

Findings from Recent Scientific Research: Highlighting Priorities for Mission

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Learning from Science and Revelation

“ Rightly understood, science and the written word agree, and each sheds light on the other. Together they lead us to God by teaching us something of the wise and beneficent laws through which He works.” CT 426

“Rightly understood, they (science and the Bible) are in perfect harmony... All truth, whether in nature or in revelation, is consistent with itself in all its manifestations.--PP 114

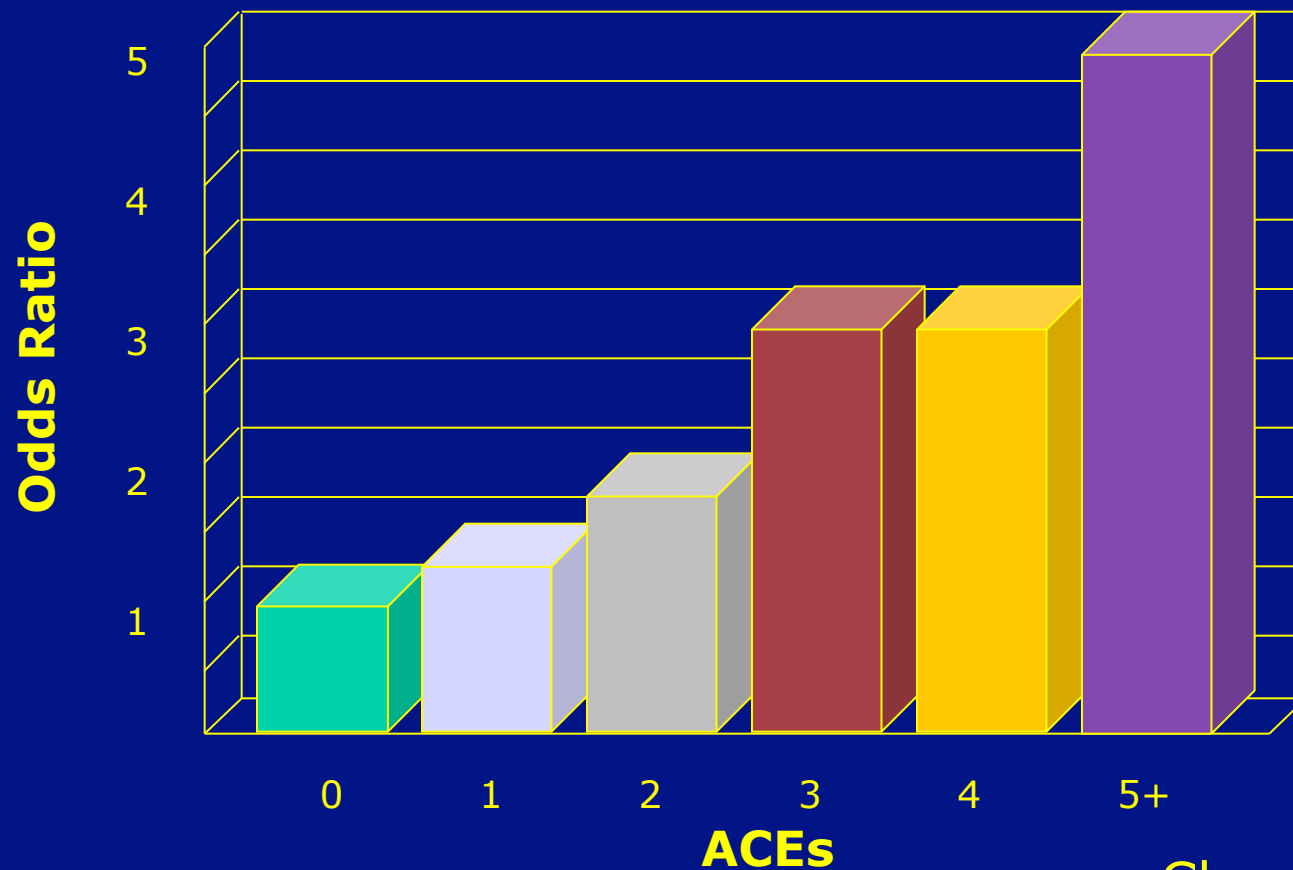
Research on Early Childhood and Health

Childhood Adversities

Abuse Category	Percent
Psychological	11
Physical	12
Sexual	22
Substance Abuse	26
Mental Illness	19
Mother treated violently	13
Incarceration of Household Member	3
Any Abuse	52

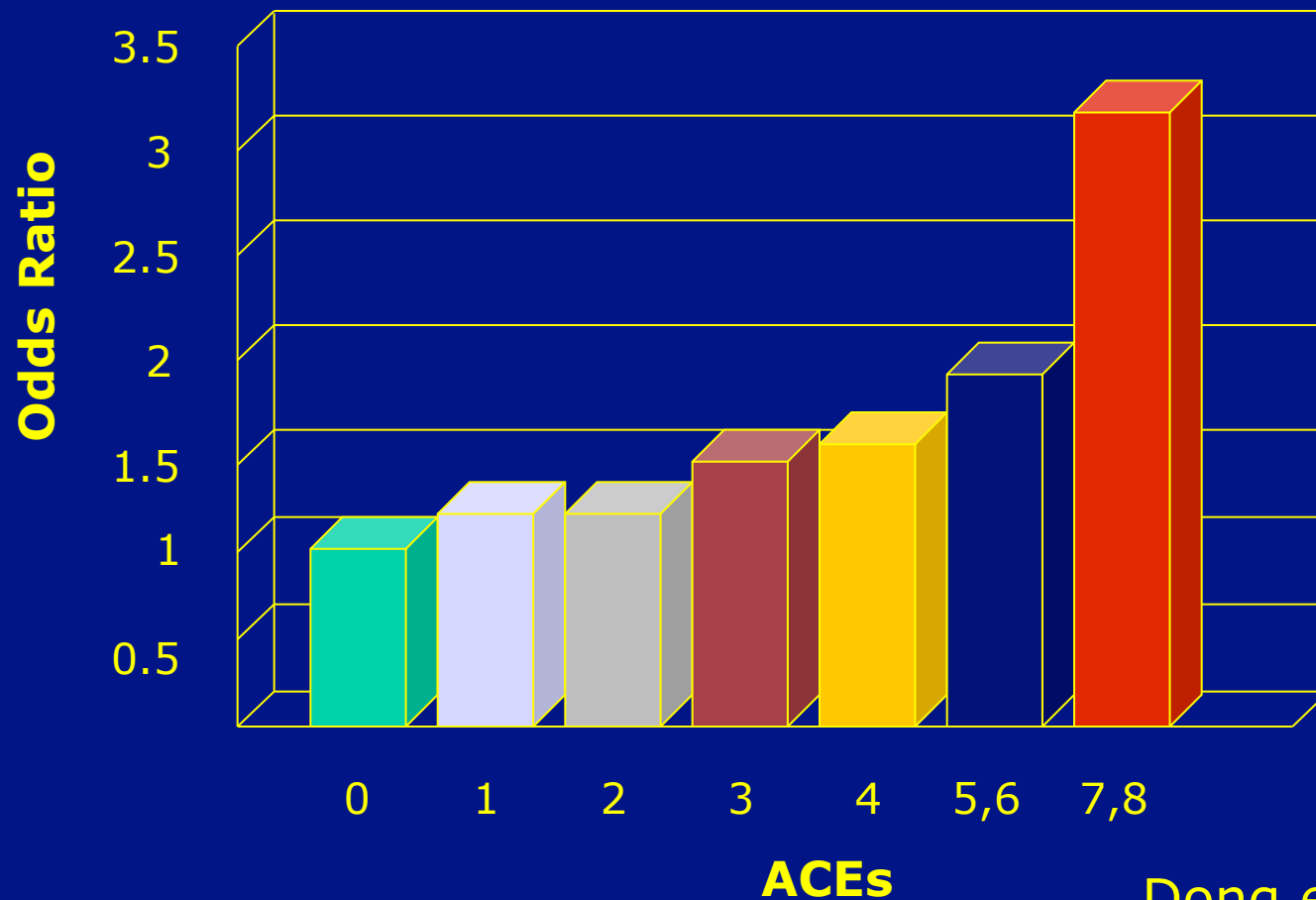
Source: Feletti et al. 1998 N=9,508 Adults

Risk Factors for Adult Depression are Embedded in Adverse Childhood Experiences



Chapman et al, 2004

Risk Factors for Adult Heart Disease are Embedded in Adverse Childhood Experiences



Dong et al, 2004

Early life adversity

In the MIDUS Study, a measure of early childhood stressors

- stressful events during childhood
- relationship with parents
- verbal or physical abuse by parents

Was significantly associated with 4 of 5 markers of inflammation (CRP, IL-6, sICAM-1, fibrinogen, E-selectin)

Association stronger for blacks than whites



Preconception Stress and Infant Mortality

- Study of all births in Sweden, 1973 to 2009
- Stress: mother lost a child, spouse or parent from 6 months prior to conception, through birth of child
- Preconception stress predicted infant mortality (OR=1.53) adjusted for covariates



Positive Childhood Experiences

To determine whether positive childhood experiences are associated with:

- 1) less dysregulation across multiple physiological systems; and,
- 2) ideal cardiovascular health, in midlife.

Sample

- Midlife in the United States (MIDUS)
- National longitudinal study funded by NIA
- Respondents in 2nd wave (2004-2005) who participated in Biomarker study
- Study 1: N=1236; Study 2: N=1147
- Aged 34-84 years

Mean age (SD)	54.5 (11.7)
Sex	
Male	43.5%
Female	56.5%
Race	
White	79.7%
Black	17.3%
Other	3.0%

Study 1

Preventive Medicine 84 (2016) 90–96



ELSEVIER

Contents lists available at ScienceDirect

Preventive Medicine

journal homepage: www.elsevier.com/locate/ypmed



Emotional and instrumental support during childhood and biological dysregulation in midlife☆



Natalie Slopen^{a,*}, Ying Chen^b, Naomi Priest^c, Michelle A. Albert^d, David R. Williams^{b,e}

Measure of Support in Childhood

Self-administered questionnaire, 1-5 scale ($\alpha = 0.89$)

Q1. There was someone in my family who helped me feel that I was important or special.

Q2. I felt loved.

Q3. People in my family looked out for each other.

Q4. People in my family felt close to each other.

Q5. My family was a source of strength and support.

Q6. I knew that there was someone to take care of me and protect me.

Q7. There was someone to take me to the doctor if I needed it.

Allostatic load score:

Biological Dysregulation, 24 indicators, across 7 systems

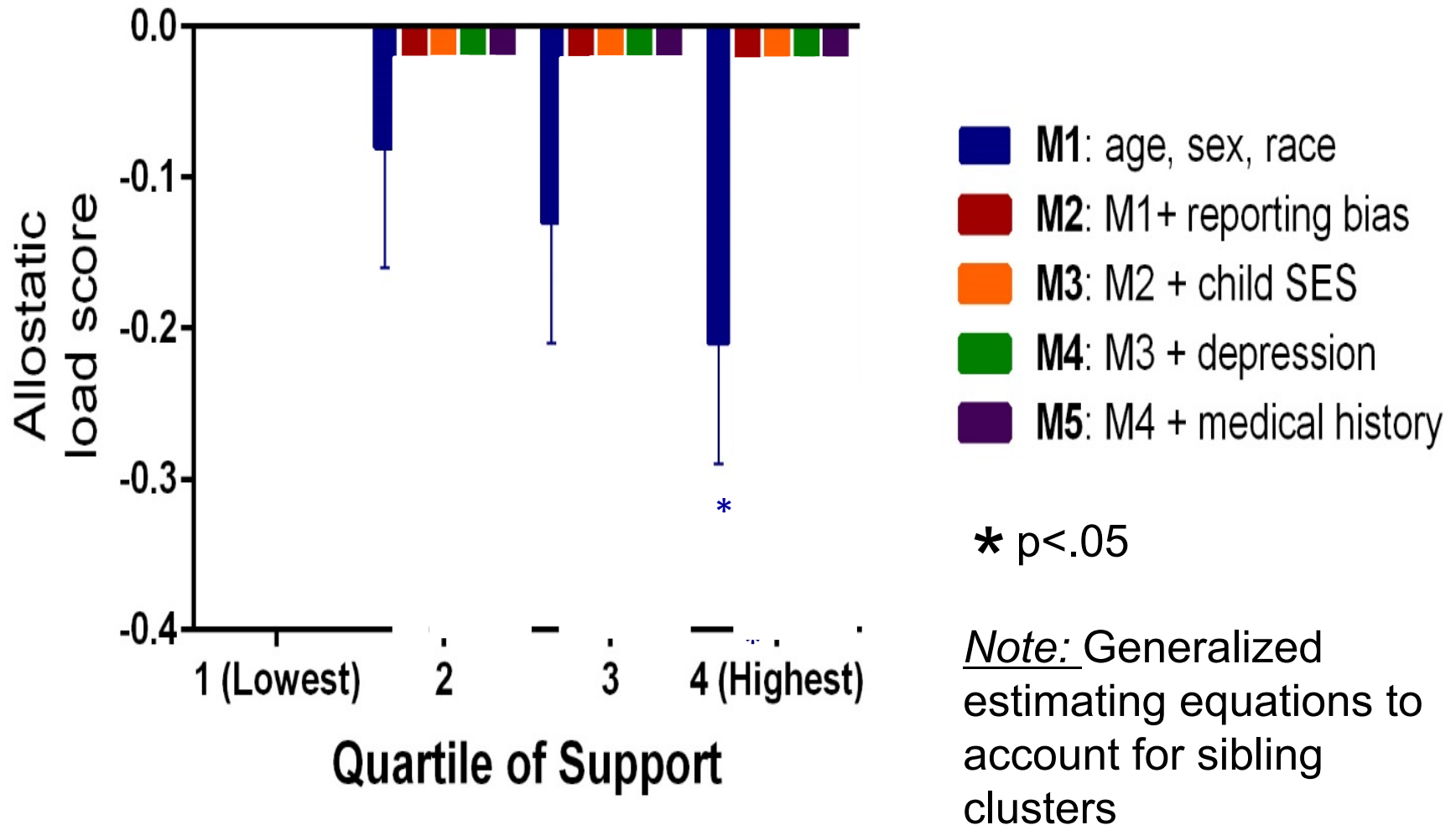
1. Sympathetic subscale	Epinephrine, norepinephrine
2. Parasympathetic	SDRR, RMSSD, LFHRV, HFHRV
3. HPA axis	Cortisol, DHEA-S
4. Inflammation	CRP, IL-6, fibrinogen, sICAM-1, sE-selectin
5. Cardiovascular	SBP, DBP, heart rate
6. Metabolic-glucose	Glucose, insulin resistance, HbA1c
7. Metabolic-lipids	LDL, HDL, triglycerides, BMI, W-H ratio

Statistical analyses

Generalized estimating equations (to account for sibling clusters) sequentially adjusted for:

- i. Age, sex, race/ethnicity
- ii. Reporting bias (denial, part of Childhood Trauma Questionnaire)
- iii. Childhood socioeconomic disadvantage
- iv. Past-year depression (CIDI-Short Form)
- v. Physician-diagnosed cardiovascular disease or diabetes

Adjusted regression models



Study 1: Summary

Greater emotional & instrumental support in childhood associated with less biological dysregulation in mid-life, even after accounting for SES disadvantage in childhood and other potential confounders.

Sensitivity Analyses:

Inflammation and metabolic-lipid subscales showed the strongest associations.

Study 2

Preventive Medicine 97 (2017) 72–79



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journal homepage: www.elsevier.com/locate/ypmed



Positive childhood experiences and ideal cardiovascular health in midlife: Associations and mediators



Natalie Slopen^{a,*}, Ying Chen^b, Jennifer L. Guida^a, Michelle A. Albert^c, David R. Williams^{b,d}

List of Positive Childhood Experiences

Items	% of respondents
1. Parental education (16 yr+)	41.85
2. High perceived child SES	17.35
3. Two parent family	76.02
4. Residential stability	70.88
5. No smokers residing in home	28.77
6. High parental warmth	26.68
7. High emotional support	21.97
8. High instrument support	62.60
Total positive childhood experiences index	Mean = 3.46 (SD=1.66) (range: 0-8)

Outcome= “Ideal Cardiovascular Health”



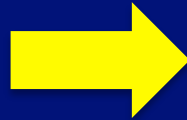
- New metric introduced in 2010 by the AHA Strategic Planning Task Force.
- Defined by the presence of both ideal health behaviors and ideal health factors.
- Created based on interest in a measure that reflected cardiovascular well-being *beyond* the absence of disease.

Definition of ideal cardiovascular health

7 Health

Indicators:

1. Smoking
2. Body mass index
3. Physical activity
4. Healthy diet
5. Total cholesterol
6. Blood pressure
7. HbA1c



Each rated on a 3-point scale¹: ideal (3 pts), intermediate (2 pts), or poor (1 pt)



Sum across the 7 metrics to create a composite score (potential range: 7 to 21)

¹Folsom et al., *J Am Coll Cardiol*. 2011 April 19; 57(16): 1690–1696

Potential Mediators

1. Educational attainment

- Dichotomized 16+ years of college vs. less

2. Major depressive disorder

- 20-item CES-D scale; scores ≥ 16 dichotomized

3. Social support¹

- Emotional support from (1) spouse/partner ($\alpha = 0.90$), (2) other family ($\alpha = 0.85$), and (3) friends ($\alpha = 0.89$).
- Overall score derived by averaging responses from the three sources.

¹ Brooks, Gruenewald ...Seeman TE. Social relationships & allostatic load..." *Health Psychol.* 2014; Slopen, Chen, Guida, Albert, Williams, Preventive Medicine, 2017

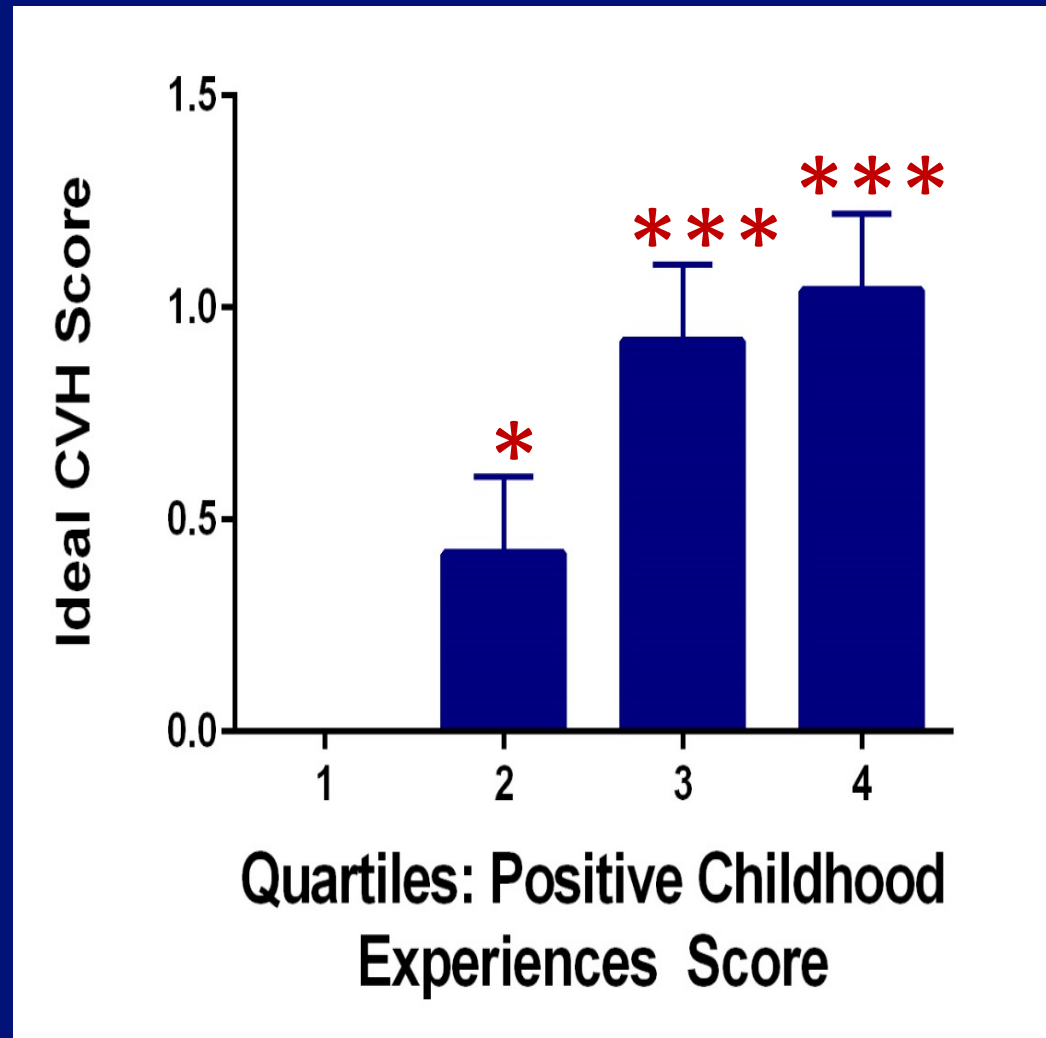
Statistical analyses

1. Generalized estimating equation model (to account for sibling clusters) adjusted for age, sex, race/ethnicity
2. Mediation models to estimate direct effect and indirect effects

Results: linear regression

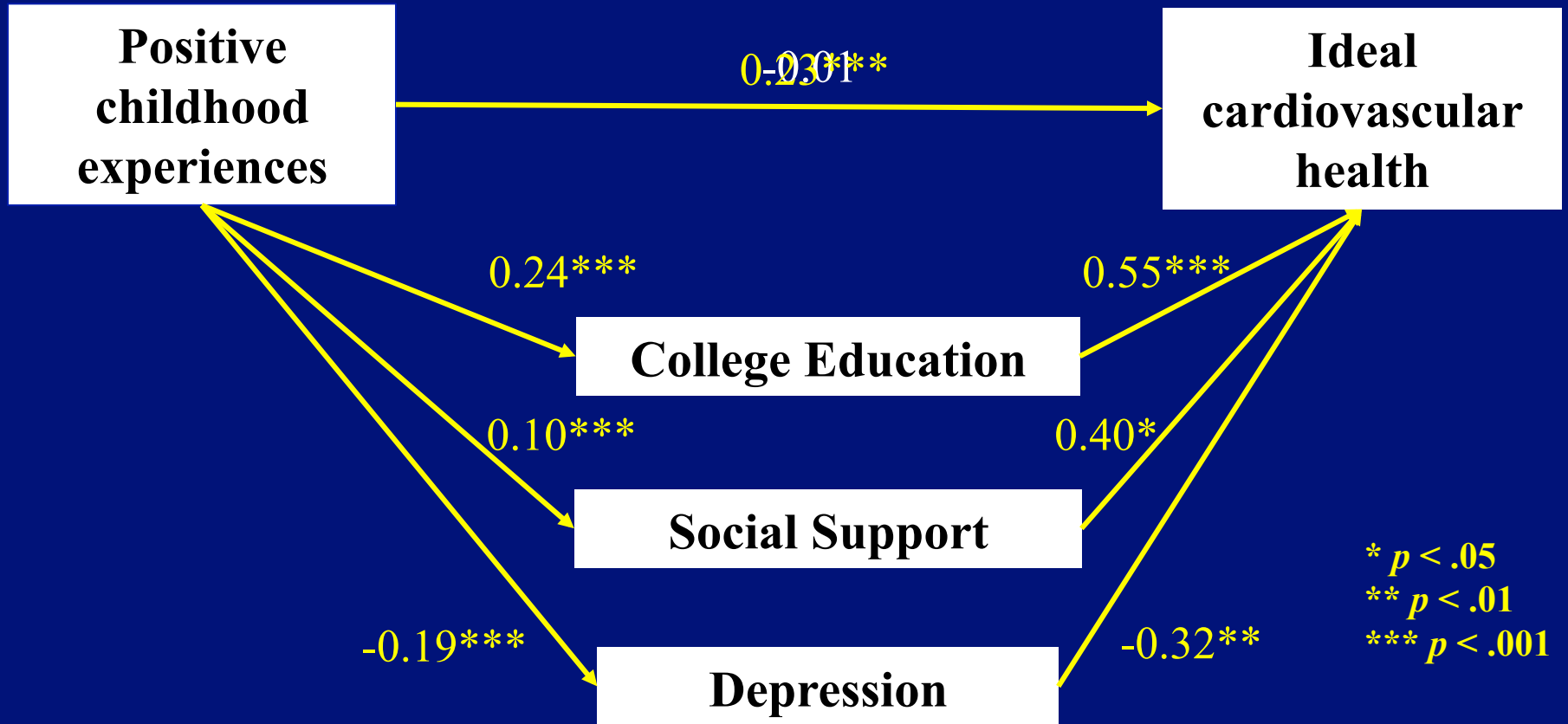
Generalized estimating equations to account for sibling clusters.

Adjusted for age, sex, race/ethnicity



* $p < .05$
** $p < .01$
*** $p < .001$

Mediation: Education, social network, & depressive symptoms



Note: results from structural equation model estimated in Mplus; adjusted for age, race, & sex.

Study #2 Summary

- Positive childhood experiences associated with ideal cardiovascular health indirectly via education, depression, and social support:
 - Total effect = 0.23, $p < 0.001$
 - Direct effect = -0.01, $p > 0.05$
 - Total indirect effect = 0.23, $p < 0.001$

Limitations of both studies

- Retrospective self-report measure of childhood experiences.
- Participants not representative of U.S. national population (skewed toward highly educated and disproportionately non-minority sample).
- Results may be confounded by unmeasured factors during childhood.
- Individuals with poorer health may be biased towards less positive memories of childhood (prospective studies needed).

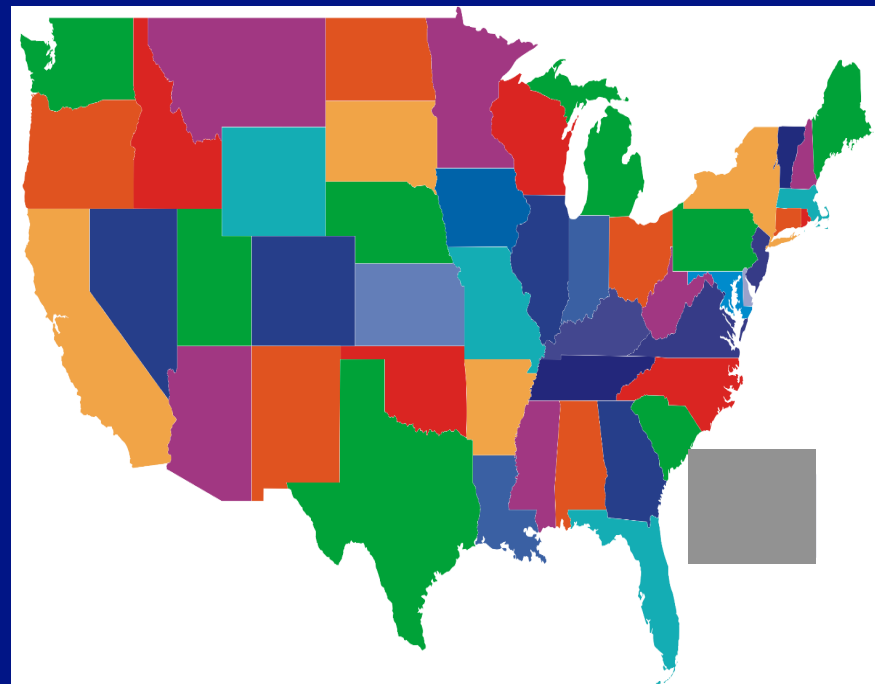
New Study: Who is at Risk?



Effective strategies to address early risk factors for lifelong disease require clear understanding of the distribution of adverse childhood experiences across intersecting dimensions of race/ethnicity, socioeconomic status, and family immigration history.

National Survey of Children's Health, 2011-2012

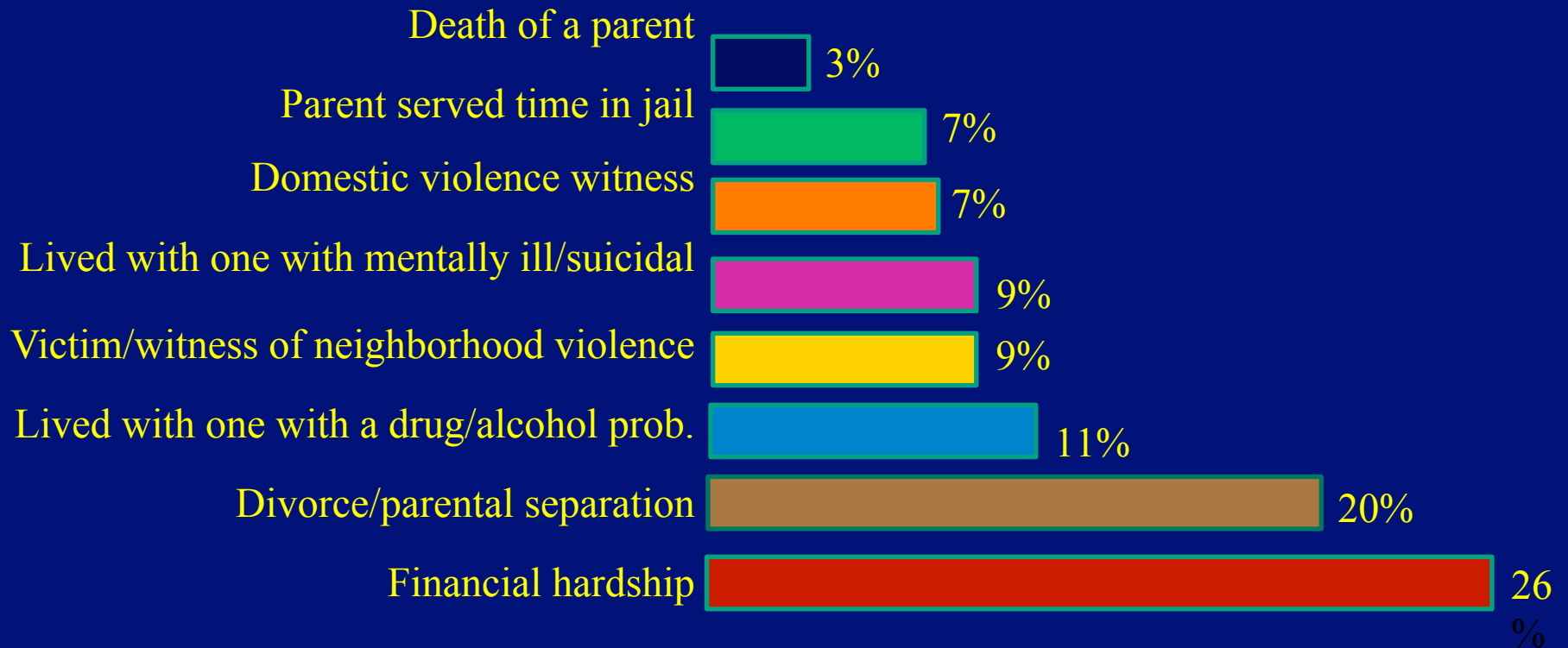
- 95,677 children, birth to 17 years
- >1,800 per state
- Black, White, and Hispanic children were included in our analysis (n=75,083)
- 9 adverse child and family experiences, reported by parent



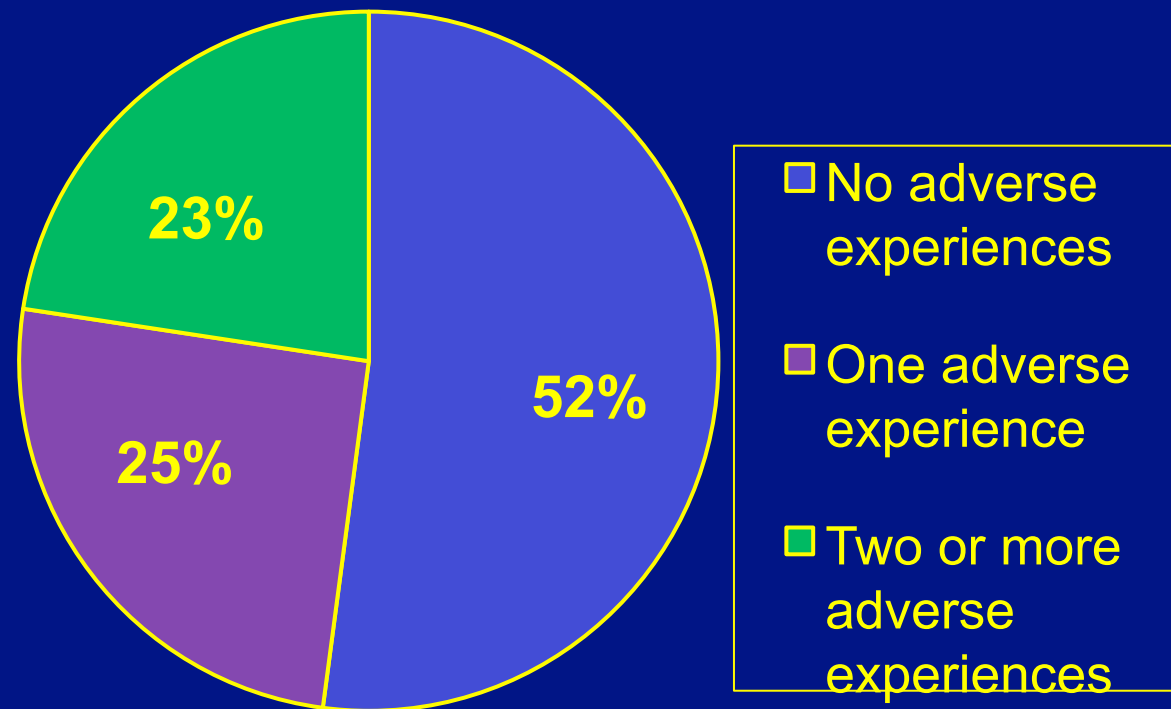
Slopen, Shonkoff, Albert, Yoshikawa, Jacobs, Stoltz, Williams, Am J Prev Med, 2016

Adversities Common in US Children

National Survey of Children's Health, 2011-2012



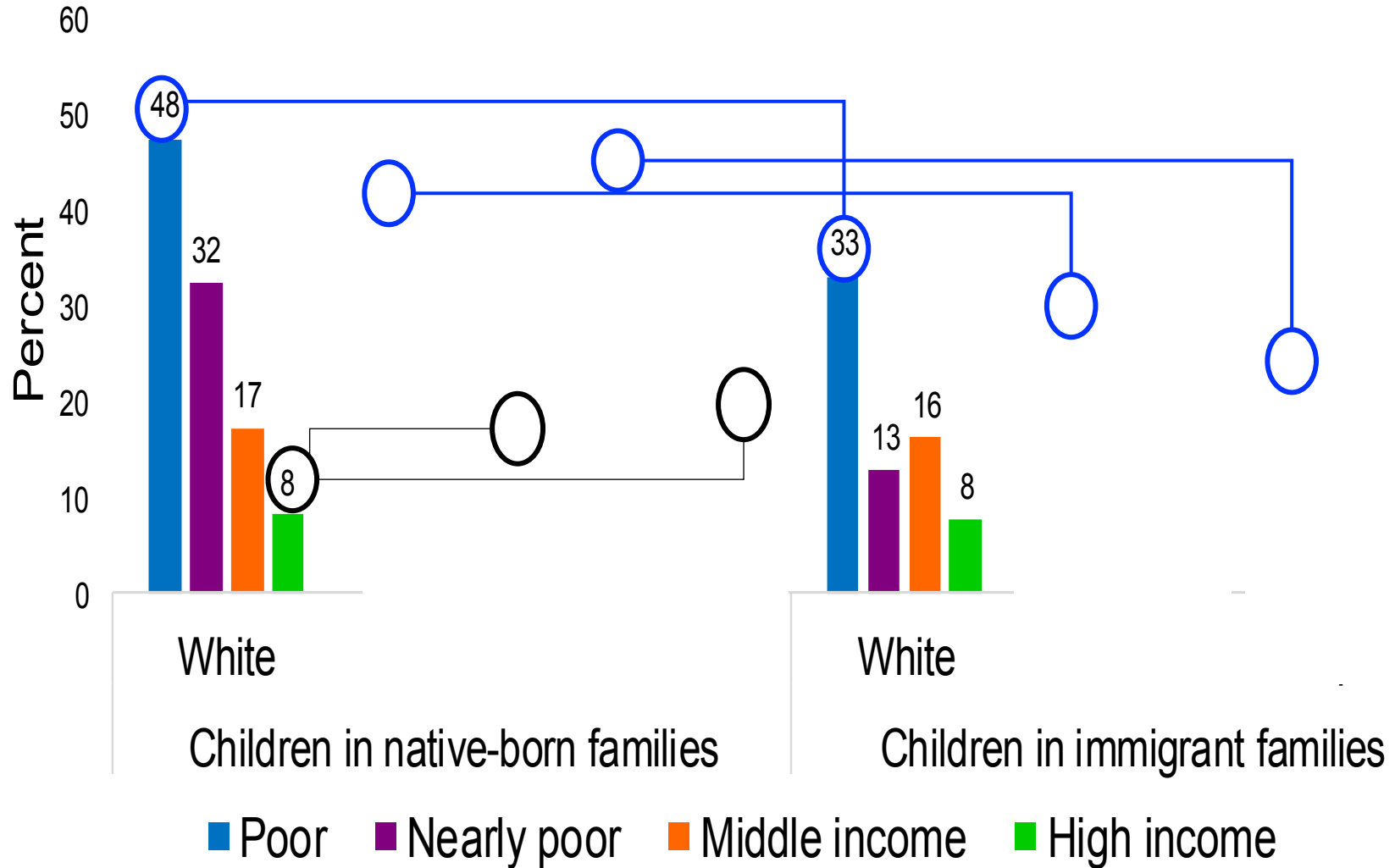
Prevalence of ACEs among US Children Age 0-17 years



Higher Rates of Most ACEs for Black & Hispanic Kids than Whites

- Financial hardship
- Parental divorce/separation
- Parent died
- Parent served time in jail
- Domestic violence between parents
- Victim or witness of neighborhood violence
- Household member with mental illness
- Drug or alcohol problem in household
- Unfair treatment due to race/ethnicity

% of children with ≥ 2 adversities



Summary of findings

Greater exposure to adversity is present among:

1. Black and Hispanic children compared to White children
2. Poor children compared to wealthier children
3. Children of US-born parents compared to children of immigrants, despite more financial strain in immigrant families
4. Poor white children compared to other poor children



Principles for New Intervention Strategies

- Early experiences affect lifelong health and learning, and healthy development requires protection and enrichment:
 - Protection and enrichment for young children requires capacity-building for adults
 - Improved parenting skills also enhance employability and economic stability
 - Strong communities reduce the burdens of adversity
-

Improving outcomes for Children by
improving the lives of their parents

Opportunity: Addressing Early Adversity

- The foundation of good health in adulthood is built in childhood
 - Adult chronic illnesses begin very early in life
 - Given the prevalence of early adversity, a Comprehensive Health Ministry must find innovative ways to provide parenting education and enhance the skills and supports of parents
 - Supportive parenting protects the brain and improves health
 - But it must do more: How can we improve the health of children by improving the lives (educational & occupational skills) of parents?
-

Our Mission

⁵ “Behold, I am going to send you Elijah the prophet before the coming of the great and terrible day of the LORD. ⁶ He will restore the hearts of the fathers to *their* children and the hearts of the children to their fathers, so that I will not come and smite the land with a curse.”

Malachi 4:5-6 (NASB)

Our Marching Orders

Is this not the fast which I choose, To loosen the bonds of wickedness, To undo the bands of the yoke, And to let the oppressed go free, And break every yoke?

Is it not to divide your bread with the hungry, And bring the homeless poor into the house; When you see the naked, to cover him; And not to hide yourself from your own flesh?

... And if you give yourself to the hungry, And satisfy the desire of the afflicted,

Then your light will rise in darkness, And your gloom will become like midday And the LORD will continually guide you, And satisfy your desire in scorched places, and give strength to your bones; And you will be like a watered garden, And like a spring of water whose waters do not fail.

Advice

"Attention should be given to the establishment of various industries so that poor families can find employment. Carpenters, blacksmiths, and indeed everyone who understands some line of useful labor should feel a real responsibility to teach and help the ignorant and the unemployed"

Ministry of Healing, page 194



Mission

"By instruction in practical lines, we can often help the poor most effectively. As a rule, those who have not been trained to work, do not have habits of industry, perseverance, economy, and self denial. They do not know how to manage. Often, through lack of carefulness and right judgment, there is wasted that which would maintain their families in decency and comfort, if it were carefully and economically used."

(Ministry of Healing, page 194-195)



Advice

"Let the members of poor households be taught how to cook, how to make and mend their own clothing, how to nurse the sick, how to care properly for the home. Let the boys and girls be thoroughly taught some useful trade or occupation." (Ministry of Healing, page 194)



God's Call

³⁴ “Then the King will say to those on His right, ‘Come, you who are blessed of My Father, inherit the kingdom prepared for you from the foundation of the world. ³⁵ For I was hungry, and you gave Me *something* to eat; I was thirsty, and you gave Me *something* to drink; I was a stranger, and you invited Me in; ³⁶ naked, and you clothed Me; I was sick, and you visited Me; I was in prison, and you came to Me.’”

Matthew 25:34 – 36 NASB

The Least of These



“Thus Christ ... pictured to His disciples the scene of the great judgment day. And He represented its decision as turning upon one point...there will be but two classes, and their eternal destiny will be determined by what they have done or have neglected to do for Him in the person of the poor and the suffering.” *Desire of Ages*, 637.

Addressing Early Adversity

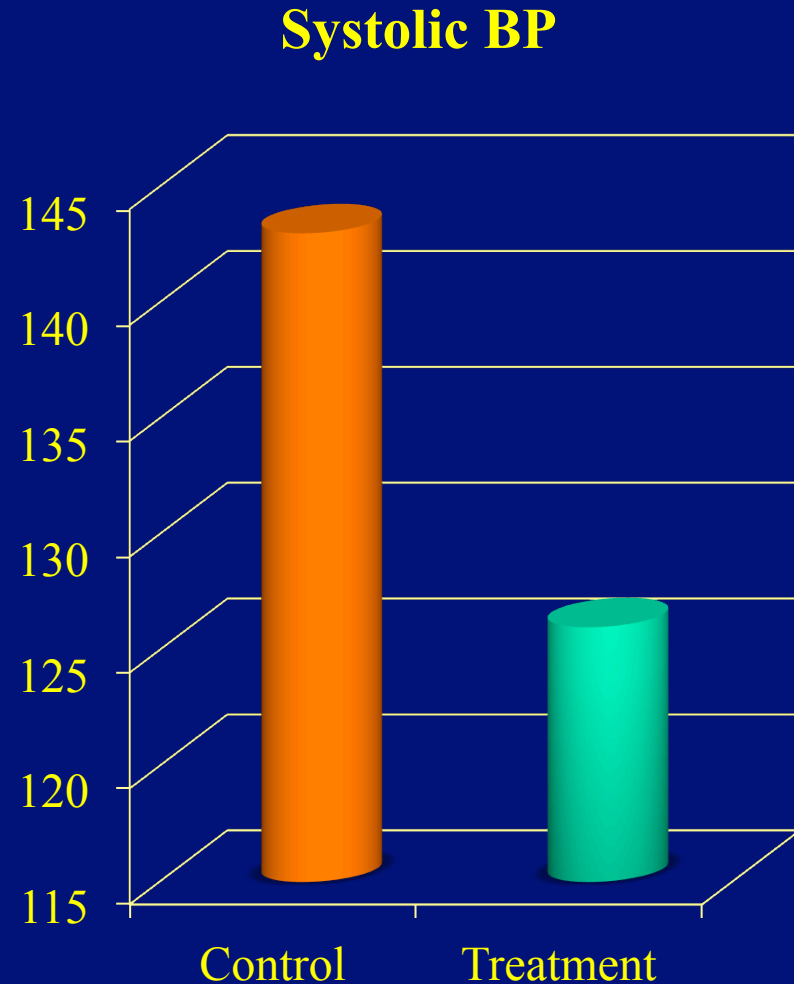
Striking Results

Carolina Abecedarian Project (ABC)

- 1972-77, economically disadvantaged children, birth to age 5, randomized to early childhood program
- Program offered a safe and nurturing environment, good nutrition and pediatric care
- At age 21, fewer symptoms of depression, lower marijuana use, more active lifestyle, & educational & vocational assets benefits
- In mid-30's, lower levels of multiple risk factors for CVD and metabolic disease. Effects stronger for males

Carolina Abecedarian Project (ABC)

- Example: systolic BP
143 mm Hg in male
controls vs. 126mm Hg
in the treatment group
- One in 4 males in
control group met
criteria for metabolic
syndrome compared to
none in the treatment
group
- Lower BMI at zero to 5
yrs equals a lower BMI
in their 30s



Addressing Early Adversity

No Health without Mental Health

MOMS: Addressing Maternal Depression



- MOMS (Mental Health Outreach for Mothers) is a multi-neighborhood, community-driven partnership that is developing interventions to meet the mental health needs of single mothers in at-risk neighborhoods.
-

MOMS: A Comprehensive Approach

- Based in New Haven, CT, the project seeks to combine services meeting basic needs **with** mental health **and** economic security services for mothers in order to decrease their stress and increase parenting capacity



Addressing Mental Health Needs: MOMS

- MOMS believes that for low-income mothers, lasting poverty alleviation is not possible without attention to mental health needs that may impede mothers' ability to seek and sustain stable employment.
- Develop intervention strategies that improve parenting capacity and, ultimately, child health, development
- “Community Mental Health Ambassadors (CMHAs) are at the heart of the model
- Neighborhood mothers who are peers both of the people being served and the service providers

Experience Corps (GenX)

- Program trains retired older adults to work in primary schools (grades K to 3)
- Assigned to schools as a team: sense of community
- Under teacher's direction, provide individual or small group assistance in reading and math
- Minimum of 10 hours per week: sufficient time in assigned classroom to develop relationships
- Adults receive a small stipend
- School districts partially fund the program

A Win-Win

Benefits for Children:

- Improved academics
- Improved classroom behavior

Benefits for volunteer

- Fewer depressive symptoms
- Fewer functional limitations
- Improved cognitive functioning; fMRI: increases in brain activity in left prefrontal & anterior cingulate cortex
- More Physically active
- Larger circle of friends
- Feel more meaningfully engaged with community



U.S. Dream Academy

- Founder: Wintley Phipps
- Focus on children of prisoners and children falling behind in school
- 11 to 15 hrs/wk in after-school program of building:
 - Skills
 - Character
 - Dreams
- Mentoring a key component
- Improving academics is a crime prevention strategy

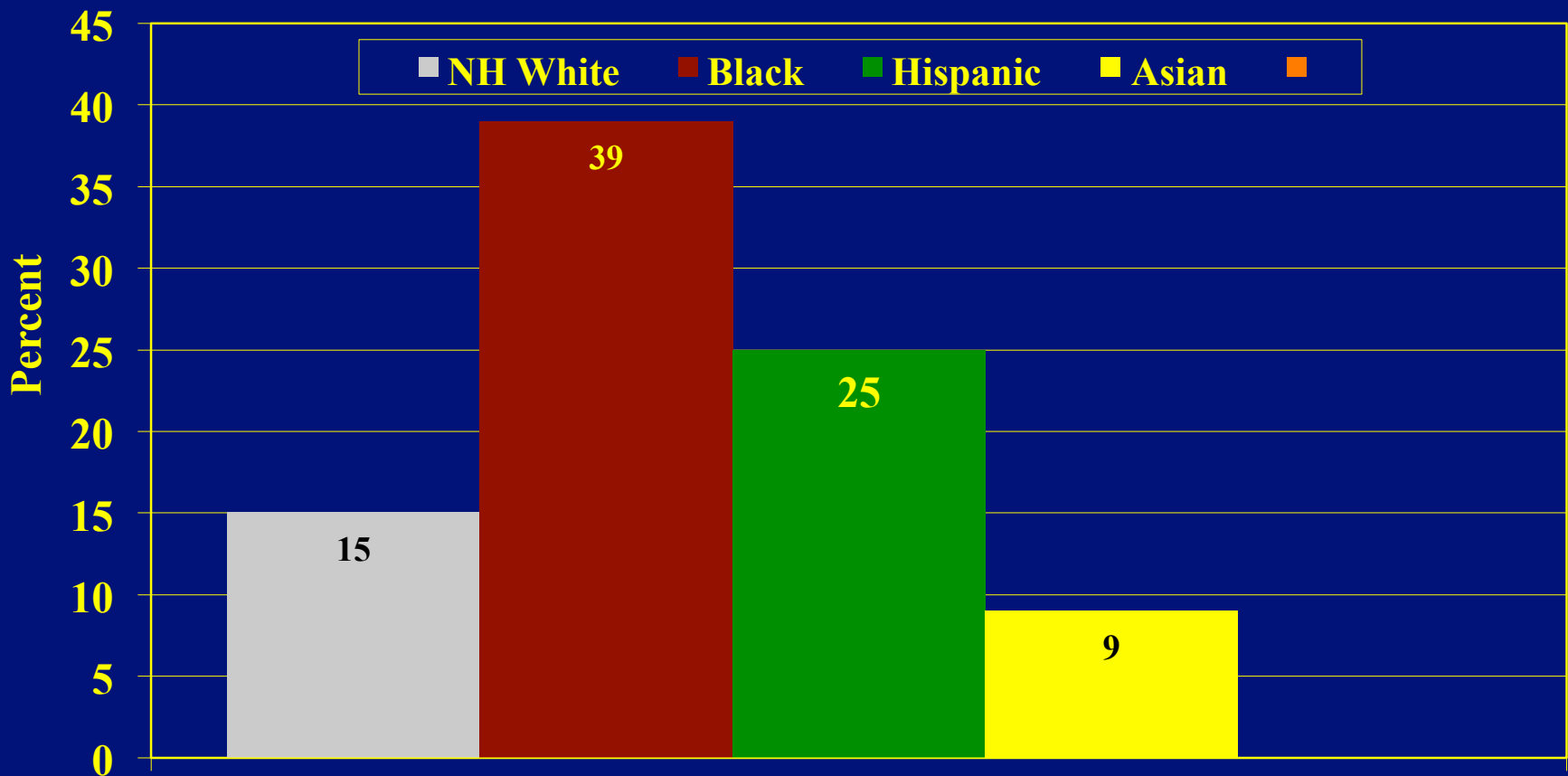


US Dream Academy.org

*New National Data on Discrimination in
America*

Discrimination from Police, Men, 2015

Ever unfairly stopped, searched, questioned, physically threatened or abused by the police



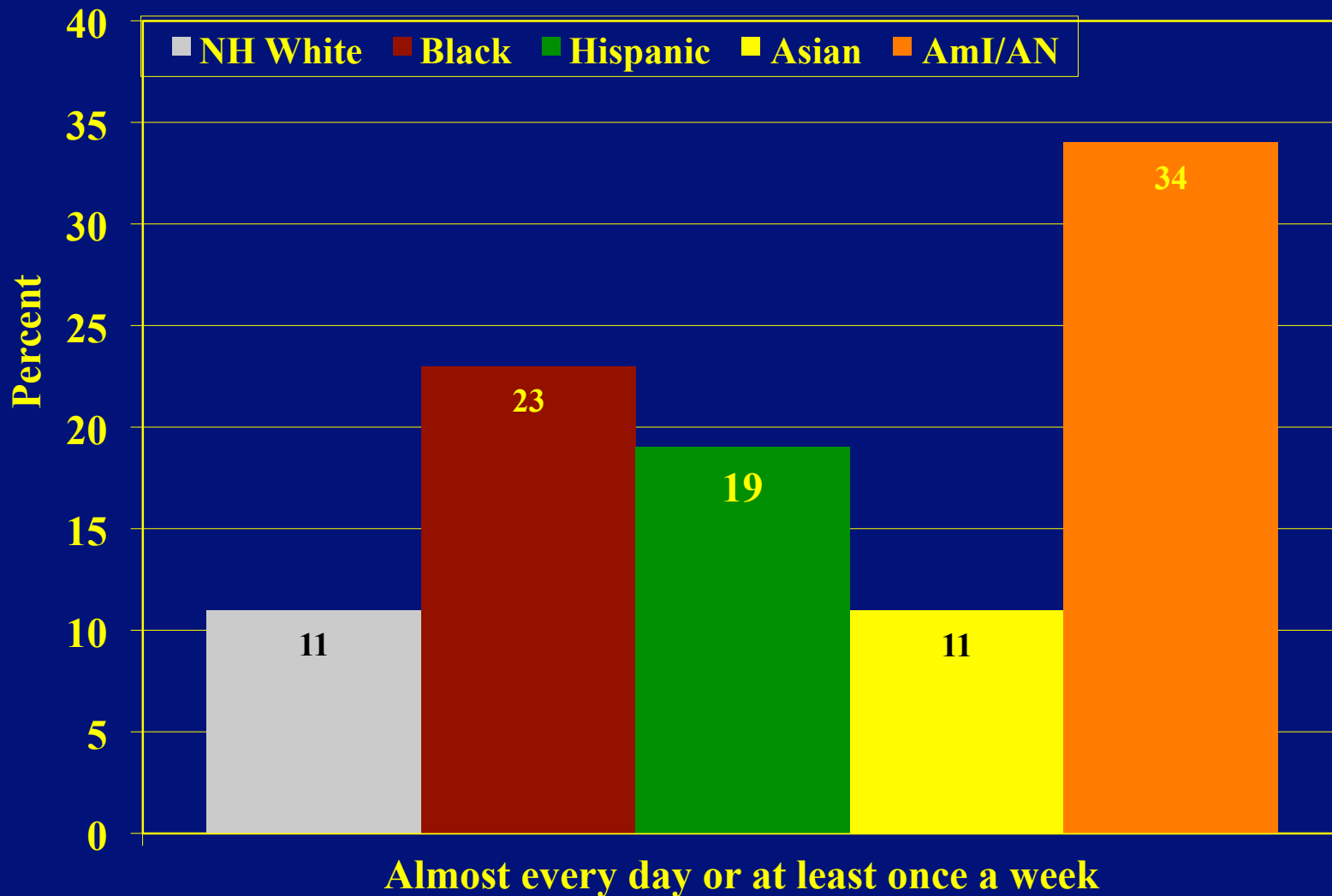
Every Day Discrimination

In your day-to-day life how often do these happen to you?

- You are treated with less courtesy than other people.
- You are treated with less respect than other people.
- You receive poorer service than other people at restaurants or stores.
- People act as if they think you are not smart.
- People act as if they are afraid of you.
- People act as if they think you are dishonest.
- People act as if they're better than you are.
- You are called names or insulted.
- You are threatened or harassed.

What do you think was the main reason for these experiences?

Everyday Discrimination, 2015





Discrimination & Health: Tene Lewis

- **Everyday Discrimination: positively associated with:**
 - coronary artery calcification (Lewis et al., Psy Med, 2006)
 - C-reactive protein (Lewis et al., Brain Beh Immunity, 2010)
 - blood pressure (Lewis et al., J Gerontology: Bio Sci & Med Sci 2009)
 - **lower** birth weight (Earnshaw et al., Ann Beh Med, 2013)
 - cognitive impairment (Barnes et al., 2012)
 - poor sleep [**object. & subject.**] (Lewis et al, Hlth Psy, 2012)
 - mortality (Barnes et al., J Gerontology: Bio Sci & Med Sci, 2008).
 - visceral fat (Lewis et al., Am J Epidemiology, 2011)
-

Discrimination and Allostatic Load

- 331 Blacks (20 year olds) from 9 rural counties in Georgia
- Discrimination assessed at age 16, 17, and 18 (9 SRE items)
- Allostatic load assessed at age 20; overnight cortisol, epinephrine, norepinephrine, SBP, DBP, CRP, BMI
- 79% of sample had low and increasing levels of discrimination; 22% had stably high levels
- Stably high levels of discrimination prospectively associated with high allostatic load
- Association increased when adjusted for CES-D, life stress, socioeconomic risk (family poverty, caregiver education and unemployment, family structure, welfare, financial stress) and unhealthy behavior (nutrition, exercise, alcohol, tobacco, binge drinking, and marijuana use).

Why Discrimination Matters?

Answer: These incidents are experiences of exclusion that trigger feelings of a ‘defilement of self’. That is, feelings of being:

- Over-scrutinized
- Overlooked
- Underappreciated
- Misunderstood
- Disrespected

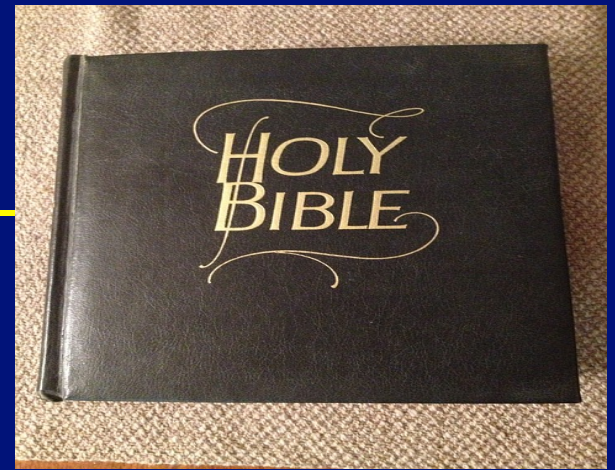
They violate cultural expectations of fairness, morality, dignity, rights, etc.

Animals Read Human Emotions

- Study of 28 horses reactions to positive vs negative human facial expressions
- When viewing angry faces, heart rate increased more rapidly and showed more stress-related behaviors
- Angry expressions also linked to gazing more with left eye (processing of threatening stimuli)
- Stronger reactions to negative facial expressions than to positive ones



Mission



“Love each other like the members of your family.
Be the best at showing honor to each other.”

Romans 12:10 (CEV)

“If you love each other, everyone will know that
you are my disciples.” John 13:35 (CEV)

Facial Expressions Matter

“Every soul is surrounded by an atmosphere of its own -- an atmosphere, it may be, charged with the life-giving power of faith, courage, and hope, and sweet with the fragrance of love. Or it may be heavy and chill with the gloom of discontent and selfishness, or poisonous with the deadly taint of cherished sin.

By the atmosphere surrounding us, every person with whom we come in contact is consciously or unconsciously affected.” Christ Object Lessons, p. 339

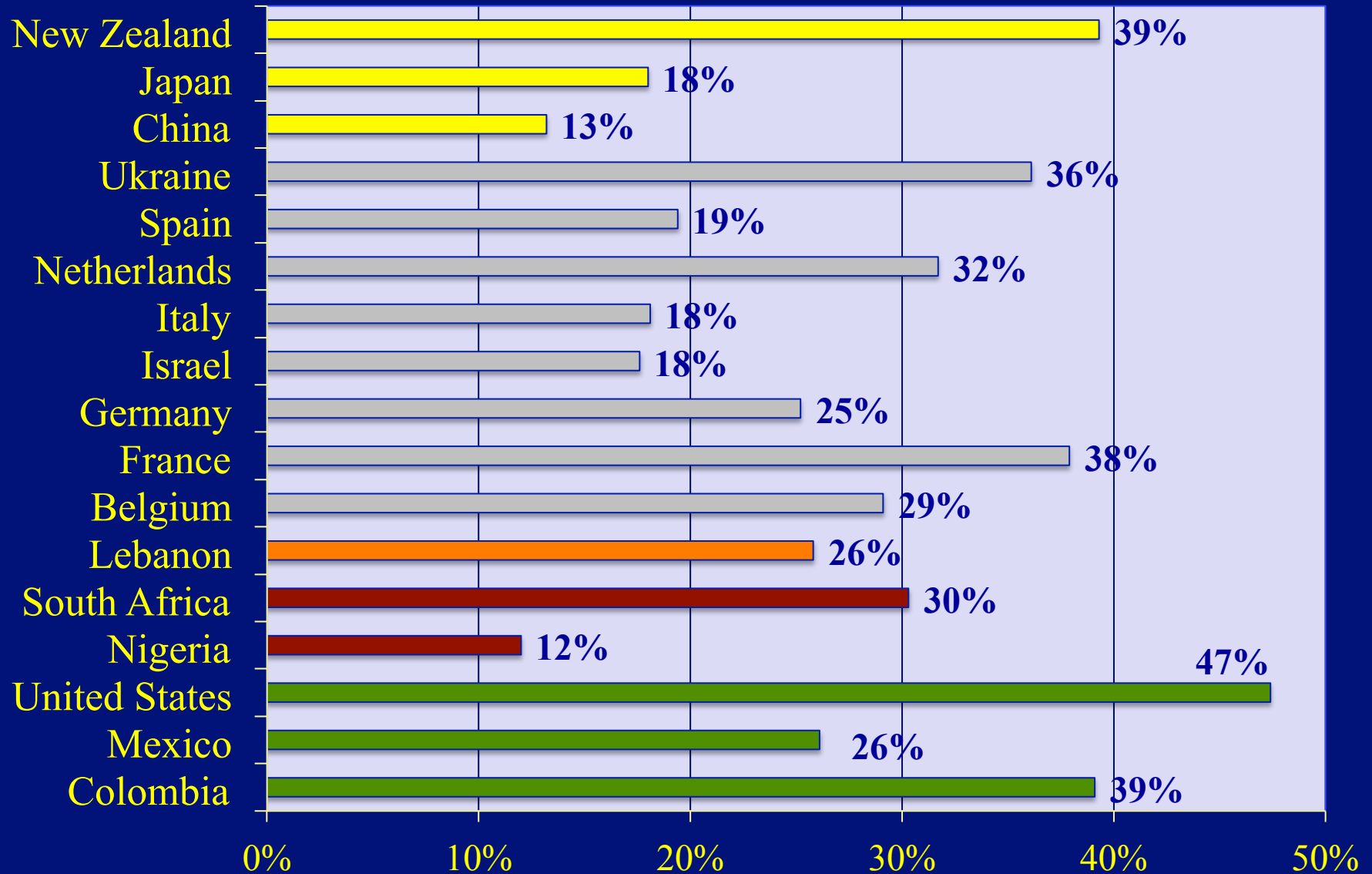


The Challenge of Mental Illness in Contemporary Society

World Mental Health Surveys

- Initiative of the World Health Organization
 - Provided centralized instrument development, training, data analysis
 - Consistent WHO translation, back-translation, and harmonization procedures used to ensure comparability
 - Studies completed in over 32 countries
 - All WHO Regions represented (WPRO, EURO, EMRO, AFRO, PAHO)
 - The same diagnostic interview used
-

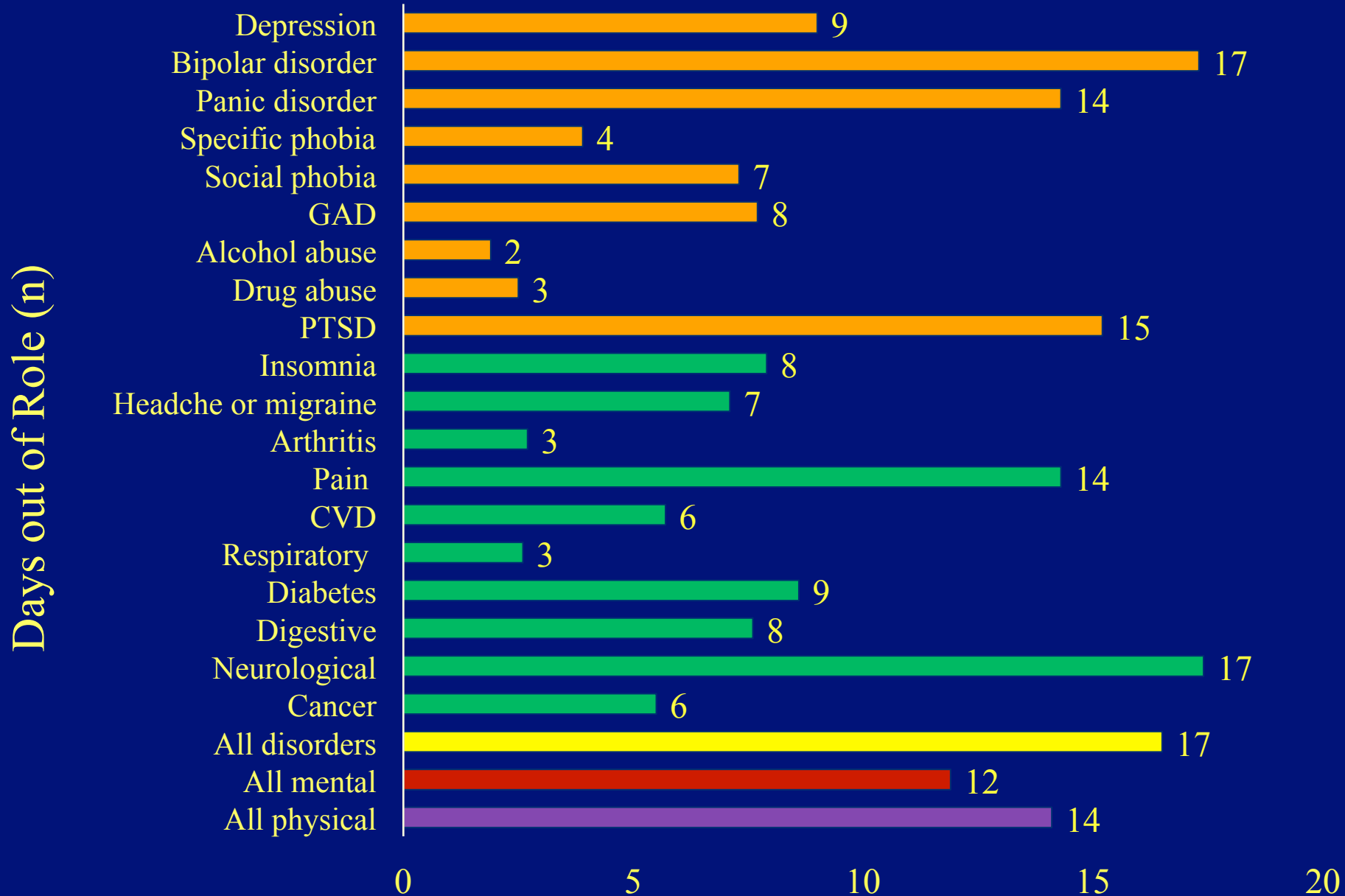
Lifetime Prevalence of Any Disorder



Mental Disorders: Negative Effects

- Mental disorders have more negative effects on role functioning than common physical illnesses
- In WMH Surveys, Depression, Bipolar, GAD, or PTSD are more disabling than:
 - Arthritis
 - Back/Neck problems and other chronic pain
 - Cancer
 - Diabetes
 - Headaches
 - Heart Disease
 - Ulcers

Additional Days out of Role Per Year (WMH)



Mental Disorders: Negative Effects

Mental disorders has negative long-term effects on:

- Subsequent onset and persistence of a broad range of physical illnesses
- Reduced educational attainment
- Early marriage
- Marital instability
- Low occupational status
- Low financial status

For most disorders, the onset is early, before age 25

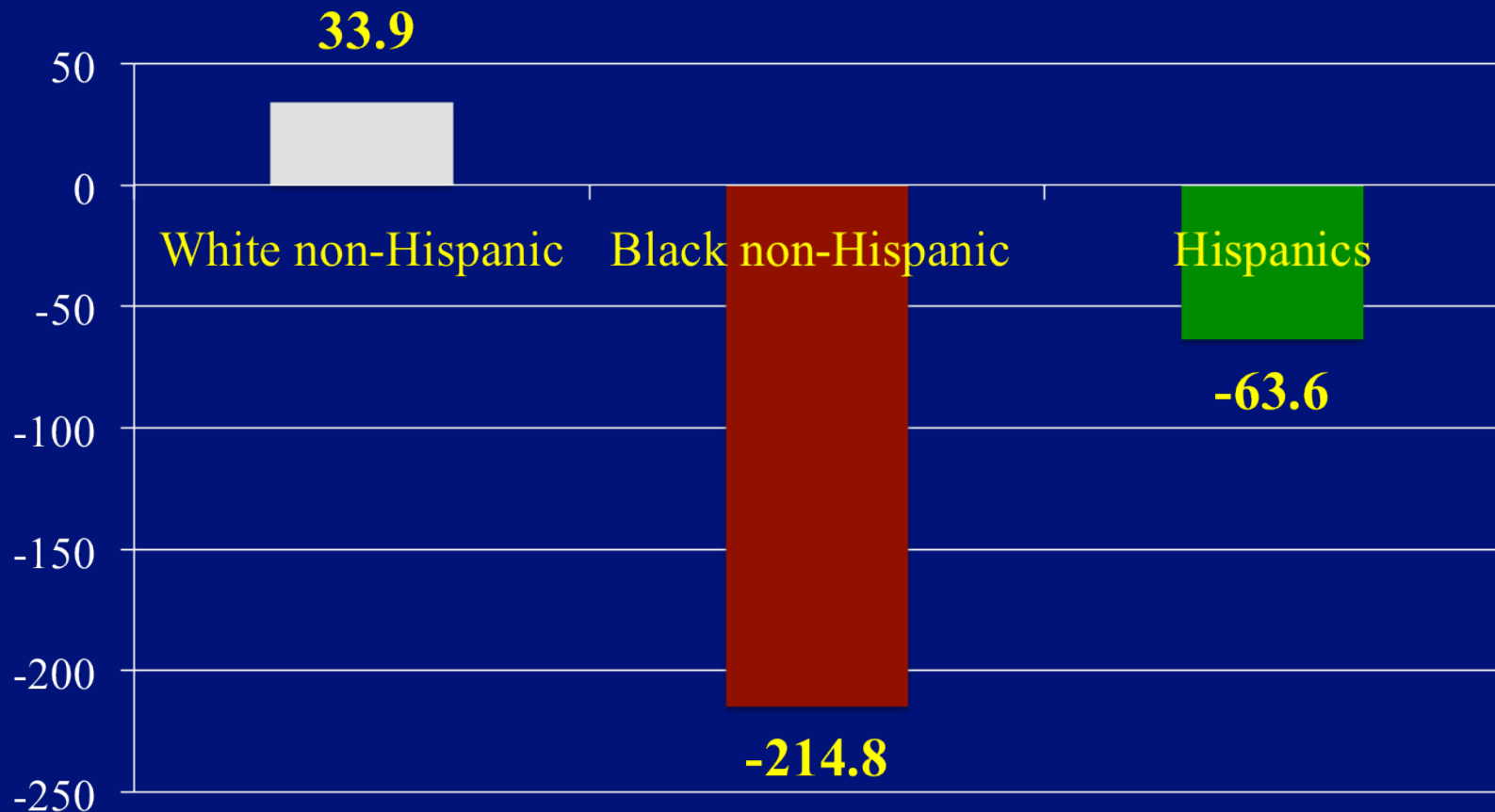
There are Population Subgroups that are
Especially Vulnerable

Mental Health Needs all Around Us

- A 2015 scientific paper triggered shock and concern through medicine and public health
- It reported that the life expectancy of middle-aged whites in the U.S. had fallen since the late 90's, while that of all other groups had risen
- The magnitude of the excess deaths exceeds the total deaths from HIV/AIDS

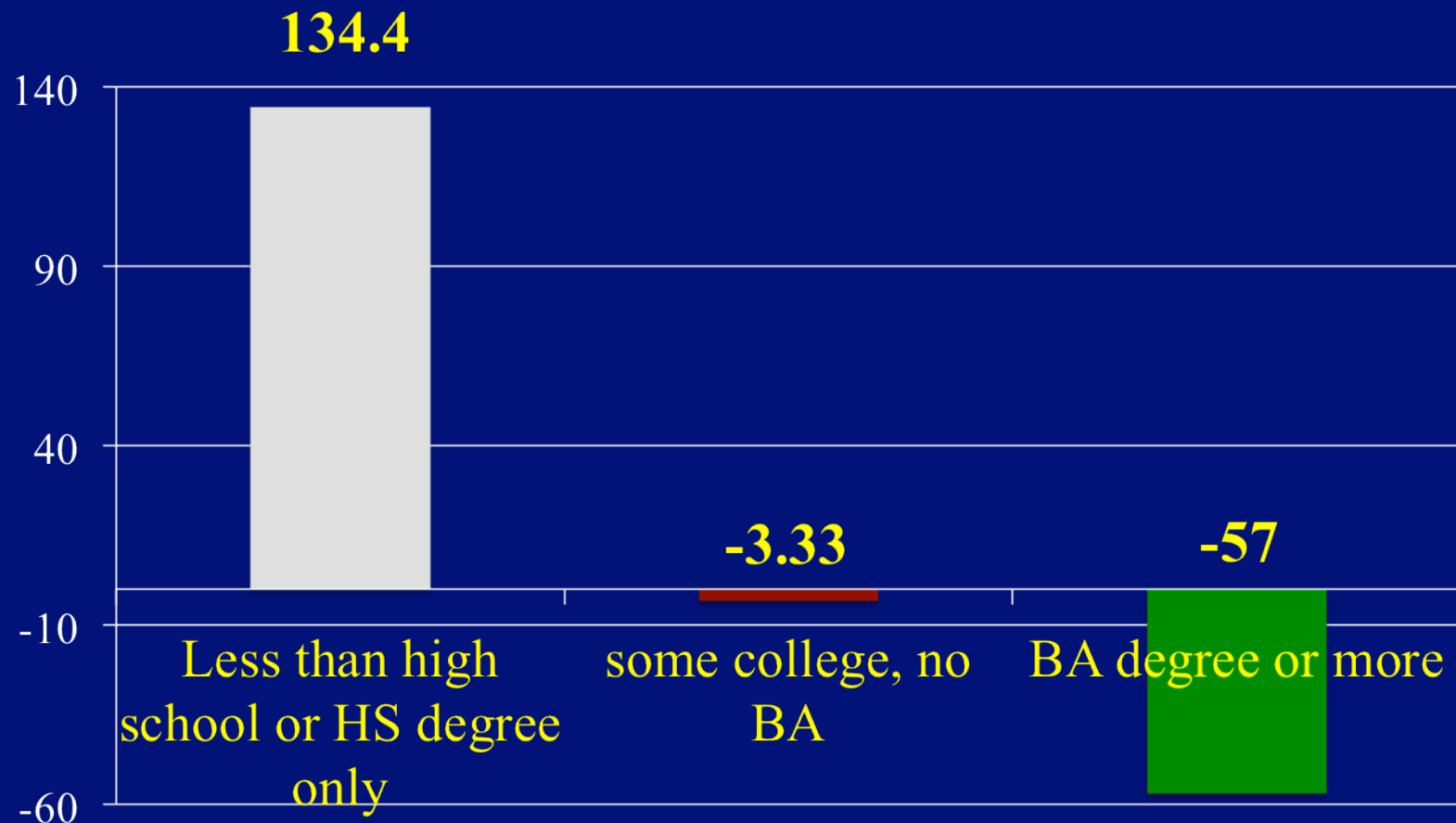
Change in Mortality, by Race, 1999-2013

All-causes, deaths per 100,000 pop.



Change in Mortality, Whites, 1999-2013

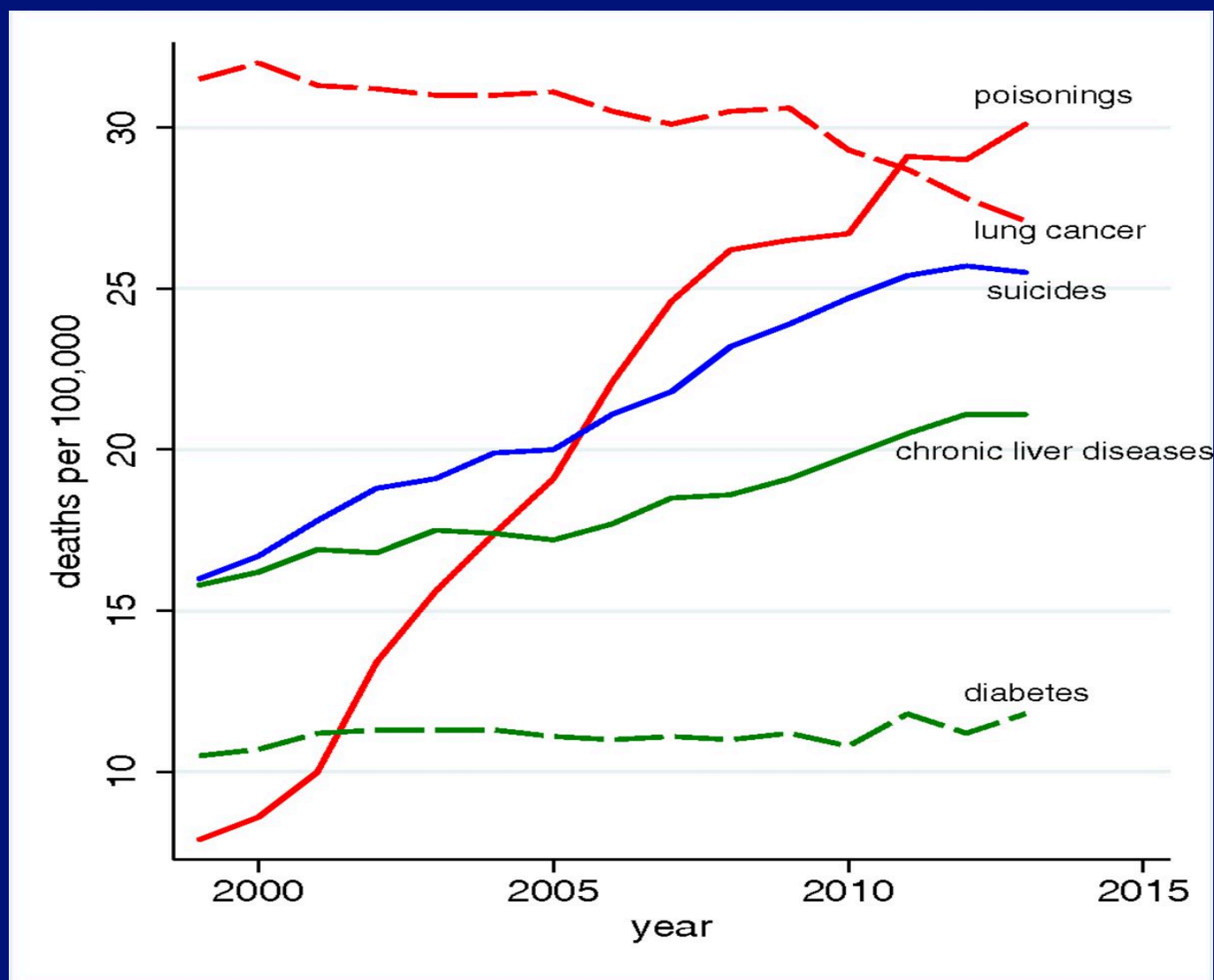
All-causes, per 100,000 pop, by Education



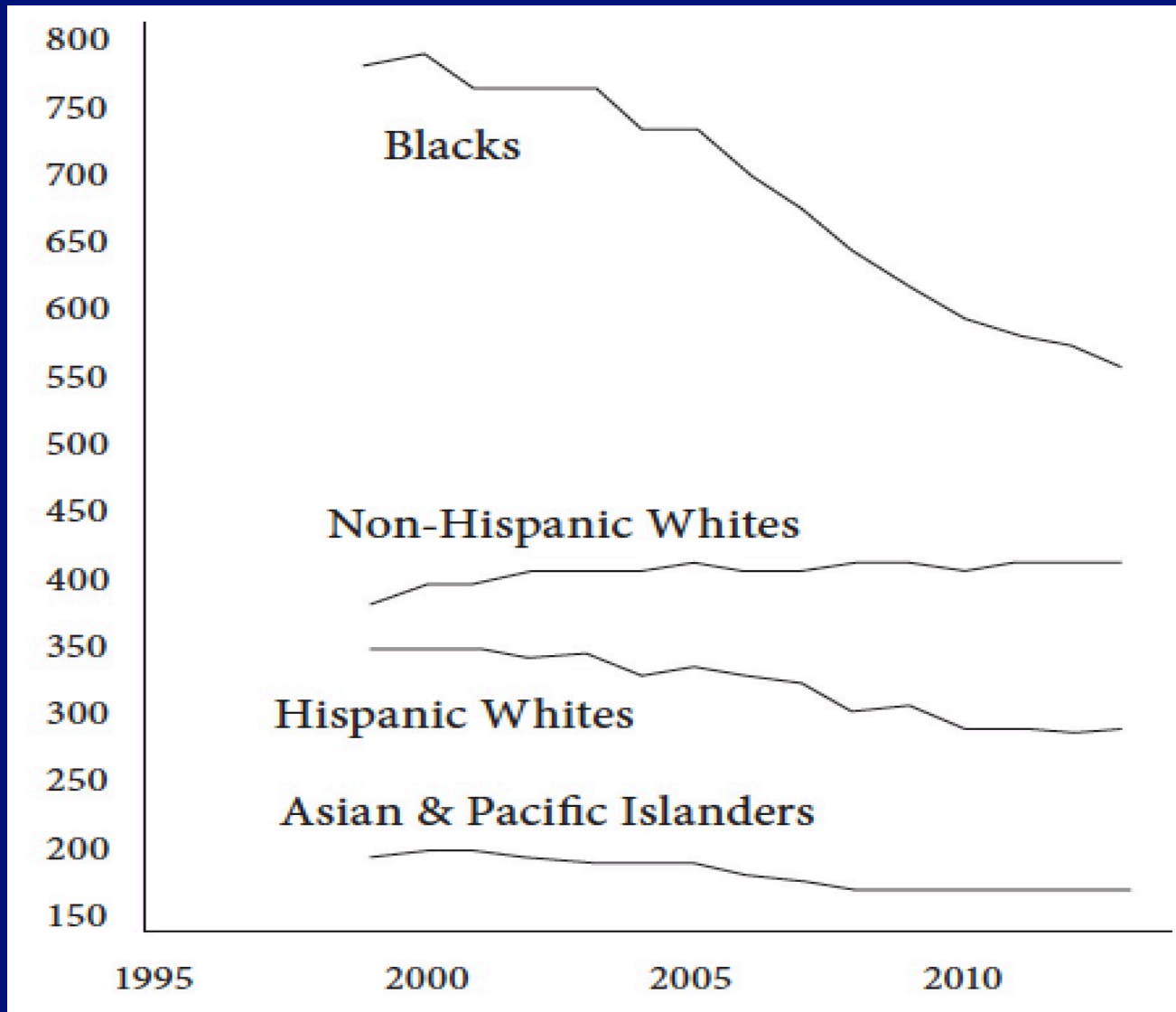
Underlying Mental Health Challenges

- What are the drivers?
 - Depression
 - Distress
 - Hopelessness
- Manifested in increases in
 - Opioid overdose
 - Liver cirrhosis
 - Suicide

Deaths of Despair, Whites, aged 45-54



Mortality* at Ages 45-54, by Race



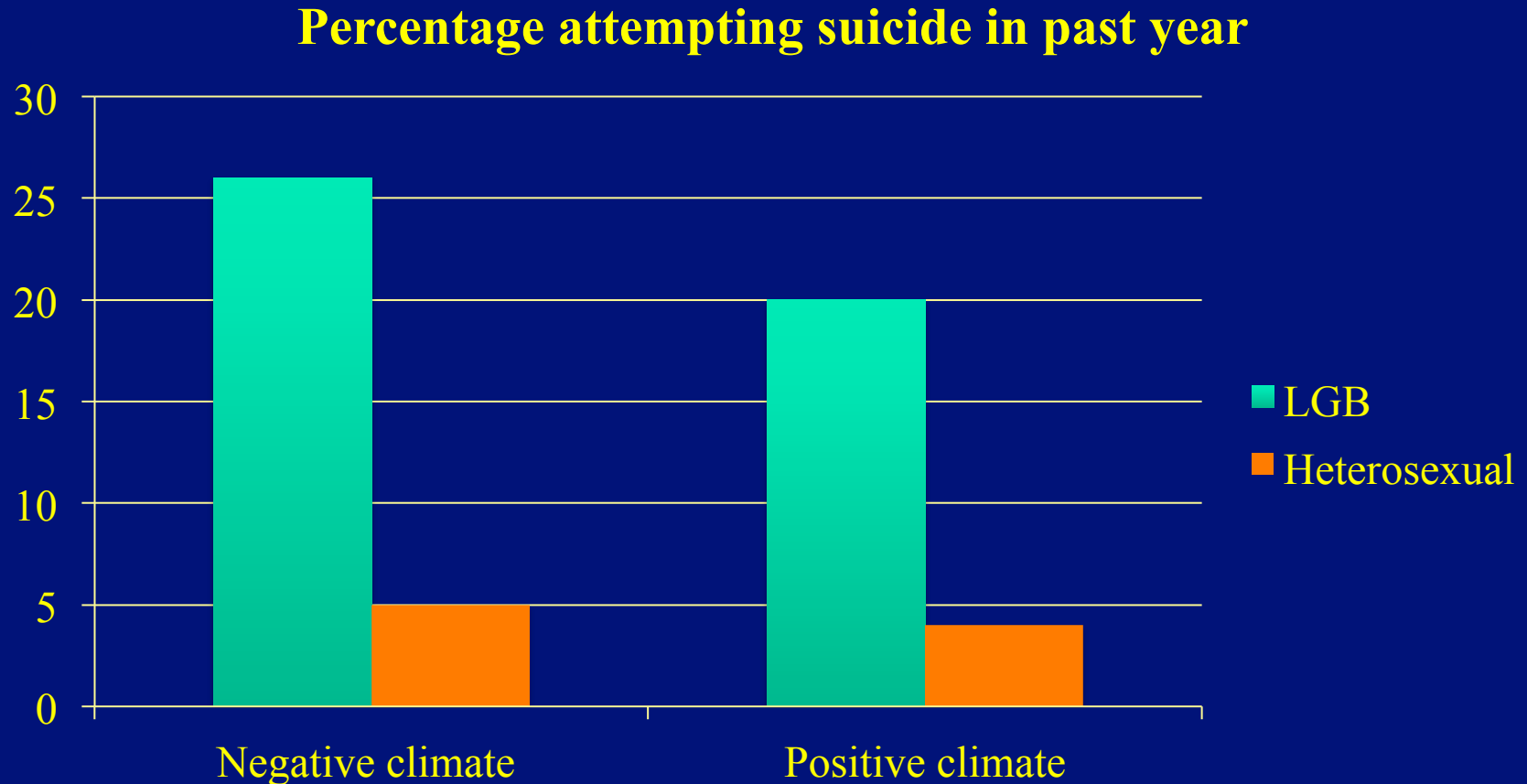
*Deaths per
100,000 pop.
Data from
CDC Wonder.

Mental Health Insights

“The relation that exists between the mind and the body is very intimate. When one is affected, the other sympathizes. The condition of the mind affects the health to a far greater degree than many realize. Many of the diseases from which men suffer are the result of mental depression. Grief, anxiety, discontent, remorse, guilt, distrust, all tend to break down the life forces and to invite decay and death.”

Social Climate and Suicide Risk

11th Graders in State of Oregon



Mission

Religious organizations have unique ministry opportunities to support and improve the mental health and well-being of their communities

Opportunities for Faith-Based Organizations

- In distress, many turn to trusted friends & leaders
 - Faith and other neighborhood leaders are often first responders when an individual or family faces a mental health challenge or when a community experiences a traumatic event.
 - The voices of leaders and members of congregations, can be an important in efforts to reduce negative attitudes about mental illness and those who experience them
 - Knowing how to respond to these events can make a huge difference in how the individual and community copes and heals.
-

Q: What would it take to build a solid foundation that would have a newly energized clergy to be prepared to address the emotional needs of their community?

A: A major new investment in providing desperately needed assistance to the clergy themselves

Clergy Assistance Programs Needed

- Address the problems pastors face
- Assist clergy at all levels of their careers and identify resources to assist
- Educate community of clergy of likely problems, and available resources
- Personal or health problems are compromising the ministry of many clergy
- Urgent issue to address
- Clergy who have experienced the healing of their own pain can better value mental health care and the need to address the emotional pain of others

Transforming Churches

*What would it take to make every
SDA Church a mental health
promotion center?*

Challenge

- Mental and emotional health is an important part of our overall health
 - A comprehensive health ministry must include promotion of good mental health as a part of an abundant life
 - We need to transform our religious communities from being sources of social conflict and criticism to being sources of love, joy, encouragement and hope
 - How can our organizational structures and processes promote psychological well-being and minimize interpersonal tension and stress?
-

"True compassion is more than
flinging a coin to a beggar; it
understands that an edifice which
produces beggars needs restructuring."

- - Dr. Martin Luther King, Jr.