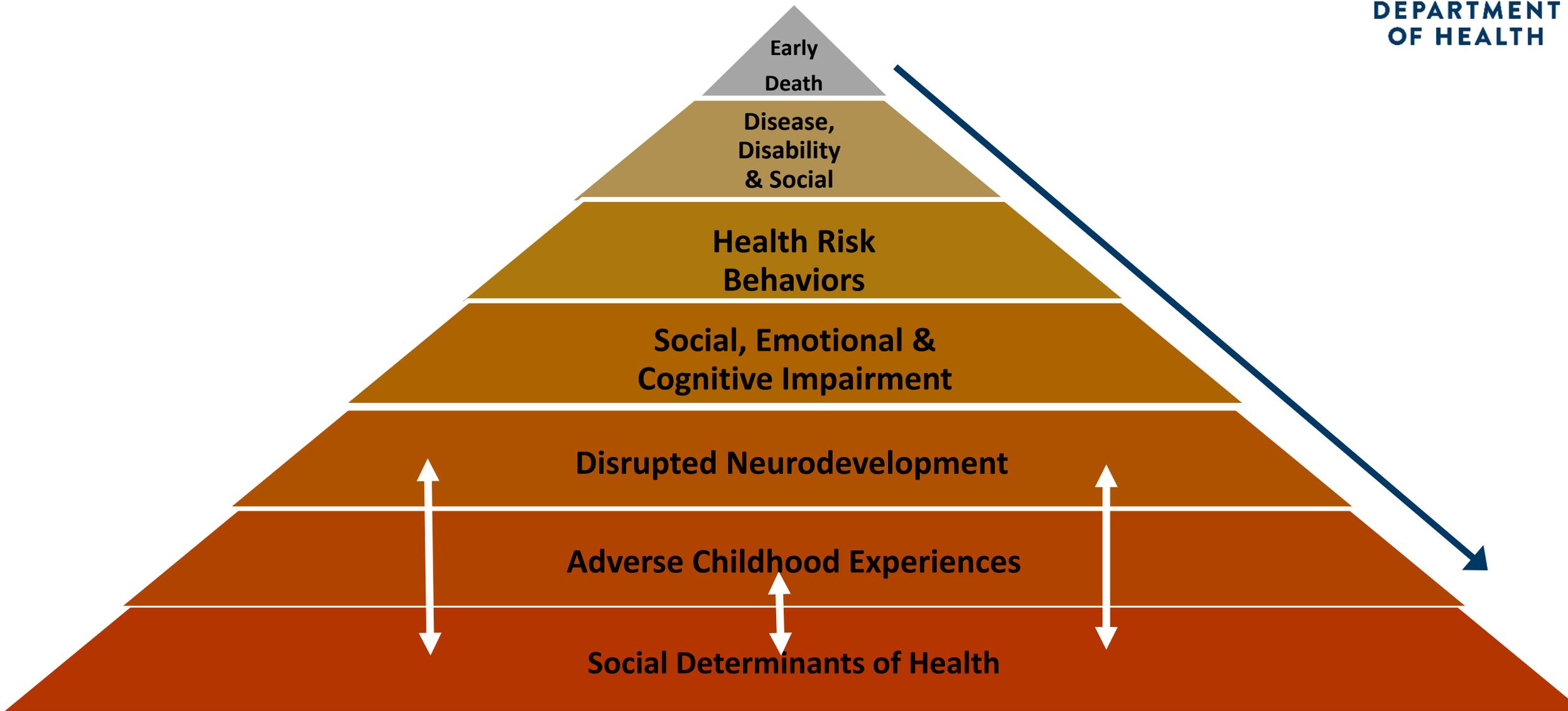
- **Symptoms of mental illness followed poverty:** Youth from previously poor households showed significant decrease in the number of psychiatric symptoms.
- **Why? Parent time constraints** accounted for 77% of the effect of poverty on increase in psychiatric symptoms.

# Distributed Risk

- Economic
- Health
- Family Stability



Wilder Research (2018) Minnesota Early Childhood Risk, Risk, Reach, and Resilience- Key Indicators of Early Childhood Development in Minnesota County by County, [https://www.wilder.org/sites/default/files/imports/MNEarlyChildhoodRiskReachResilience\\_9-18.pdf](https://www.wilder.org/sites/default/files/imports/MNEarlyChildhoodRiskReachResilience_9-18.pdf)



# ACEs in Minnesota

**TABLE 1: PREVALENCE OF ACEs IN MINNESOTA**

MINNESOTA 2011

		NUMBER OF ACEs (PERCENT)					
		0	1	2	3	4	5+
	<b>All Minnesotans</b>	45	22	12	8	5	8
	Men	46	23	12	7	5	7
	Women	43	22	12	9	6	9

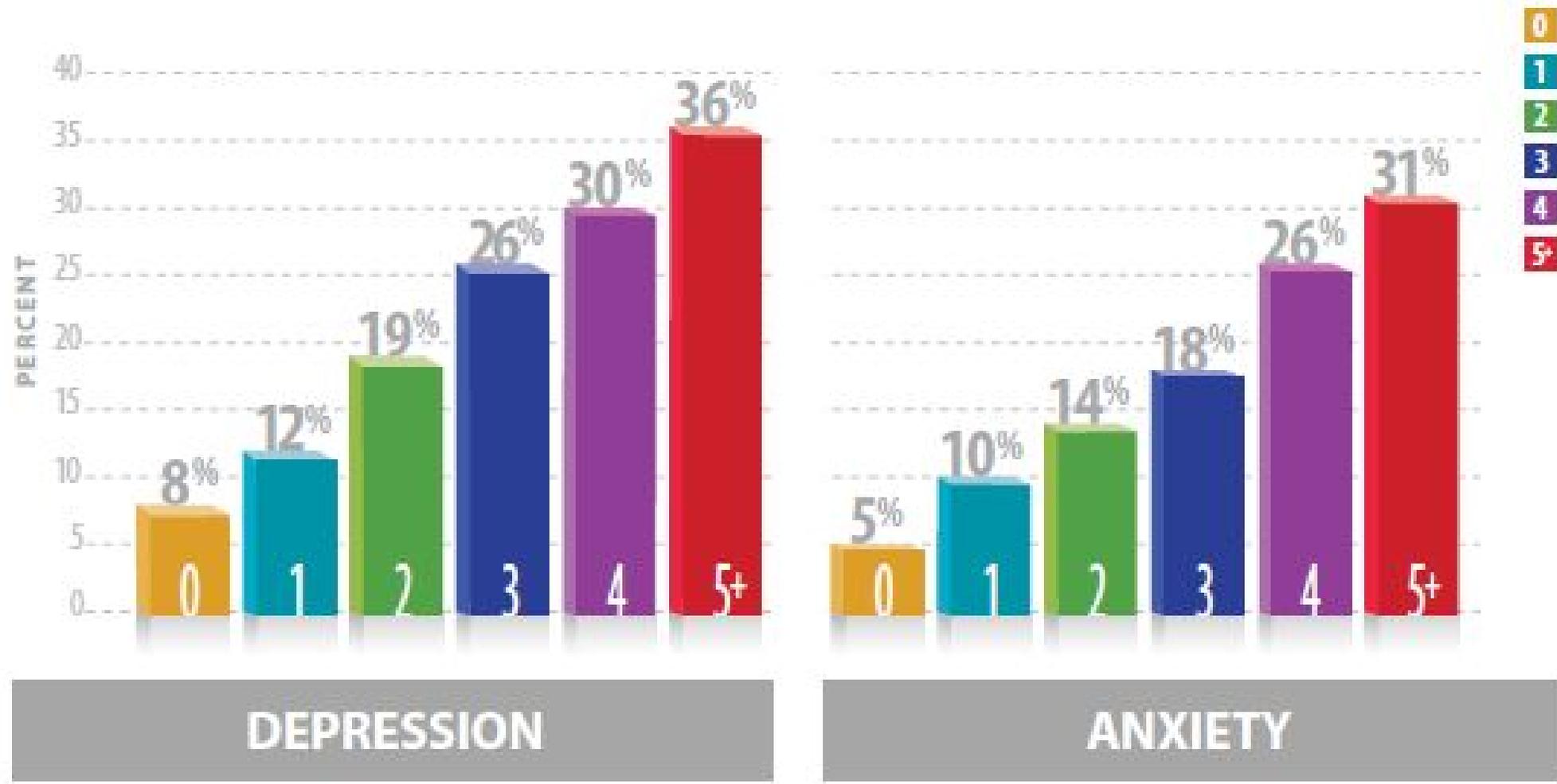
Source: Minnesota Department of Health, Center for Health Statistics, BRFSS

Due to rounding, the numbers may exceed 100%.

**TABLE 16: NUMBER OF ACEs BY Chronic Mental Health**

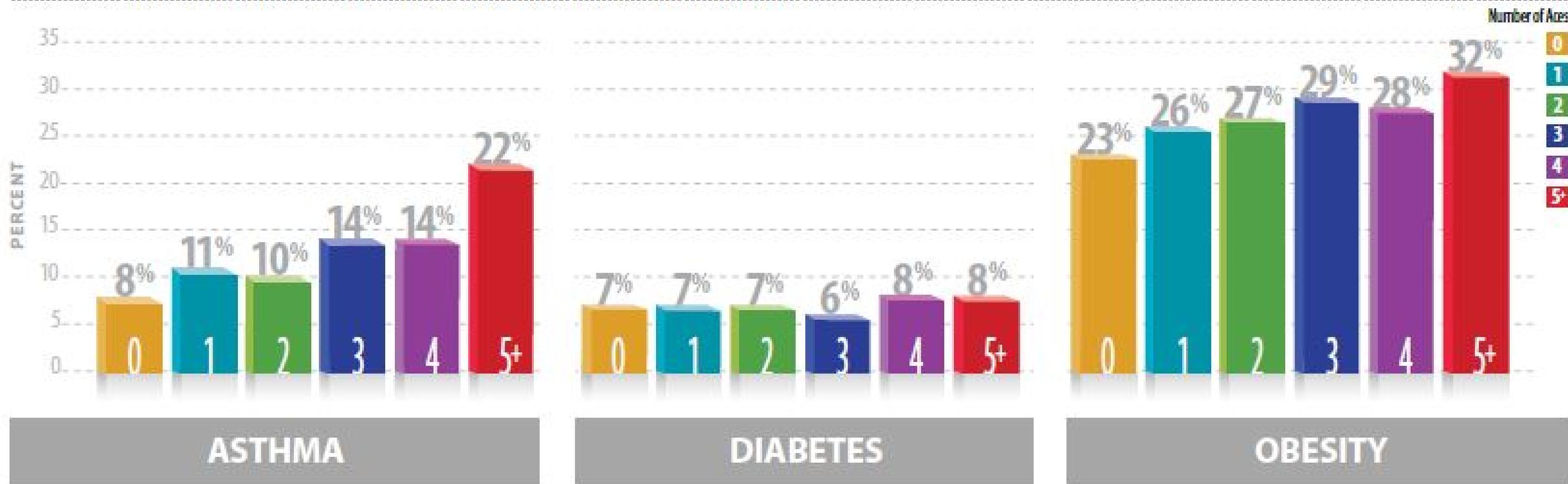
MINNESOTA 2011

Number of Aces



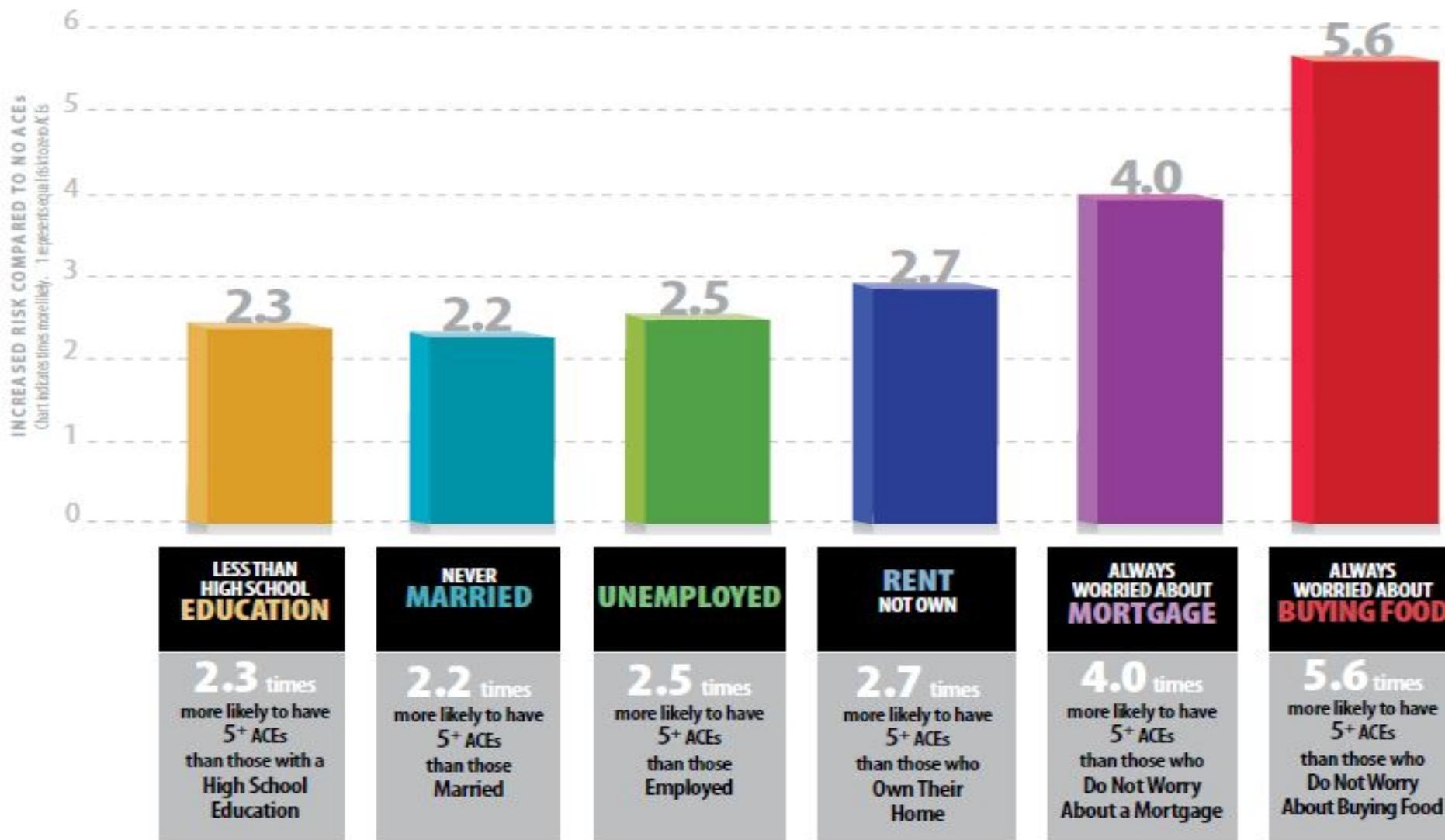
**TABLE 17: NUMBER OF ACEs BY Chronic Health Conditions**

MINNESOTA 2011



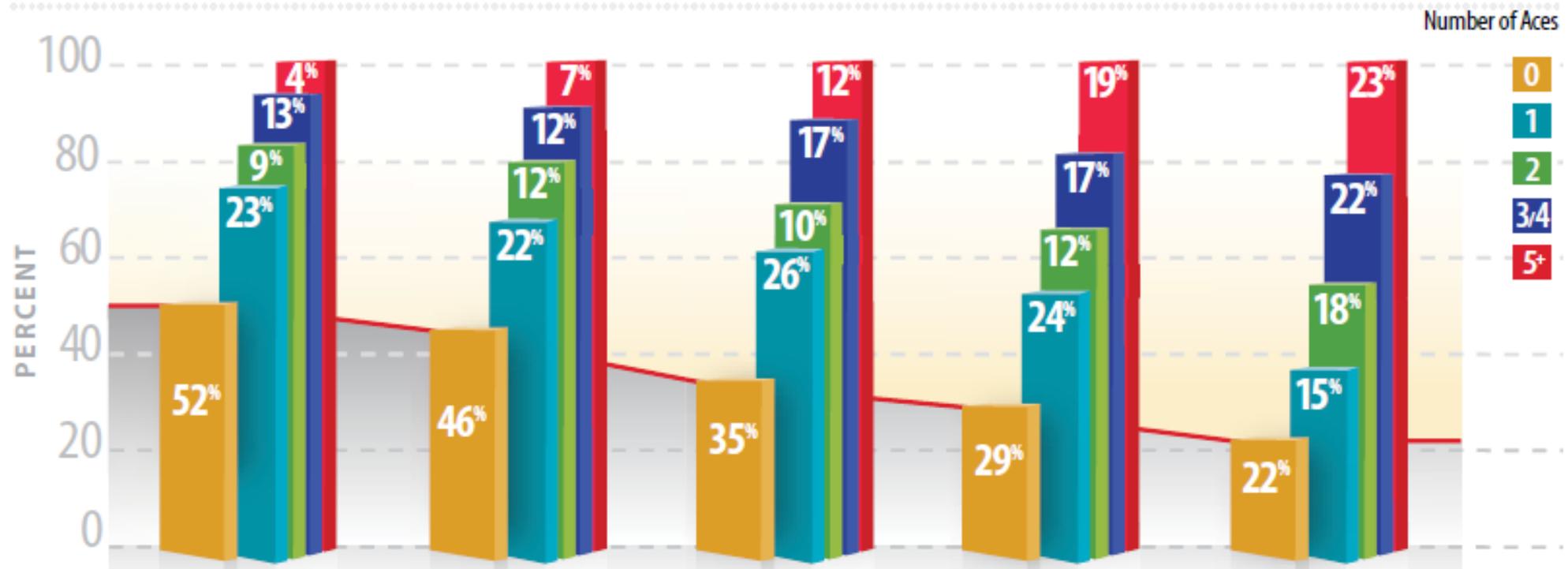
**TABLE 13: RATIO OF SES Indicators AMONG THOSE WITH 5 OR MORE ACEs**

MINNESOTA BRFSS 2011



**TABLE 5: ACEs BY RACE/ETHNICITY**

MINNESOTA 2011



**Asian**  
**4%**  
5 or more ACEs

**White**  
**7%**  
5 or more ACEs

**Hispanic**  
**12%**  
5 or more ACEs

**African American Black**  
**19%**  
5 or more ACEs

**American Indian**  
**23%**  
5 or more ACEs

*Due to rounding, the numbers may exceed 100%.*

# Historical Trauma

- Epigenetics (study of interplay between genes and environment)
  - Advancing scientific evidence linking historical events to behavior and health outcomes across generations.
  - Conditioned response to smell of cherry blossoms across 2 generations.
- The persistence of stress associated with discrimination and historical trauma converges to add significantly to the challenges of ACEs and health disparities.

*“A Framework to Examine The Role of Epigenetics in Health Disparities among Native Americans”*

# A Framework For Community Action



Prevention Institute. *Back to Our Roots: Catalyzing Community Action for Mental Health and Wellbeing*. Prevention Institute. 2017. <https://www.preventioninstitute.org/>

## PEOPLE

- Supportive relationships and social connectedness and belonging
- Social, emotional and life skills, including self-care skills
- Community, culture, and faith
- Healthy lifestyle (exercise, sleep, and nutrition)
- Trauma and healing

## PLACE

- Healthy environment-housing, nature, community look

## EQUITABLE OPPORTUNITY

- Economic opportunities and supports
- Equity and Social policies- policies improve equity, belonging

# Community Capacity

“Community capacity is commonly defined as the interaction of human, organizational, and social capacity existing within a given community that can be leveraged to solve collective problems and improve or maintain the well-being of a given community.”  
-Chaskin, 1999

“Most important setting for mental health promotion strategies.”

–World Health Organization

# What works? What is Happening?

- Mentoring programs
- St. Cloud ACEs coalition
- Suburban Ramsey Family Services Collaborative
- Minneapolis ReCAST
- Crow Wing Energized
- Peacemakers Resources
- Family Home Visiting
- Children of Incarcerated Parents Workgroup
- Mental well-being and Resilience Learning Communities
- MDH focus on connections, belonging, and addressing health equity
- Suicide prevention and opioid prevention work

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# Thank you!

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