Child & youth

Mental Health Series

Today's topic:

Can we harness the power of the Mind-Body Connection?

Speaker:

Erinna Brown

Date April 18, 2019

CHEO The Le Royal

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OBJECTIVES

- Provide an overview of the mind-body connection as it applies to medicine
- Discuss the research on body language expression and emotions
- Review therapeutic modalities that utilize the mind-body connection and discuss some clinical applications

MIND-BODY CONNECTION IN HISTORY

- Mind-Body Connection (MBC)
  - Focus on the ways in which emotional, mental, social, spiritual, experiential, and behavioral factors can directly affect health
  - Interactions among the brain, body, mind and behavior

- Not a new concept! Dates back to ancient times

- During the Renaissance and Enlightenment eras the notion that the mind and body were separate
  - Increasing of scientific and technological discoveries furthered the separation
  - Emphasis on disease-based models, pathological changes and

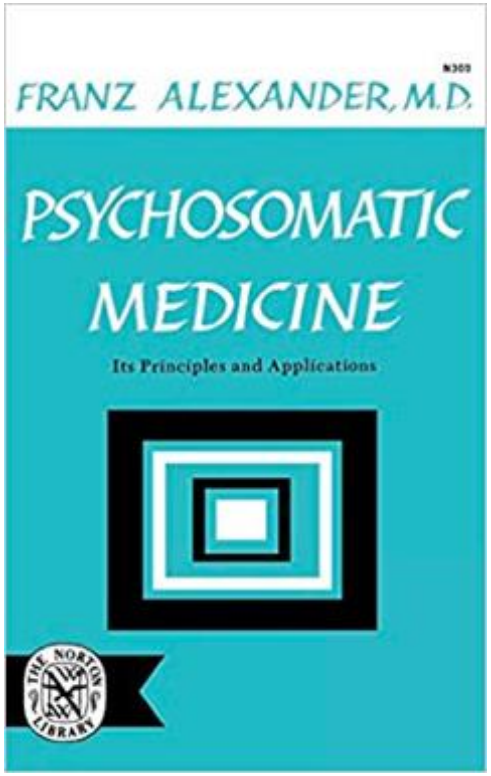
HISTORY OF THE MBC

- 1915, Walter Bradford Cannon, a physiologist at Harvard, coined the term fight or flight response to describe an animal's response to threats in "Bodily Changes in Pain, Hunger, Fear and Rage: An Account of Recent Researches into the Function of Emotional Excitement"
- Psychological emergencies (not just physical emergencies such as blood loss) could evoke release of **adrenaline into the blood stream**

HISTORY OF THE MBC

1950s

- Dr. Hans Selye is the "Father" of the field of stress research
  - Introduced the concept of stress in a medical context. A distinguished physician and endocrinologist, his theories on the role of organic responses to emotion, illness and injury have revolutionized our understanding of the causes and mechanisms of disease and of the mind-body connection.
- Franz Alexander led the movement looking for the dynamic interrelation between the mind and body.
  - **Psychosomatic Medicine: Its Principles and Application**



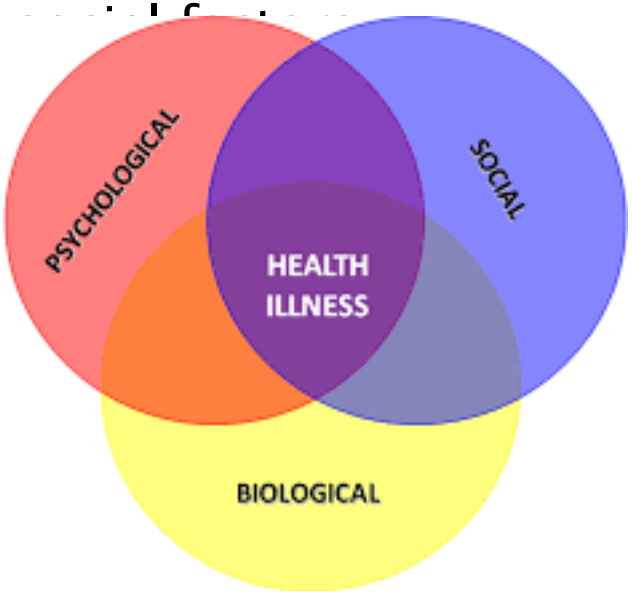
HISTORY OF THE MBC

- 1960s **Dr. Herbert Benson**, cardiologist, coined the phrase "relaxation response" to describe the physiological changes that occur with meditation
  - Observed high blood pressure at office visits and at subsequent visits he realized that he had overmedicated his patients
  - Realized that there was a temporary spike in blood pressure with anxiety ("white coat hypertension")
  - Conducted experiments on students to induce stress and relaxation
  - Relaxation was a physiological package, like the fight—flight response
  - Studied practitioners of transcendental mediation and was reported as having to bring them in at night so that his colleagues did not see his experiments
- Published his book "**The Relaxation Response**" in 1975 which was the #1 self-help book that clinical psychologists recommended to their patients in 1986

HISTORY OF MBC

1977 George Engel, an American Internist and Psychiatrist

- Expanded on the biomedical model by proposing the biopsychosocial model of health to account for biological, psychological and



HISTORY OF MBC

- 1970-80s
  - Researchers interested in the mind-body connection were treated with skepticism
  - **James Gordon**, trained as a psychiatrist and worked at the National Institute of Mental Health to look for scientific evidence for the mind-body medicine techniques in the had to publish his studies privately
  - **Esther Sternberg**, rheumatologist, was interested in the brain and immune system connection, but she was told that it would "ruin my career" and so she avoided talking about emotions and the body as it was thought to be taboo
  - **Ronald Glaser** (Immunologist) and **Janice Kiecolt-Glaser** (Psychologist) began looking at how stress affects the immune system in 1980s
    - Stress in medical students makes them susceptible to infection
    - Short-term stress negatively affects wound healing by disrupting the production of inflammatory cytokines
    - Field of Psychoneuroimmunology

HISTORY OF MBC

1990s

- **October 1991** — The U.S. Congress passes legislation to establish an office within the National Institutes of Health (NIH) to investigate and evaluate promising unconventional medical practices.
- **October 1992** — Dr. Joseph J. Jacobs is appointed first Director of the Office of Alternative Medicine (OAM).
- **1998** – The National Center for Complementary and Integrative Health was established (NCCIH) as part of NIH
- Multiple Integrative Medical Schools and Institutes:
  - Cousins Centre for Psychoneuroimmunology at UCLA
  - Harvard’s Osher Institute
  - Stanford's Psychosocial Treatment Laboratory

EVIDENCE FOR MIND-BODY THERAPY

Coronary artery disease

Headaches

Insomnia

Incontinence

Pain

Disease and treatment symptoms of cancer

Improving postsurgical outcomes

Depression and Anxiety

Evidence suggests that psychosocial factors are **overlooked** in many clinical encounters and **underemphasized**

Astin et al 2003

MIND-BODY CONNECTIONS & MEDICAL TRAINEES?

Early 2000 Institute of Medicine issued a report on the status of medical training in the areas of behavioral and social sciences

- "no physician's education would be complete without an understanding of the role played by behavioral and social factors in human health and disease, knowledge of the ways in which these factors can be modified, and an appreciation of how personal life experiences influence physician–patient relationships."

Survey by **Waldstein** and colleagues that examined the extent to which psychosomatic/biopsychosocial topics were being covered in the curriculum of **U.S. medical schools**.

- Of 54 schools – 10% of the total curriculum was focused on biopsychosocial topics

Integration of the Biopsychosocial Model: Perspectives of Medical Students and Residents

John A. Astin, PhD, Victor S. Sierpina, MD, Kelly Forys, PhD, and Brian Clarridge, PhD

Abstract

Purpose
To examine residents' and medical students' attitudes toward the incorporation of psychosocial factors in diagnosis and treatment and to identify barriers to the integration of evidence-based, mind–body methods.

Method
A random sample of third- and fourth-year medical students and residents was drawn from the Masterfiles of the American Medical Association. A total of 661 medical students and 550 residents completed a survey, assessing attitudes toward the role of psychosocial factors and the clinical application of behavioral/mind–body methods.

Results
The response rate was 40%. Whereas a majority of students and residents seem to recognize the need to address psychosocial factors, 30%–40% believe that addressing such factors leads to minimal or no improvements in outcomes. The majority of students and residents reports that their training in these areas was ineffective, yet relatively few indicate interest in receiving further training.

Females are more likely to believe in the need to address psychosocial factors. Additional factors associated with greater openness to addressing psychosocial factors include (1) the perception that training in these areas was helpful, and (2) personal use of behavioral/mind–body methods to care for one's own health.

Conclusions
There is a need for more comprehensive training during medical school and residency regarding both the role of psychosocial factors in health and the application of evidence-based, behavioral/mind–body methods. The current health care structure—particularly insufficient time and inadequate reimbursement for addressing psychosocial factors—may be undermining efforts to improve patient care through inconsistent or nonexistent application of the biopsychosocial model.

Acad Med. 2008; 83:20–27.

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MEDICAL STUDENTS PERSPECTIVES OF INTEGRATION OF MIND-BODY THERAPY

- Surveyed medical residents and medical students in 3rd and 4th year
  - Attitudes toward the incorporation of psychosocial factors in diagnosis and treatment of medical disorders
  - Identify barriers to the integration of evidence-based, mind-body therapies
- 661 medical students and 550 residents completed the survey (40% response rate)
  - Majority of medical students and residents seem to **recognize the need to address psychosocial factors** (67% students vs 60% residents) and <u>believed that this would result in moderate or significant improvements</u> in medical diagnosis and treatment

MIND-BODY CONNECTIONS & MEDICAL TRAINEES?

- Frequency of use of and/or referral to mind-body therapies:
  - 65% Psychological Counseling (20% often and 47% sometimes)
  - 47% Relaxation therapy (7% often and 40% sometimes)
- >75% reported that they would never use or refer patients to meditation, yoga, biofeedback, guided imagery or hypnosis

Table 2

The Reported Frequency of 550 Residents' Use of and/or Referral to Mind–Body Therapies, 2003*

	No. (%)† of responses		
Mind–body therapy	**Often**	**Sometimes**	**Never**
Psychological counseling	110 (20.0)	258 (46.9)	155 (28.2)
Relaxation techniques	40 (7.3)	221 (40.2)	262 (47.6)
Meditation	6 (1.1)	88 (16.0)	418 (76.0)
Yoga	3 (0.5)	53 (9.6)	448 (81.5)
Biofeedback	7 (1.3)	106 (19.3)	397 (72.2)
Guided imagery	3 (0.5)	69 (12.5)	432 (78.5)
Hypnosis	1 (0.2)	18 (3.3)	485 (88.2)

* Survey completed in collaboration with the Center for Survey Research at the University of Massachusetts.
† Numbers may not equal 550, and percentages may not equal 100 because not all respondents answered all questions.

Astin et. al. 2003

MIND-BODY CONNECTIONS & MEDICAL TRAINEES?

- Asked about the value of adding behavioral/mind-body methods to the overall treatment of **6 specific conditions**

Hypertension	40%
Cardiovascular disease	30%
Insomnia	70%
Headache disorders	60%
Low-back pain	45%
Arthritis	25%

MIND-BODY CONNECTIONS & MEDICAL TRAINEES?

- 25% of students found their **training to be helpful** in learning how to address psychosocial factors in treatment
- 54% of residents felt their **mentors** did a good job with respect to training them to ***diagnose*** **psychosocial factors** but only 38% stated that mentors did a good job training them to ***treat*** **psychosocial factors**
- 31% of medical students and 42% of residents stated that they were **not very committed** or **not at all committed to the clinical adoption of mind-body methods**

MIND-BODY CONNECTIONS & MEDICAL TRAINEES?

More studies looking at the attitudes of medical students towards **complimentary and alternative medicine (CAM)**

- Trends of increasing acceptance
- More students feel that integrative medicine should be taught in medical schools
- Canadian medical students were **less convinced of the benefits** of CAM **than students in other health professions** (physiotherapy, occupational therapy, nursing, pharmacy) and most **strongly urged the necessity of scientific investigation of complementary medical procedures prior to their use**
- 2015 Flaherty surveyed students in Ireland and 68% indicated an interest in studying complementary and alternative medicine

(Baugniet et al., 2000; Flaherty et al., 2015)

CHALLENGES IN IMPLEMENTING MIND-BODY THERAPY & MEDICINE

- Term Mind-body therapy or Mind-Body Interventions is a vague and broad term
  - Some early researchers included “psychotherapy” changes
  - Overlap between interventions (e.g., guided imagery or progressive relaxation)
  - NCCIH defines Mind-Body Interventions as:
    - Large and diverse group of techniques that are administered or taught to others by a trained practitioner or teacher (acupuncture, massage therapy, meditation, relaxation techniques, spinal manipulation, and yoga)
- Mind-Body Interventions focused on wellbeing and preventative
  - Medical model focuses on disease and pathology

MEDICALLY UNEXPLAINED SYMPTOMS

Mind-body = medically unexplained symptoms

Somatic Symptom Disorder

- Somatic symptoms that are either distressing or result in significant disruption of functioning
- Excess and disproportionate thoughts, feelings and behaviors regarding these symptoms for at least 6 months

SOMATIC SYMPTOMS AND DSM-5

- Somatization disorder, hypochondriasis, pain disorder, and undifferentiated somatoform disorder removed from DSM-5
- Changes to better reflect the complex interface between mental and physical health and promote holistic care
- Removed the "**medically unexplained symptoms**" to remove the mind-body separation and encourage clinicians to make a comprehensive assessment and use clinical judgment (not check lists) for the diagnosis
- Shifting the focus from "medically unexplained symptoms" to distress and impairment = less stigma?
  - Avoid "nothing is wrong" and focus on the fact that symptoms are real and valid

APA 2013

SOMATIC SYMPTOMS AND DSM-5

BMJ

BMJ 2013;346:f1580 doi: 10.1136/bmj.f1580 (Published 20 March 2013)

VIEWS & REVIEWS

PERSONAL VIEW

The new somatic symptom disorder in DSM-5 risks mislabeling many people as mentally ill

This new condition suggested in the bible of mental health diagnoses lacks specificity, says **Allen Frances**

Allen Frances *chair of the DSM-IV task force*

1820 Avenida Del Mundo, Coronado, CAL 92118, USA

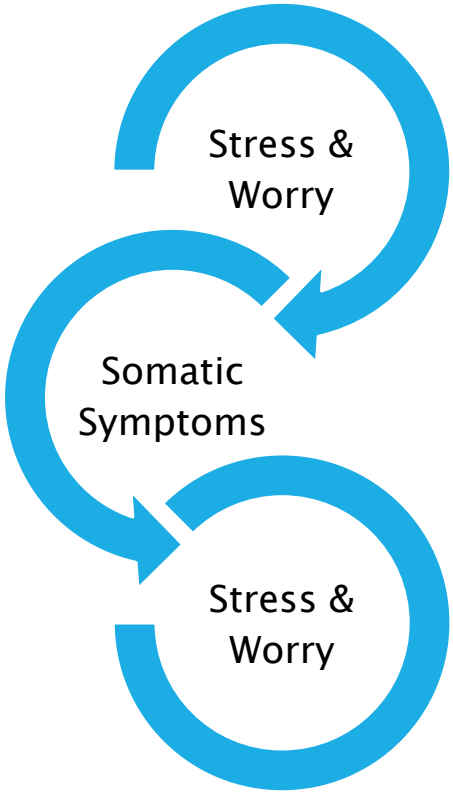
WE ALL SOMATIZE

Somatization

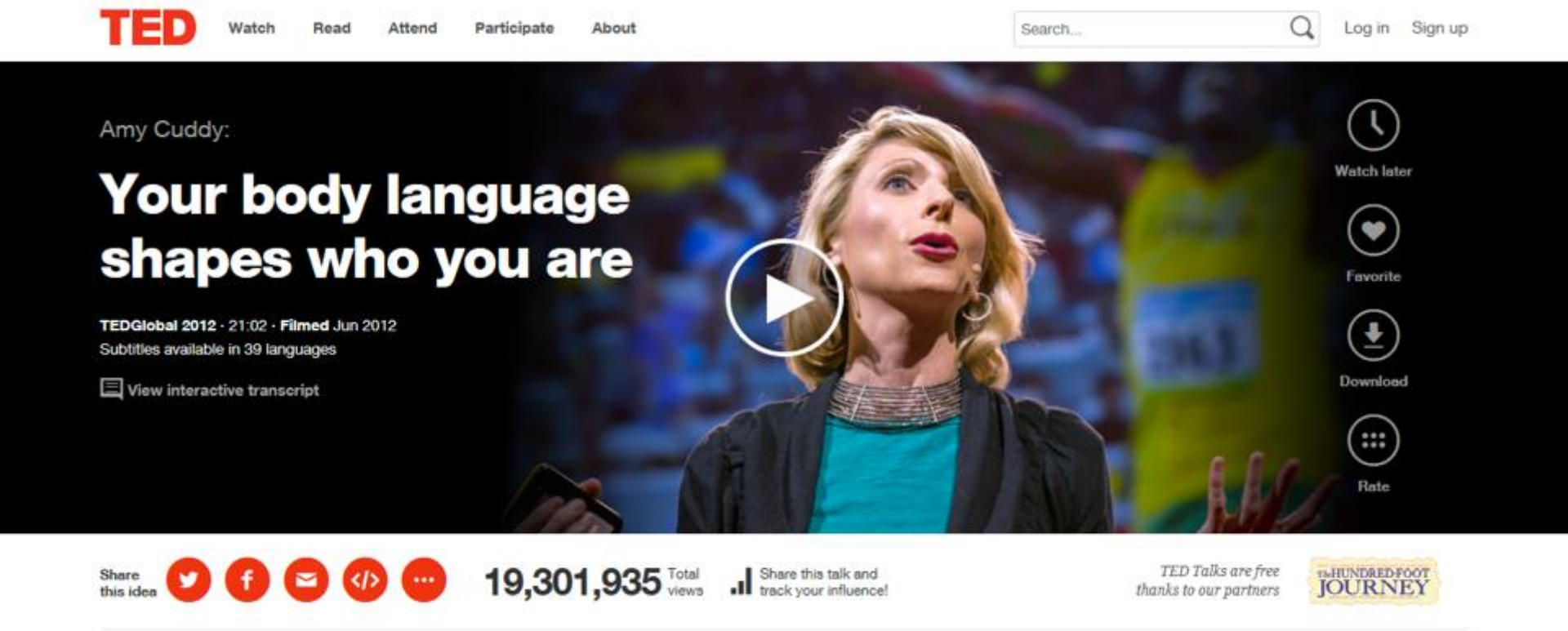
- Physical expression of stress and emotions
  - Embarrassed = blush
  - Scared or anxious = increased breathing, heart rate, sweat
- Common in children (estimates as high as 12% of medical appointments are a result of somatization)
- Not well understood
  - Children and their family
  - Health care providers
  - Anxiety – what if a medical condition is missed?
- Requires both treatment for somatization *and* medical illness (e.g. walking two paths of treatment)

SOMATIZATION

If emotions have physical components, can we change our body to change our emptions?



CAN WE HARNESS THE POWER OF THE MIND-BODY CONNECTION?



POWER POSING

- Amy Cuddy Ph.D. social psychologist
- Earned her Ph.D. from Princeton University and was a professor at Harvard
- 2012 TED Talk “Your Body Language May Shape Who You Are”
  - Over 50 million views
  - Second most-viewed TED talk

Research Report

ASSOCIATION FOR PSYCHOLOGICAL SCIENCE

Psychological Science
XX(X) 1–6
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Power Posing: Brief Nonverbal Displays Affect Neuroendocrine Levels and Risk Tolerance

Dana R. Carney[1], Amy J.C. Cuddy[2], and Andy J. Yap[1]
[1]Columbia University and [2]Harvard University

Abstract

Humans and other animals express power through open, expansive postures, and they express powerlessness through closed, contractive postures. But can these postures actually cause power? The results of this study confirmed our prediction that posing in high-power nonverbal displays (as opposed to low-power nonverbal displays) would cause neuroendocrine and behavioral changes for both male and female participants: High-power posers experienced elevations in testosterone, decreases in cortisol, and increased feelings of power and tolerance for risk; low-power posers exhibited the opposite pattern. In short, posing in displays of power caused advantaged and adaptive psychological, physiological, and behavioral changes, and these findings suggest that embodiment extends beyond mere thinking and feeling, to physiology and subsequent behavioral choices. That a person can, by assuming two simple 1-min poses, embody power and instantly become more powerful has real-world, actionable implications.

Keywords

cortisol, embodiment, hormones, neuroendocrinology, nonverbal behavior, power, risk taking, testosterone

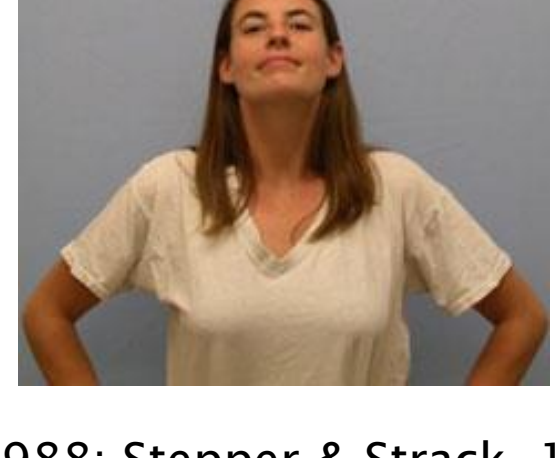
Received 1/20/10; Revision accepted 4/8/10

POWER POSING

- Humans and animals express power through open, expansive postures and express powerlessness through closed, contractive postures
- Power has been linked to
  - greater access to resources
  - higher levels of agency and control over one's own body, mind and positive feelings
  - Enhanced cognitive function
  - Neuroendocrine profile of
    - Higher levels of testosterone
    - Lower levels of basal levels of cortisol and cortisol drops when low-power people gain power
    - Decrease risk of stress-related illness
    - Increased leadership abilities

NONVERBAL BODY LANGUAGE

- Facial displays can affect emotional states
  - Unobtrusive contraction of the “smile muscle” (i.e., the zygomaticus major) increases enjoyment
  - Head tilting upward induces pride
  - Hunched postures (vs opposed to upright postures) elicit more depressed feelings



(Strack, Martin, Stepper 1988; Stepper & Strack, 1993; Riskind & Gotay, 1982)

POWER POSING METHODS

Powerful postures are universal and associated with expansiveness (i.e., taking up more space) and openness (i.e., keeping limbs open)

High-Power-Pose

Fig. 1. The two high-power poses used in the study. Participants in the high-power-pose condition were posed in expansive positions with open limbs.

Low-Power-Pose

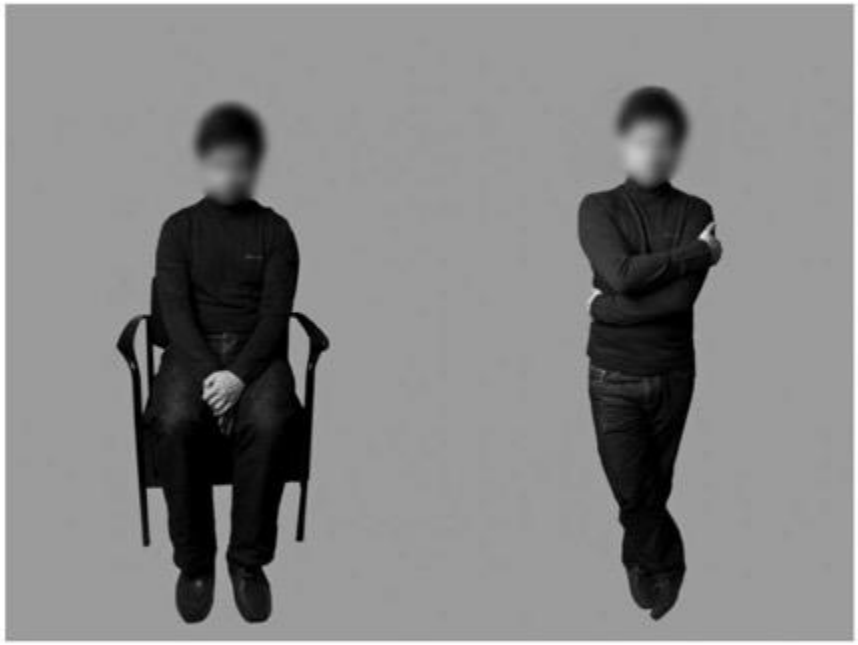


Fig. 2. The two low-power poses used in the study. Participants in the low-power-pose condition were posed in contractive positions with closed limbs.

POWER POSING

- Cuddy and colleagues goal was to test whether high-power poses actually produce power
  - Feelings of power
  - Elevation of dominance hormone testosterone
  - Lower levels of cortisol
  - Increased tolerance for risk

POWER POSING METHODS

- 42 participants randomly assigned to the high-power-pose or low-power-pose
- Participants believed that the study was about the science of physiological recordings (i.e. placement of electrodes affect data collection)
- Experimenter placed the participant into the poses and had them hold the posture for 1 min (2 poses each)
  - Self-reports of feelings of power
  - Risk taking measured with a gambling task
  - Saliva collected to test cortisol before and 17 minutes after

POWER POSING RESULTS

- High-Power-Pose
  - ↑ self-rated feelings of power
  - ↑ focus on the reward for the gambling task
    - 86.36% took the gambling risk (13.63% were risk aversive)

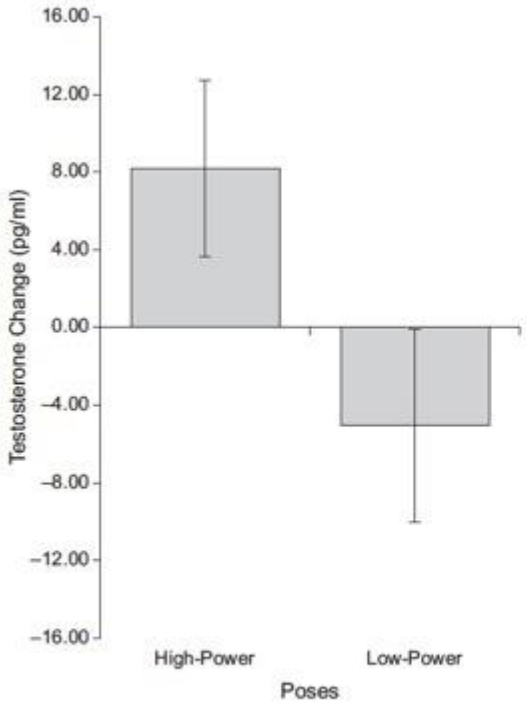


Fig. 3. Mean changes in the dominance hormone testosterone following high-power and low-power poses. Changes are depicted as difference scores (Time 2 – Time 1). Error bars represent standard errors of the mean.

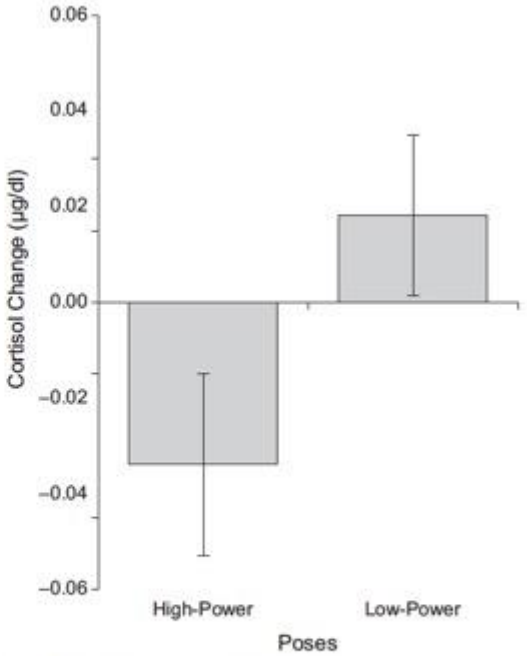
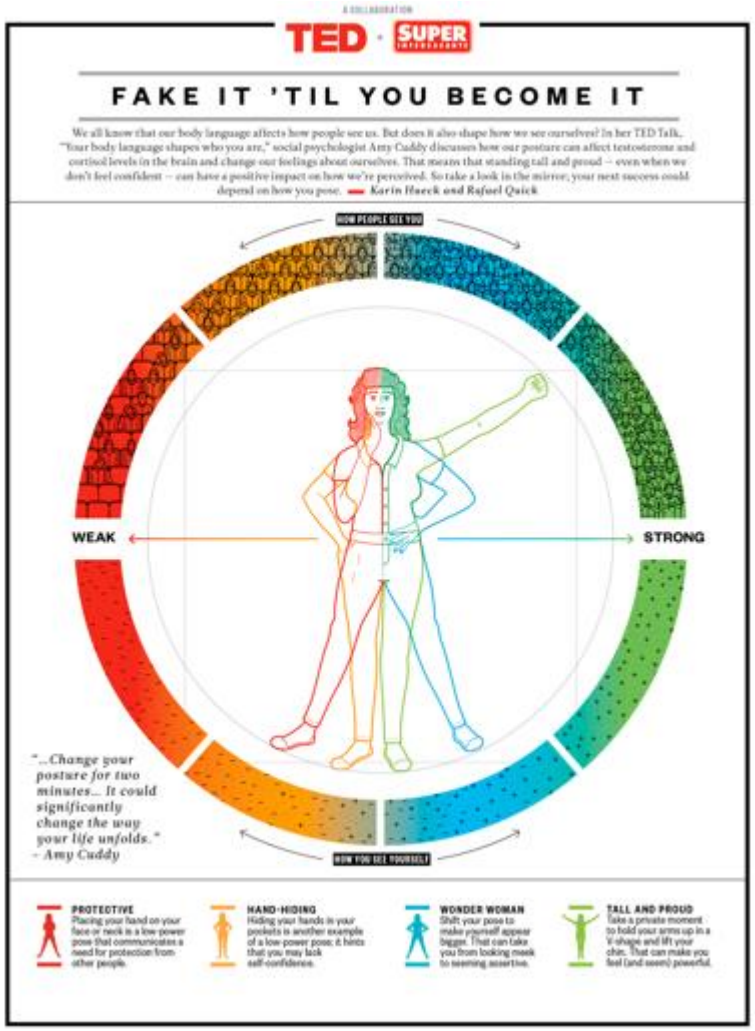


Fig. 4. Mean changes in the stress hormone cortisol following high-power and low-power poses. Changes are depicted as difference scores (Time 2 – Time 1). Error bars represent standard errors of the mean.

POWER POSING IN THE MEDIA

- The concept of Power Posing gained mass media attention after the TED talk
  - Featured on CNN and Oprah
- Advertised to boost confidence and will have an impact on one's chances for success, such as in a job interview
- Research into power posing expanded into expansive posturing and increasing powerful feelings, action orientation, higher self-esteem, improved mood, and pain tolerance



FAILED REPLICATION

2015 Ranehill et. al replicated Cuddy's Power Pose experiment and found that participants reported increased feelings of power, but no changes in cortisol, testosterone or risk taking was observed

Commentary

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Assessing the Robustness of Power Posing: No Effect on Hormones and Risk Tolerance in a Large Sample of Men and Women

Eva Ranehill[1], Anna Dreber[2], Magnus Johannesson[2], Susanne Leiberg[1], Sunhae Sul[3], and Roberto A. Weber[1]

[1]Department of Economics, University of Zurich; [2]Department of Economics, Stockholm School of Economics; and [3]Department of Psychological and Brain Sciences, Dartmouth College

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POWER POSING = PSEUDOSCIENCE?

- Cuddy, Carney and Yap (original authors) wrote a review and summary of the research on expansive nonverbal displays, suggesting that there was evidence to support the original study and that there were significant differences between the original study and the replication which could account for the lack of findings (2015)
- The statistical methods that may have led to the original erroneous findings
- Uri Simonsohn and Joseph P. Simmons argued that the evidence for power posing or expansive postures is a result of selective reporting (p-curve analysis)

PSEUDOSCIENCE OR SCIENCE?

Check for updates

Reply

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P-Curving a More Comprehensive Body of Research on Postural Feedback Reveals Clear Evidential Value for Power-Posing Effects: Reply to Simmons and Simonsohn (2017)

Amy J. C. Cuddy[1], S. Jack Schultz[2], and Nathan E. Fosse[3]
[1]Department of Psychology, Harvard University; [2]Harvard Business School, Boston, Massachusetts; and [3]The Institute for Quantitative Social Science, Harvard University

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IS EXPANSIVE POSTURING (POWER POSING) SCIENCE OR PSEUDOSCIENCE?

Controversial…

NON-VERBAL COMMUNICATION IN CLINICAL SETTINGS

Clinicians use nonverbal body language to understand our patients and detect changes in our patients

Many of our patients struggle to understand non-verbal communication, e.g. youth with Autism Spectrum Disorder

Many youth with anxiety, depression, trauma, emotional dysregulation, can have difficulties understanding social and emotional nonverbal communications

Adults with borderline personality disorder are thought to make negatively biased assessment and pay attention to negative stimuli and tend to evaluate others as being more negative, aggressive or extreme and appear less confident in their appraisal.

Kaletsch et. al 2014

NON-VERBAL COMMUNICATION IN CLINICAL SETTINGS

Studies in depressed children and adolescents with and without conduct disorder found that depressed child and youth were more likely misperceive low intensity emotions as "sad" vs control (non-depressed) more often misperceived low intensity negative emotions as "happy"

Some studies suggest that children who have experienced maltreatment/abuse tended to identify sadness and anger more frequently. Children with higher levels of abuse predicted the tendency to avoid angry faces during tasks.

Children with anxiety may be more preceptive of negative emotions in age-matched peers vs control (non-anxious children) were more preceptive to emotional expression in adults

(Schepman et. al 2014; Ferreira et al 2014; Bouragui et. al. 2017)

CLINICAL APPLICATIONS?

CLINICAL APPLICATIONS?

Dialectical Behavioral Therapy (DBT)

- Developed by Marsha Linehan for the treatment of chronically suicidal adults with borderline personality disorder
- Combines behavior and cognitive therapy with Zen/mindfulness practices

Distress Tolerance skills include **Reality Acceptance Skills**

- When you cannot change the situation or solve the problem, or change the way you feel about the situation, then you can chose to make things worse… or accept reality
- Goal = ↓ suffering and ↑ sense of freedom through coming to terms with the facts of one's life

DBT REALITY ACCEPTANCE

Accepting reality with your body

Half-smile = adopting a serene, accepting face

- Emotions are partially controlled by facial expressions, so adopting a half-smile
- Relax your face, neck and shoulder muscle and then half-smile with your lips
- Communicate with yourself to bring more acceptance and understanding

Distress Tolerance
The Mona Lisa
"Half-Smile"

DBT REALITY ACCEPTANCE

Willing hands

- Relax arms, hands unclenched, palms up and fingers relaxed
- Opposite action to anger
- Anger motivates you to change reality, fight it or overcome it

BODY LANGUAGE & SHAME

Guilty – feeling when we have done something wrong to another person

- E.g., lying to someone

Shame – feeling when one violates social norms or rules

- Functions to prevent social isolation is an emotion that functions to prevent social isolation and to keep us in our community
- Admit defeat and minimize social or physical punishment
- Chronic feelings of shame fuel avoidance of internal emotions and can lead to depression
- Shame can be a challenging to treat and is common with many youth

BODY LANGUAGE OF SHAME

Working with shame can be challenging

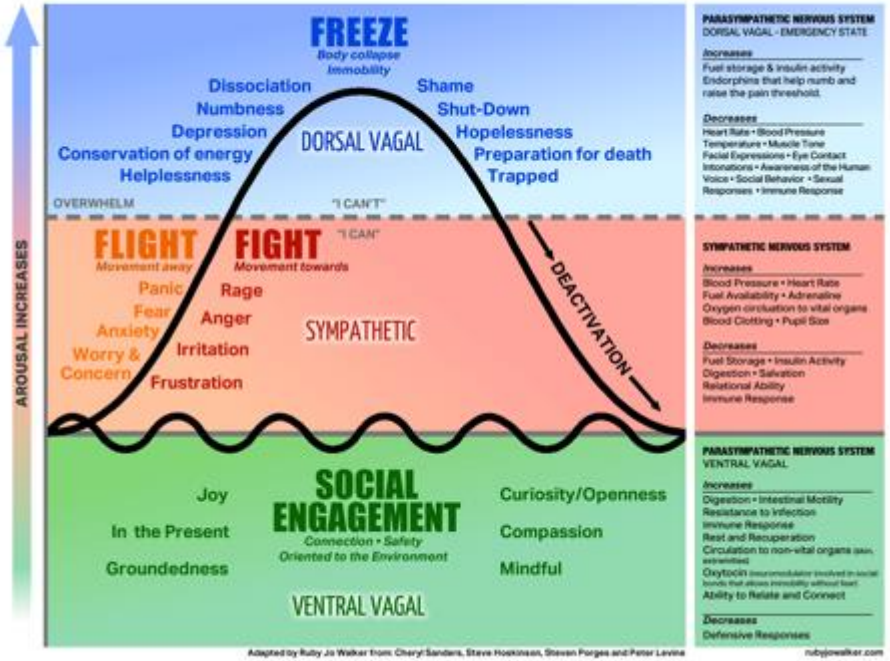
- Youth can be too ashamed to share what they are feeling
- If you notice the shame posture think about your office setting

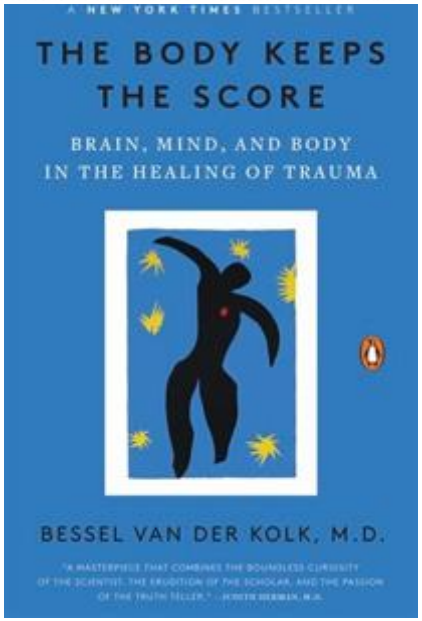
MBC AND TRAU

Traumatic experiences can profoundly alter the mind-body connection

- Changes in negative alterations in cognitions and mood
- Alterations in arousal and reactivity

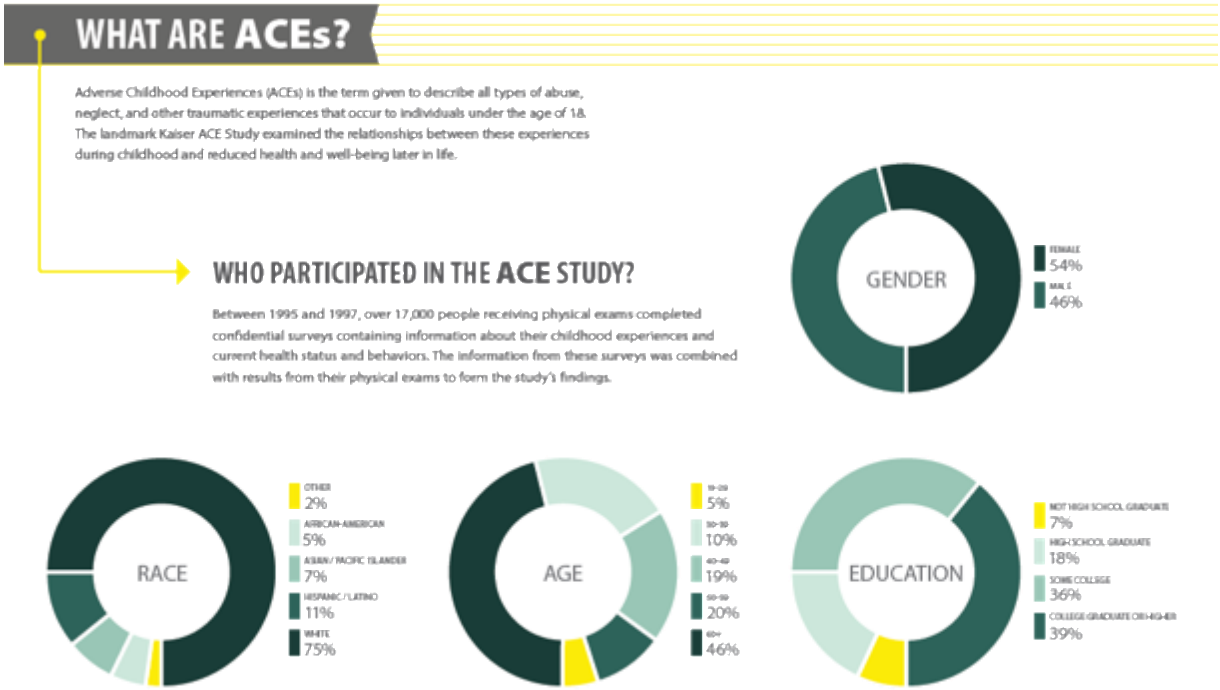
- Changes in the mind-body as a result of trauma
  - Fight, Flight or Freeze
  - Polyvagal theory
  - Adverse Childhood Experiences (ACE)





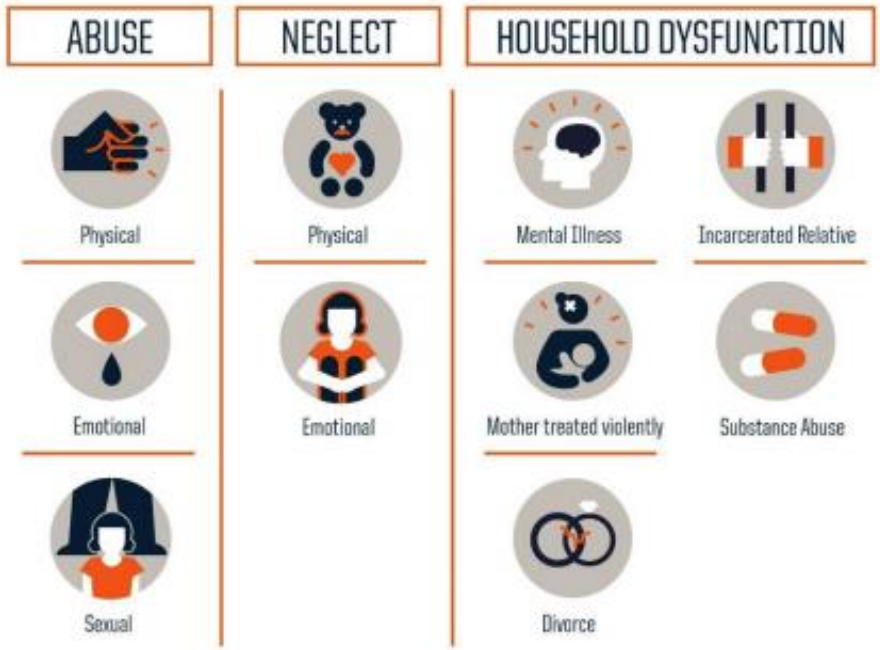
ADVERSE CHILDHOOD EXPERIENCES (ACE) STUDY

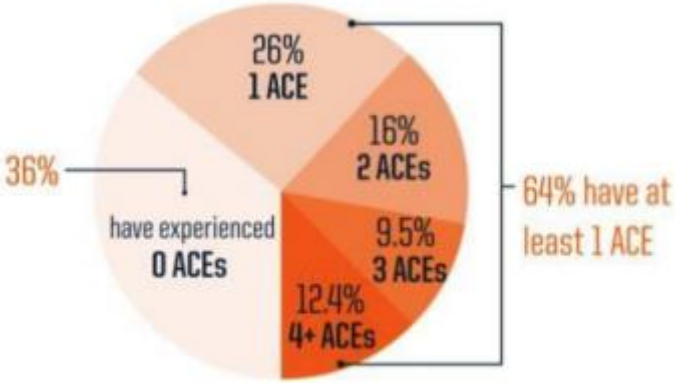
Cross-sectional study of 17 000 adults from 1995-1997 by CDC and Kaiser



ADVERSE CHILDHOOD EXPERIENCES (ACE) STUDY

Survey of past exposure to ACE's and current health



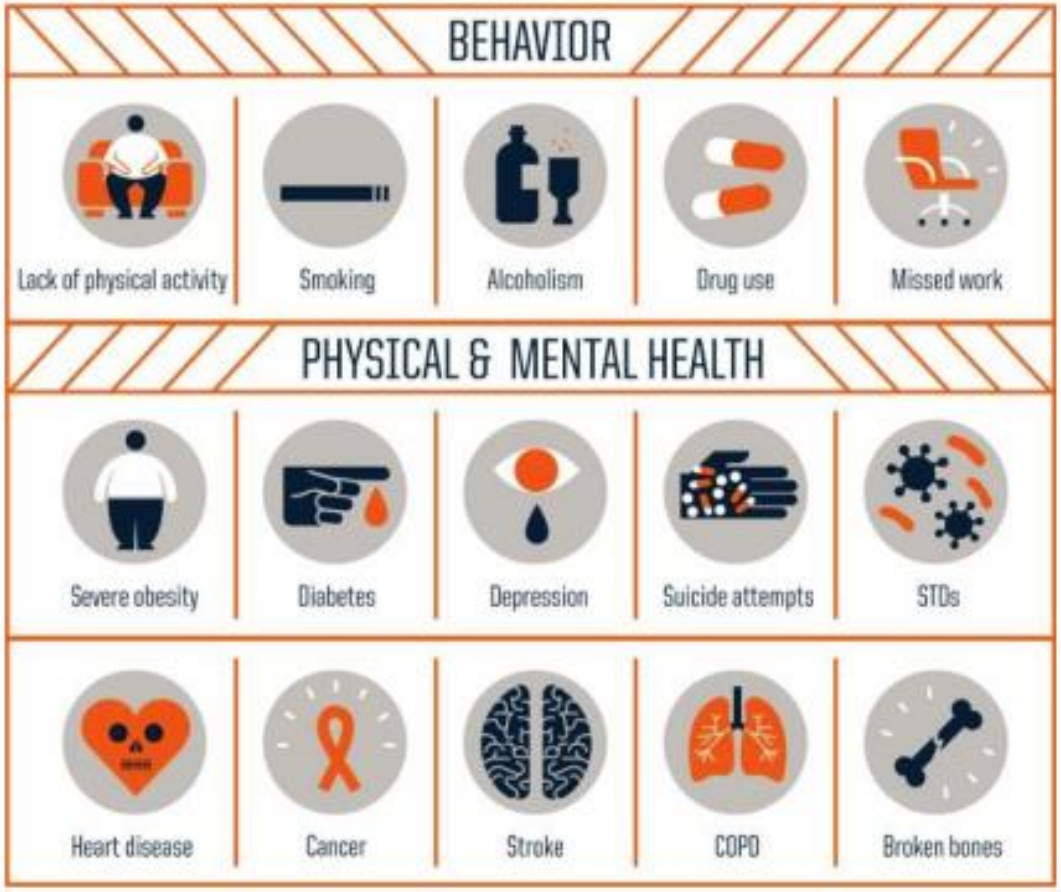


ADVERSE CHILDHOOD EXPERIENCES (ACE) STUDY

Dose-dependent response

Odds Ratio for 4+ ACE

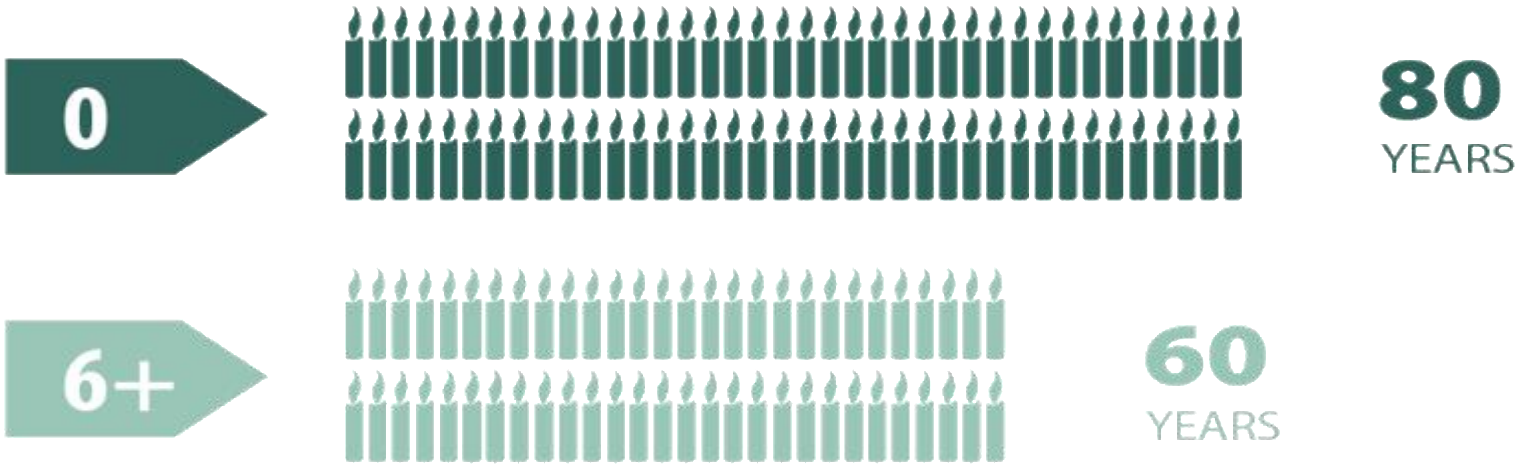
- 2X ischemic heart disease
- 2X cancer
- 7X alcoholism
- 12X suicide



ADVERSE CHILDHOOD EXPERIENCES (ACE) STUDY

LIFE EXPECTANCY

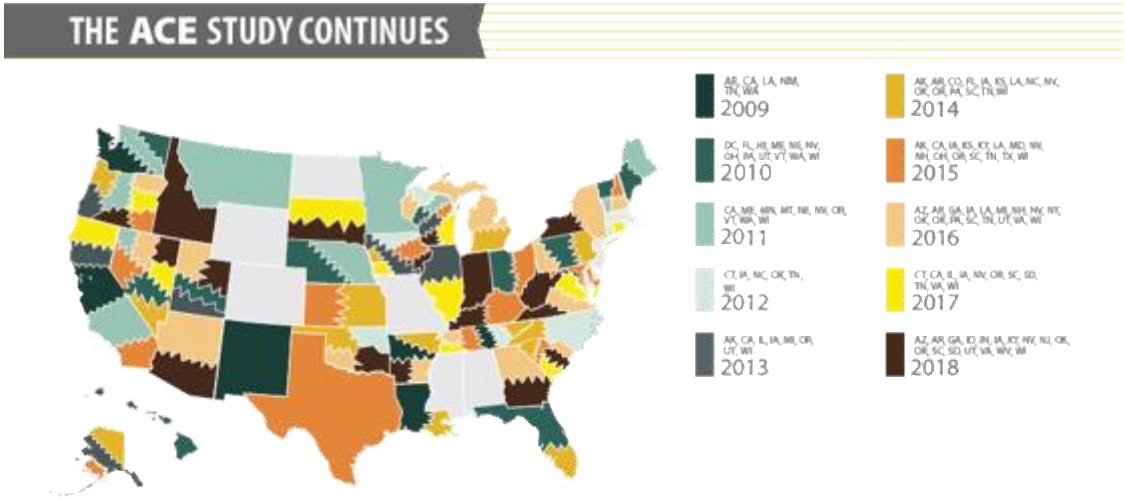
People with six or more ACEs died nearly **20 years earlier on average** than those without ACEs.



ADVERSE CHILDHOOD EXPERIENCES (ACE) STUDY

Child Health Outcomes

- Obesity
- Hypertension
- Developmental delay
- Cognitive impairment
- Psychosomatic concerns
- Substance abuse
- Teen pregnancy
- Juvenile incarceration
- Mental health disorders
- Suicide attempts
- Uncontrolled chronic disease



SUMMARY

The Mind-Body Connection is an important aspect of health and disease, which may be underrecognized in the medical field

- We all have somatic experiences related to emotions
- Psychosocial factors have a significant impact on our health and interventions can improve health outcomes

Think about Nonverbal Body Language and communication

- Power pose… or not!
- Half-smile and willing hands for reality acceptance
- Affect of shame on body language

Adverse childhood experiences have significant impact on the mental and physical health

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THANK YOU

Questions or Comments?

Video-conferencers:
Unmute your system to ask a question

Webcasters:
Type your question

Thank you!

for participating in today's

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mentalhealthseries@cheo.on.ca