Far-Reaching Effects of Adversity

- Adverse Childhood Experience (ACE) Study
  - 17,000 Kaiser members in CA participated
  - ACE: abuse, neglect, household dysfunction
  - Outcomes: quality of life, illness, death
  - Findings:
    - ACE are common: 2/3 (1 ACE), 1/5 (3+ ACE)
    - Early initiation of tobacco & sexual activity
    - Teen pregnancy, ↑ sexual partners & STD's
    - Intimate partner violence
    - ADDICTION
    - Depression & suicide attempts
Adverse Childhood Experience (ACE) Study
- 17,000 Kaiser members in CA participated
- ACE: abuse, neglect, household dysfunction
- Outcomes: quality of life, illness, death
- Findings:
  - Lung disease (COPD)
  - Liver disease
  - Heart disease
  - Autoimmune disease
  - Poor health-related quality of life

Far-Reaching Effects of Adversity
- How does relational adversity/stress in childhood lead to such diverse negative outcomes in adulthood??

Child Maltreatment
Interpersonal Challenges
Risky / Unhealthy Behavior
Mental Health Problems
Adult Attachment Insecurity
Maladaptive Parenting

Attachment System Disturbances
Perceptions of Self/Others + Emotion Regulation
Nervous System Dysregulation
Effects of Child Maltreatment

- Physical Neglect
- Emotional Neglect
- Physical Abuse
- Sexual Abuse
- Emotional Abuse

Total Abuse/Neglect → Adult Attachment Insecurity → Depressive Symptoms → Lower Parenting Satisfaction/Self-Efficacy

Caldwell, Shaver, Li & Minzenberg, 2011

Emotional Abuse

** Emotional Abuse (EA) was the greatest predictor of mental health and relational problems in adulthood.

- High EA
- Low EA

Attachment Avoidance, Attachment Anxiety, Depression, Anxiety

Attachment System

At-Risk Mothers (N=94)
Attachment Theory

Attachment Behavioral System
- Enhance survival/reproductive fitness
- Proximity, safe haven, & secure base
- Organize social attachment behaviors
- Internal Working Models (IWMs)
- Self/emotion regulation capacity

Caring Behavioral System
- Reproductive fitness via protection
- Activated by child attachment cues
- Variety of behaviors to fit context
- Responsive, sensitive, boundaried, flexible, and unintrusive caregiving

Factors in Attachment

Attaching Relationship

Parent Factors
Child Attachment
History of Trauma
Personality
Education Level
Mental Health

Content Factors
Poverty/Crime
Home/Environment
Co-parent Involved
Extended Family
Social Support

Child Factors
Genes
Temperament
Health Status

Safe Haven / Secure Base

- I need you to...
- Watch over me
- Delight in me
- Help me
- Enjoy with me

- Support my exploration
- Welcome my coming to you
- Help me be brave

- Cherish in EASIER, STRONGER, WISER, and KIND.
  Whenever possible, follow child's lead.
  Whenever necessary, take charge.
Internal Working Models (IWM’s) or Procedural Memory

Mesocorticolimbic Pathways
Dopamine Reward System

Emotion-Related Attention
Reward

Cingulate Cortex
Prefrontal Cortex
Nucleus Accumbens
Amygdala
Hippocampus
Ventral Tegmental Area

Dopamine Reward Pathways & The Attachment System

High Quality Maternal Caregiving (licking and grooming)
Nest Building
Pup Retrieval
Adult Pair Bonding
Maternal Neglect

Impairments in dopamine reward pathways can lead to maternal neglect. In adulthood, the neglected offspring show dopamine dysfunction in reward pathways and they show greater susceptibility to drugs like cocaine, which activate the reward pathway.

Meaney, et al., 2002
Strathearn, et al., 2011,
Young, et al., 2011, for reviews.
Dopamine Reward Pathways & The Attachment System

Mothers viewed pictures of their child and partner (compared to acquainted children and adults). fMRI brain imaging revealed that maternal and romantic attachment activated similar areas of the brain and both significantly activated dopamine-related reward circuitry (nucleus accumbens, amygdala, ventral striatum, anterior cingulate cortex) and deactivated areas the brain associated with negative emotion.

Mothers viewed neutral and emotional photos of their child. fMRI brain imaging revealed that mothers with secure adult attachment (integration & regulation of childhood experiences) had greater activation in dopamine reward circuits when viewing child's happy face. However, mothers with insecure attachment responded to sad faces with greater insula activation (pain, disgust).

Bartels, et al., 2004

Strathearn, et al., 2009

Mesocorticolimbic Pathways & Oxytocin (OXT)

- OXT is produced in thalamus and released via pituitary gland
- OXT has actions throughout body; eg, VTA, HIPP, AMYG, Nac, ACC
- OXT receptor gene (OXTR) has been linked to autism, social behavior, and infant attachment
- OXT + adverse environment has been linked to mental illness
- OXT has been linked to limbic fx
- OXT is related to high quality maternal behavior
- OXT is related to romantic attachment & pair bonding
- OXT is related to social cognition, prosocial behavior, and trust
- OXT regulates social stress and aids in nervous system regulation

Meyer-Lindenberg, et al., 2011, for review

Epigenetics of Oxytocin

OXTR expression in hippocampus = down-regulation of stress response and activation of reward pathways in brain

Less Anxiety
More Exploration
Nervous System Regulation
Higher Levels of Maternal Care

Kumsta, et al., 2013, for review
Oxytocin and Attachment

**STUDY 1**
OXT measured at 1 mo and 6 mo postpartum

Mother & Father
OXT levels were synchronized

Fathers
Elevated OXT = stimulatory play, object exploration, positive arousal

Mothers
Elevated OXT = loving gaze/affect, vocalization, and affectionate touch

Gordon, et al., 2010
Feldman et al., 2010

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Oxytocin and Attachment

**STUDY 2**
OXT measured before and after 15 min parent-child “play and touch” session

Gordon, et al., 2010
Feldman et al., 2010

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Oxytocin and Attachment

**STUDY 3**
OXT measured before and after 15 min parent-child “play and touch”.

Higher levels of synchrony = Elevated OXT in child

Sessions were coded for levels of behavioral “synchrony” between parents and child.

Gordon, et al., 2010
Feldman et al., 2010
Abuse/Neglect = Brain Systems in Conflict

- In the context of unsafe, abusive, or neglectful attachment figures, two biological systems are in conflict:
  - Survival and development depends on connection, so the attachment system motivates toward relationship partner
  - However, stress response system motivates away from potential threat
- The individual (unconsciously) adapts to unsafe situation via two primary insecure attachment dimensions:

<table>
<thead>
<tr>
<th>Attachment Avoidance</th>
<th>Attachment Anxiety</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Love Avoidance)</td>
<td>(Love Addiction)</td>
</tr>
</tbody>
</table>

Adult Attachment Style

- Secure
- Low Anxiety
- Low Avoidance
- Fearful/Disorganized
- High Anxiety
- High Avoidance
- Anxious/Preoccupied
- Avoidant/Dismissing
**Attachment-Related Anxiety**

- Attachment anxiety is often linked to an inconsistently available attachment figure
- The individual adapts *(procedural learning)* by **hyperactivating** the attachment system, by amplifying their attachment needs
- Amplification of attachment signals to keep attachment figure close/attentive
- Like a slot-machine, the inconsistent “payout” causes a person to keep adding coins, hoping for an occasional “hit”

**Attachment-Related Anxiety**

- Intense desire for closeness, but also afraid of it leading to loss (ambivalence)
- Attachment anxiety is related to deep feelings of inadequacy and unworthiness
- Self-blame; “If I were better or enough, my attachment figure would stay”
- “When I am in need, I am afraid that my attachment figure won’t be there for me or will abandon me”

**Attachment-Related Avoidance**

- Often, attachment avoidance involves an attachment figure who is very enmeshing, dismissing, rejecting and/or abusive
- The individual cannot simply choose to NOT to attach, so he/she adapts
- The person *procedurally* learns to shut-down or **deactivate** the attachment system
- Suppressing attachment needs creates safe distance and reduces chances of enmeshment, rejection or abuse, while maintaining minimum level of contact
Attachment-Related Avoidance

- Attachment avoidance is linked to strong feelings of distrust for the other person
- Less physical closeness, wariness of interdependence and intimacy
- Commitment to rugged individualism; “Who needs them anyway?”
- Individual seems unaffected, but is often defensive, walled-off and prone to anger
- “When I am in need, I can’t trust that my partner will be there for me because they might make it about them, dismiss my concerns or outright reject/abuse me”

Insecure Attachment Patterns

Hyperactivating Patterns
- My faults cause others to leave me
- Intense need for closeness
- Anxious about rejection & separation
- Cling, control, fear of letting go
- Dysregulation of negative affect

Deactivating Patterns
- I can’t trust and depend on others
- Downplay need for closeness
- Hide or dismiss vulnerabilities
- Avoid intimacy & interdependence
- Suppress emotion

Cognitive-Emotional Patterns

- N=388
- 70% ♀
- 22 yrs

Attachment-Related Anxiety
- Cognitive Rumination
- Negative Affect
- Emotion Dysregulation
- Low Resiliency

Attachment-Related Avoidance
- Emotion Ambiguity
- Emotion Suppression

Hyperactivating Attachment Patterns
- Deactivating Attachment Patterns

**Mindfulness**

Mindfulness: A process of regulating attention to the present moment with a quality of curiosity, non-judgment & acceptance

Five Facets of Mindfulness (FFMQ; Baer, et al., 2006)
- Observing internal and external stimuli/experience
- Describing or mentally noting these experiences
- Acting with Awareness: not acting on auto-pilot
- Nonreactivity to inner experience, letting it be
- Nonjudgment and acceptance of inner experience

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**Antidote to Insecure Patterns?**

Hyperactivating Attachment Patterns
- Cognitive Ruminatiion
- Negative Affect

Deactivating Attachment Patterns
- Emotion Dysregulation
- Higher Resiliency
- Mindfulness
  - Emotion Suppression
  - Emotional Ambiguity

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**Summary**

Child Abuse

- Physical Health
- Nervous System Regulation Integration
- Attachment Relationships
- Attachment Avoidance
- Attachment Anxiety
- Emotion Dysreg & Rumination

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**Five Facets of Mindfulness** (Baer, et al., 2006)
- Observing internal and external stimuli/experience
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Mindfulness-Based Treatments

- Mindfulness-Based Stress Reduction (MBSR)
- Dialectical Behavior Therapy (DBT)
- Acceptance and Commitment Therapy (ACT)
- Compassion Focused Therapy (CFT)
- Mindful Self-Compassion (MSC)
- Mindfulness-Based Cognitive Therapy (MBCT)
- Mindfulness-Based Relapse Prevention (MBRP)
- Mindfulness-Based Relationship Enhancement (MBRE)
- Mindfulness-Enhanced Strengthening Families Program For Parents and Youth (MSFP)
- Somatic Experiencing (SE)
- Sensorimotor Psychotherapy (SP)

Mindfulness & Compassion Training on the Brain

1. Attention Regulation
2. Body/Self Awareness
3. Emotion Regulation
4. Reward / Intention

Mindfulness is helpful in cultivating body awareness and regulation of attention and emotion. Compassion practices may facilitate emotion regulation and rewiring of reward pathways.

Lutz, et al., 2008; Holzel, et al., 2011, for review.
Attachment and Mindfulness

1. Parenting that fosters attachment security is thought to also foster mindfulness.
2. Secure attachment and mindfulness share many of the same positive outcomes.
3. The neurobiology of attachment security overlaps with that of mindfulness.
4. Hyperactivating and Deactivating patterns are inversely related to mindfulness.
5. Evidence that attachment insecurity is related to lower levels of mindfulness.

REAC²H: Mindfulness Intervention

- REAC²H (Restoring Embodied Awareness, Compassionate Connection and Hope)
- 3-Day workshop focusing on relational trauma, attachment and mindfulness

Instruction and experiential exercises aimed at bringing understanding, compassion and mindful awareness to the sensations (body), thoughts (mind), and feelings (emotions) associated with attachment experiences.

www.drjoncaldwell.com  www.healingisinreach.com

Antidote to Insecure Patterns?

- **Mindfulness & Attachment Avoidance**
  - Cultivate interest/curiosity about inner life
  - Learn to stay with difficult thoughts/feelings
  - Recognize/Allow/Accept vulnerabilities
  - Capacity to trust and allow interdependence

- **Mindfulness & Attachment Anxiety**
  - Cultivate compassion towards inner life
  - Learn to regulate strong thoughts/feelings
  - Meet rumination and fantasy with presence
  - Capacity to be whole while in relationships
Summary

- Relational trauma disrupts attachment, which profoundly affects development and has far-reaching effects on wellbeing
- Insecure attachment experiences diminish one's capacity for nervous system regulation
- Dysregulation increases the chance of addictive behaviors and socio-emotional dysfunction
- Attachment anxiety and avoidance are linked to unhealthy cognitive-emotional patterns
- Mindfulness and Self-Compassion are powerful ways to restore the capacity for self-regulation and for intimate and authentic connection with self/others