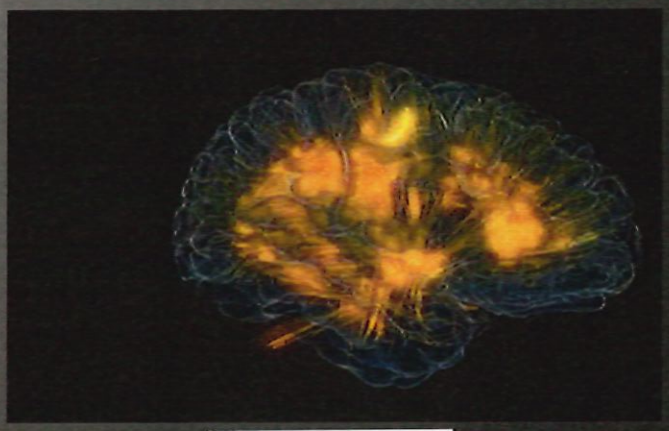
UNDERSTANDING THE BRAIN

THE NEUROSCIENCE OF THE BRAIN



COMPASS BEHAVIORAL HEALTH
Healthy Minds, Healthy Lives, Healthy Communities

Clinical Applications of Neuroscience
mentalhealth academy

1

The professionals

Dr. Bruce Perry
Neurosequential Model of Therapeutics
What happen to you?

Dr. Bessel van der Kolk
The Body Keeps the Score

Dr. Daniel G. Amen
The End of Mental Illness

Dr. Tina Payne Bryson
The Whole Brainchild

Jonathan Haidt
The Anxious Generation

2

3

The brain matters

- The human brain is the organ responsible for everything we do. It allows us to love, laugh, walk, talk, create or hate.
- The brain - one hundred billion nerve cells in a complex net of continuous activity - allows us our humanity.
- For each of us, our brain's functioning is a reflection of our experiences.

4

Core Functions of the Brain

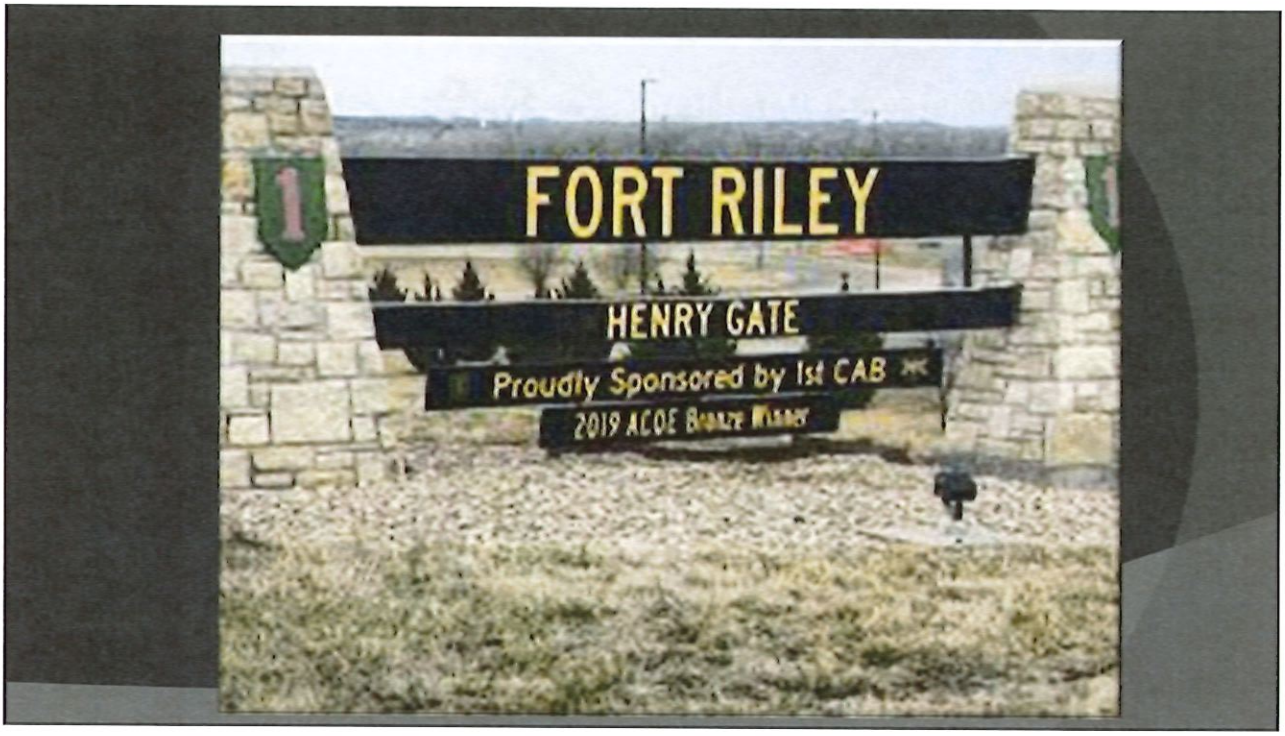
SENSE
PROCESS
STORE
PERCEIVE
ACT

On information
from the external and internal world all to –

Promote Survival and Procreation

5

6

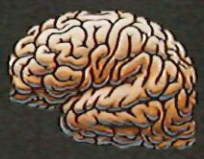


7

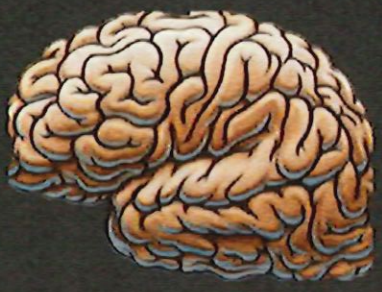
Brain Development

8

Why Early Experiences Matter



Newborn Brain
Average Weight
333 grams



2 Year Old's Brain
Average Weight
999 grams

Brain photo courtesy IsaacMao, Flickr

9

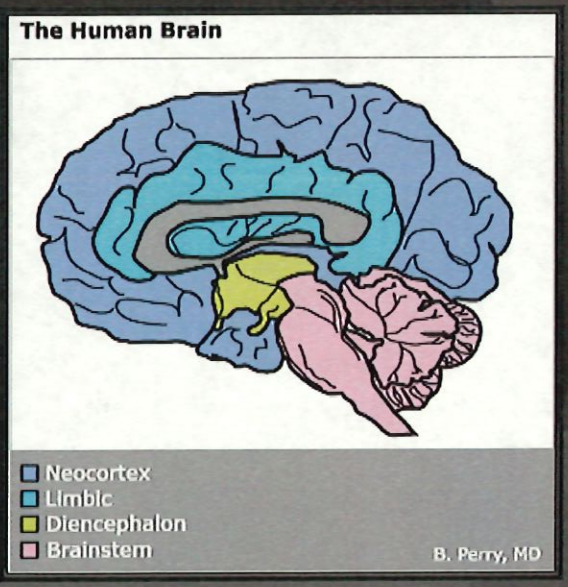
Brain is divided up into sections

UPSTAIRS:

- Neocortex
  - Frontal Lobe
  - Middle prefrontal cortex

DOWNSTAIRS:

- Limbic Region
- **Diencephalon (Mid Brain)**
- **Brain Stem**



10

Dr. Bruce Perry's brain development

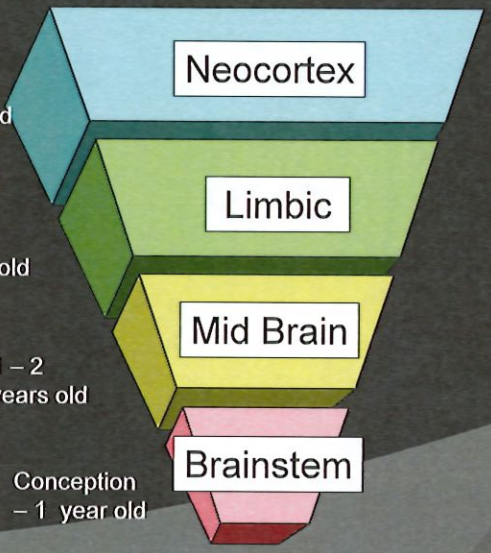
Abstract thought
Concrete Thought
Affiliation
"Attachment"
Sexual Behavior
Emotional Reactivity
Motor Regulation
"Arousal"
Appetite/Satiety
Sleep
Blood Pressure
Heart Rate
Body Temperature

Fully developed at 25 years old

1 – 4 years old

1 – 2 years old

Conception – 1 year old

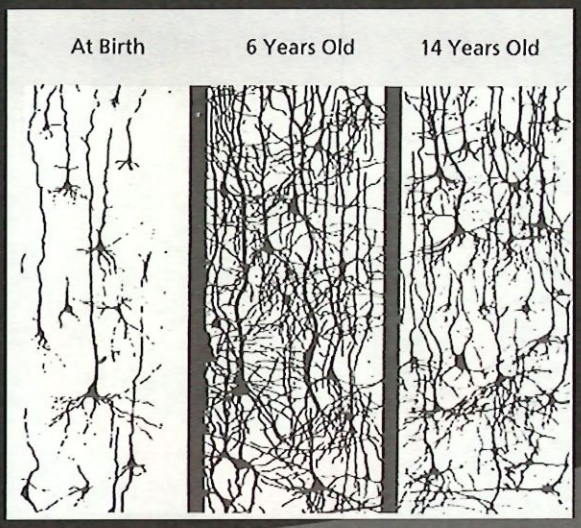


11

- Brain is shaped by: GENES & EXPERIENCE
- Neurons that fire together → wire together
- Parents, educators, clinicians, etc. are brain architects.

12

Neuron development



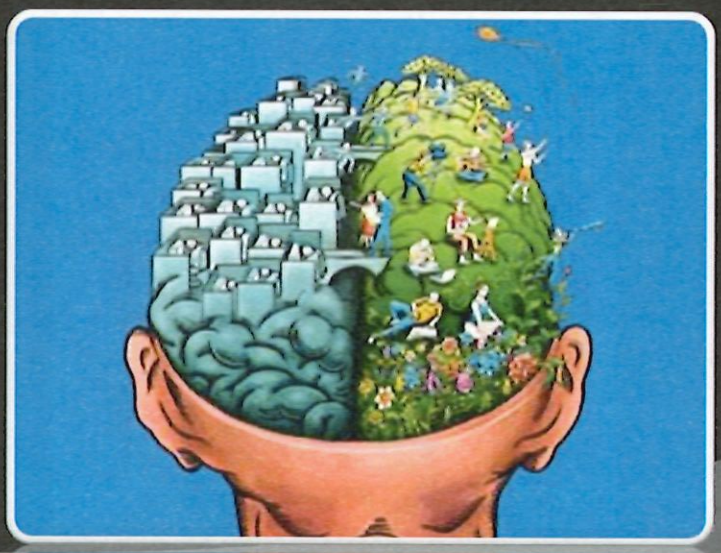
13

Neuron development

Blossoming
(overproduction)
USE IT OR LOSE IT
Pruning (30,000/sec.)
Result—100 billion neurons with 10,000 connections each
Weak branches cut → better functioning

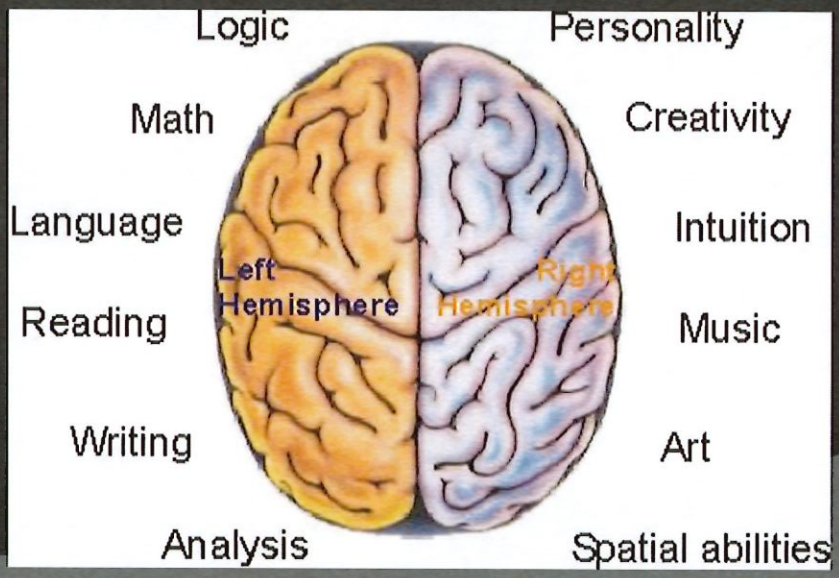
14

Left brain / Right brain



15

2 sides of the brain



16

Left & Right brain development

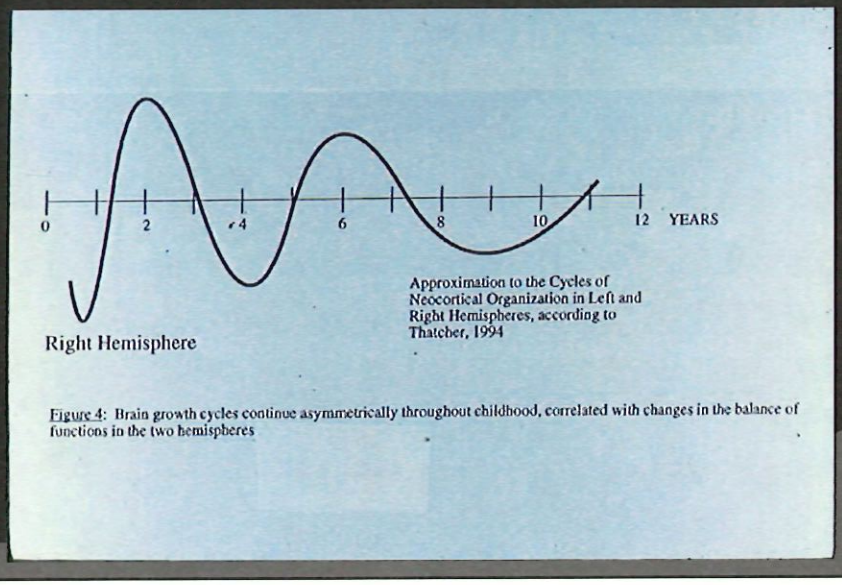


Figure 4: Brain growth cycles continue asymmetrically throughout childhood, correlated with changes in the balance of functions in the two hemispheres

17

What do we mean by "trauma"

- "Any event or experience that overwhelms an individual's internal resources (resiliency) and leave him or her feeling threatened, helpless, or powerless".

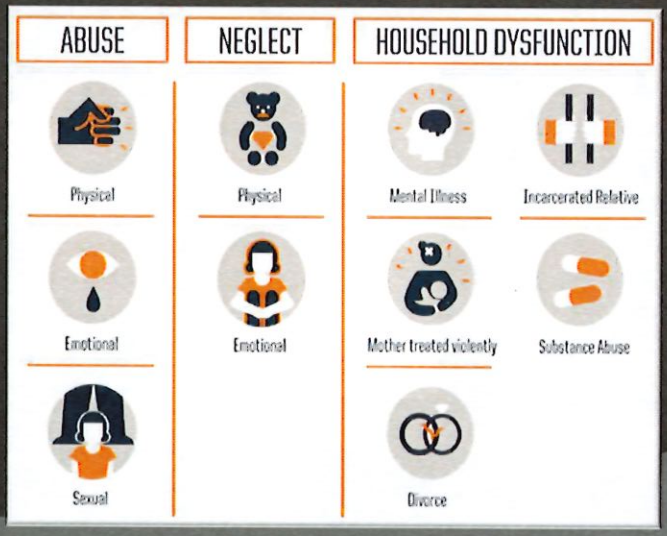
18

Adverse Childhood Experience

- The basics of the Ace study:
- 17,300 adults were part of the original study.
- 75% were Caucasian
- 39% were collage graduates
- 36% had some college background
- All participants have/had livable wages and health insurance.
- All were middle class or affluent

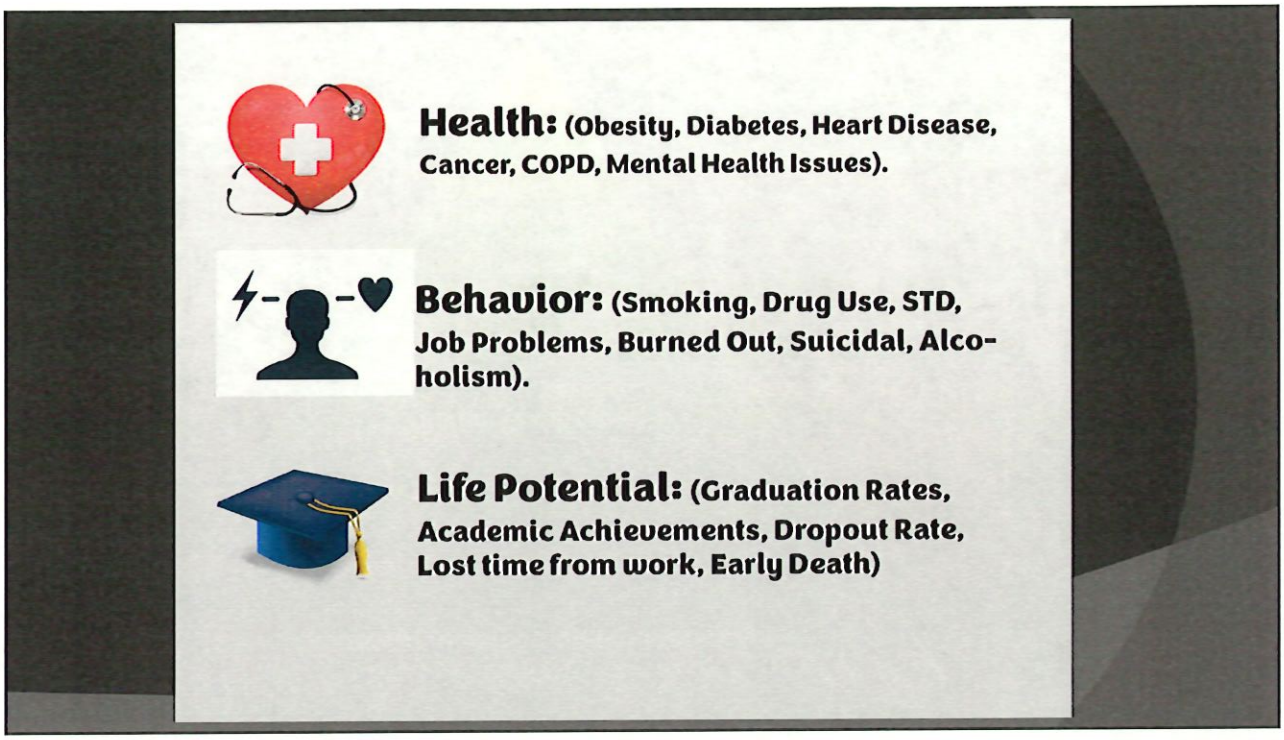
19

Adverse Childhood Experiences (ACEs)
Growing up in a household with:

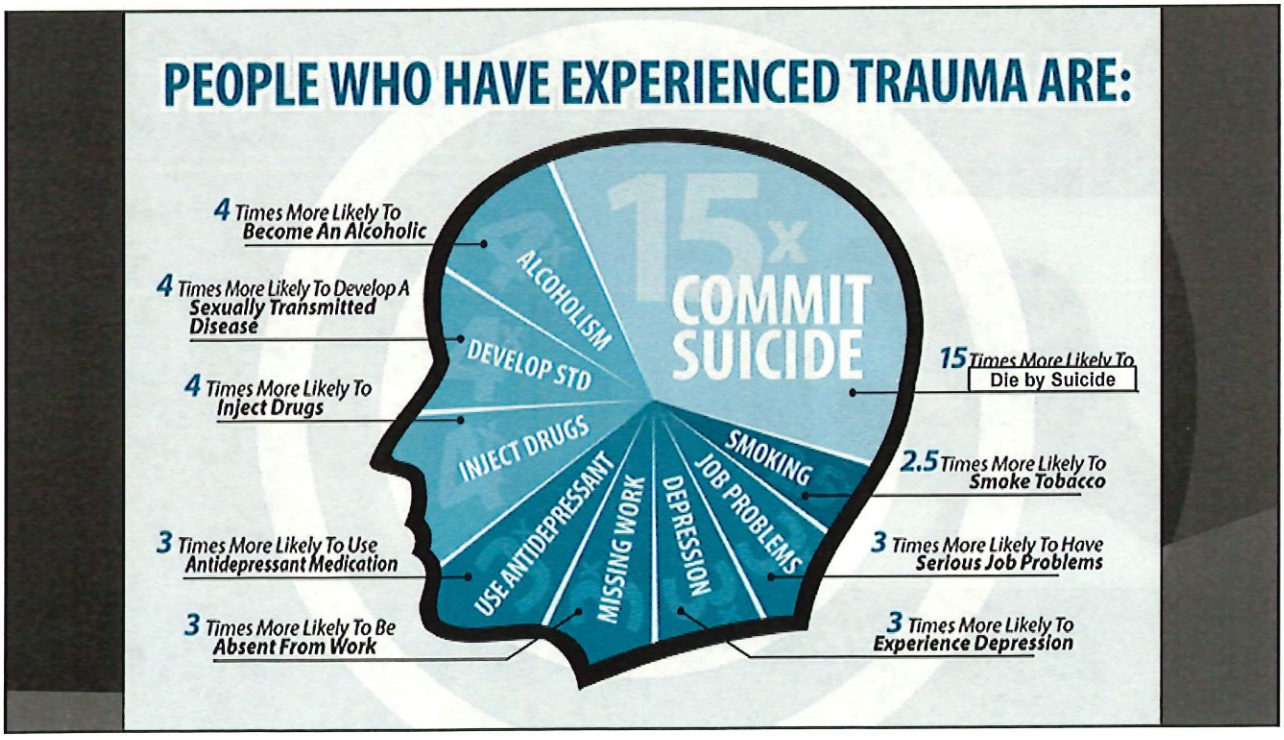


Northern Illinois University Center for Child Welfare & Education - 2013 20

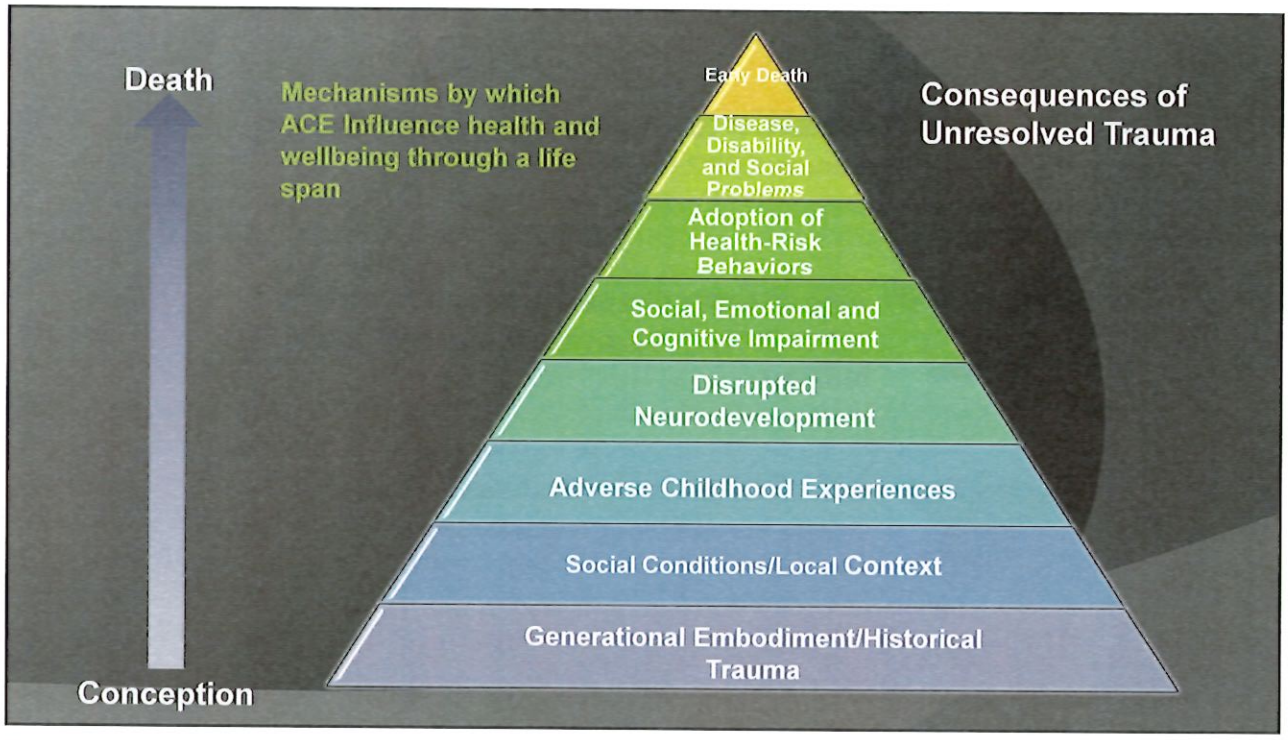
20


Health: (Obesity, Diabetes, Heart Disease, Cancer, COPD, Mental Health Issues).
Behavior: (Smoking, Drug Use, STD, Job Problems, Burned Out, Suicidal, Alcoholism).
Life Potential: (Graduation Rates, Academic Achievements, Dropout Rate, Lost time from work, Early Death)

21


PEOPLE WHO HAVE EXPERIENCED TRAUMA ARE:
15x
COMMIT SUICIDE
ALCOHOLISM
DEVELOP STD
INJECT DRUGS
USE ANTIDEPRESSANT
MISSING WORK
DEPRESSION
JOB PROBLEMS
SMOKING
4 Times More Likely To Become An Alcoholic
4 Times More Likely To Develop A Sexually Transmitted Disease
4 Times More Likely To Inject Drugs
3 Times More Likely To Use Antidepressant Medication
3 Times More Likely To Be Absent From Work
15 Times More Likely To Die by Suicide
2.5 Times More Likely To Smoke Tobacco
3 Times More Likely To Have Serious Job Problems
3 Times More Likely To Experience Depression

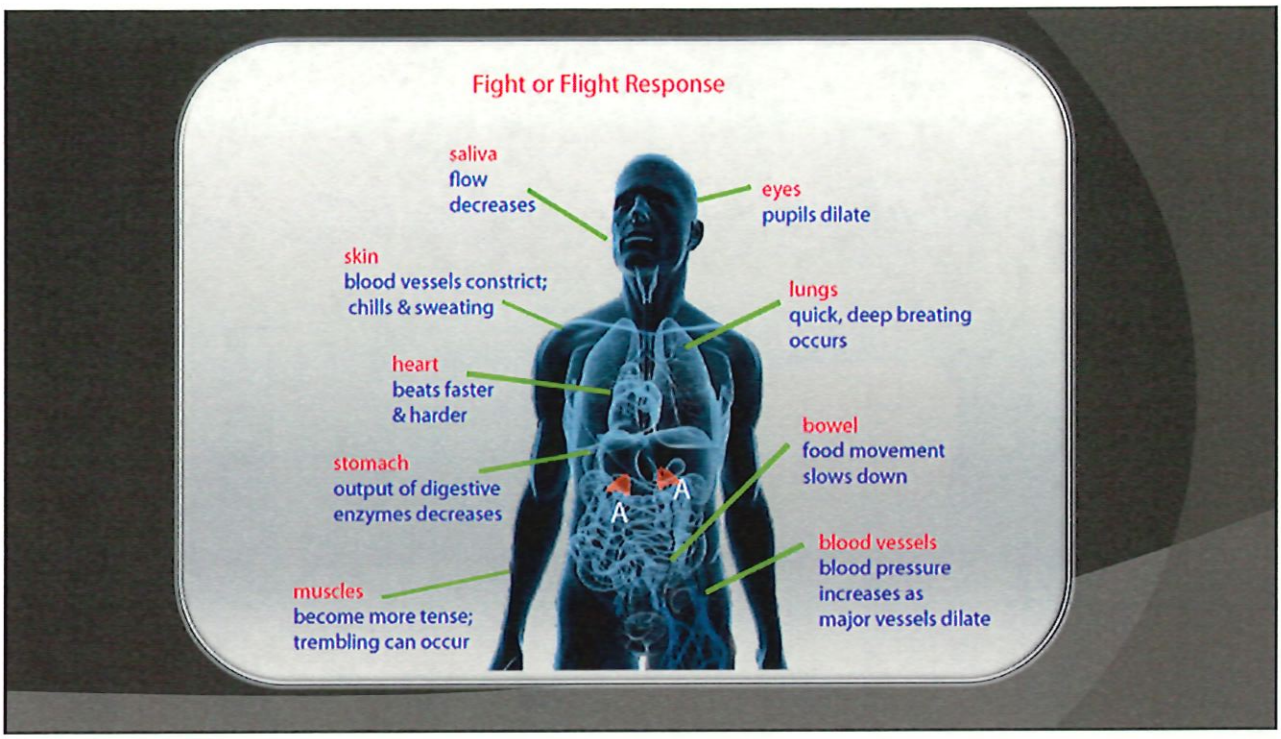
22


Death
Mechanisms by which ACE Influence health and wellbeing through a life span
Early Death
Disease, Disability, and Social Problems
Adoption of Health-Risk Behaviors
Social, Emotional and Cognitive Impairment
Disrupted Neurodevelopment
Adverse Childhood Experiences
Social Conditions/Local Context
Generational Embodiment/Historical Trauma
Consequences of Unresolved Trauma
Conception

23


Trauma; Bear chasing you!!
Fight– Flight - Freeze

24



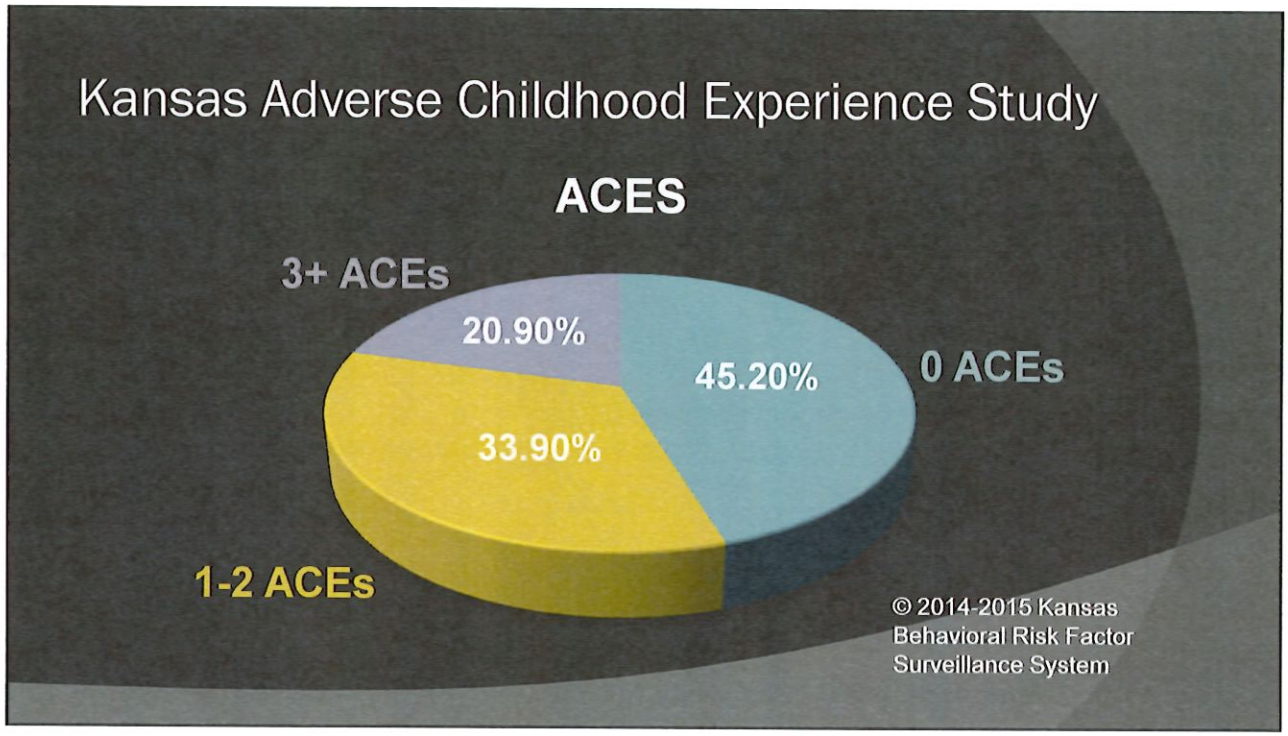
25

Importance of the Adverse Childhood Experiences Study

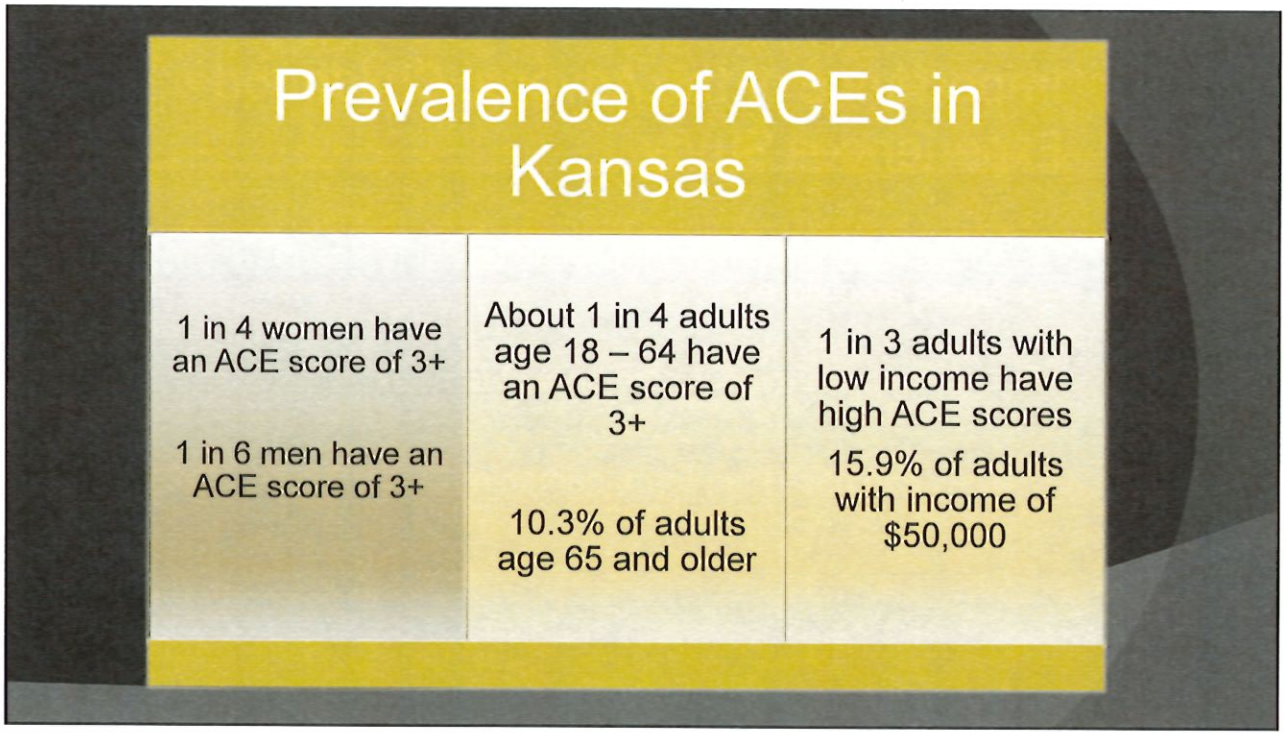
- ACEs are surprisingly common – 44% of 13,494 adults reported physical, psychological or sexual abuse as children.
- They happen even in "the best of families".
- They can have long-term, damaging consequences for children and society.

(2004, http://www.acestudy.org/)

26


Kansas Adverse Childhood Experience Study
ACES
3+ ACEs
20.90%
45.20%
0 ACEs
33.90%
1-2 ACEs
© 2014-2015 Kansas Behavioral Risk Factor Surveillance System

27


Prevalence of ACEs in Kansas
1 in 4 women have an ACE score of 3+
1 in 6 men have an ACE score of 3+
About 1 in 4 adults age 18 – 64 have an ACE score of 3+
10.3% of adults age 65 and older
1 in 3 adults with low income have high ACE scores
15.9% of adults with income of $50,000

28

Consequences of ACEs

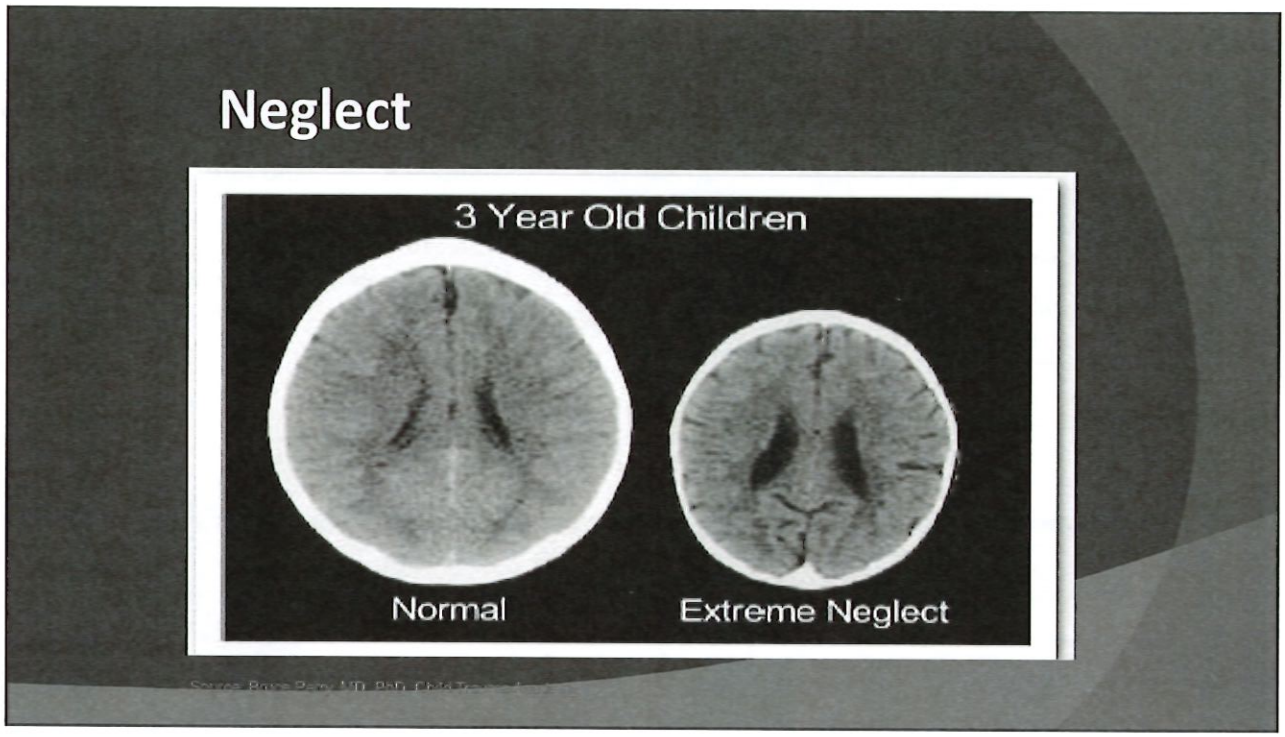
Infancy	Childhood	Adolesence	Adulthood	Old Age
▸ Injury	▸ Anxiety/mood disorders	▸ Conduct disorders	▸ Personality disorders	▸ Depression
▸ Difficulty with regulation of emotions	▸ ADHD	▸ Substance abuse	▸ Chronic disease and pain	▸ Decreased life expectancy
▸ Attachment problems	▸ Behavioural difficulties	▸ Suicide attempts	▸ Relationship problems	▸ Financial problems
▸ Developmental and growth delays	▸ Low self-esteem	▸ Risky behaviours (e.g. unprotected sex)	▸ IPV perpetration Intimate Partner Violence	
	▸ Peer difficulties	▸ Eating disorders	▸ Mistreatment of own children	
	▸ Academic probelms	▸ Dating violence prevention		

Content from: MacMillan, H.L. & Wathen, C.N. (2014). Research brief: Interventions to prevent child maltreatment. PreVaiL: Preventing Violence Across the Lifespan Research Network. London, ON.

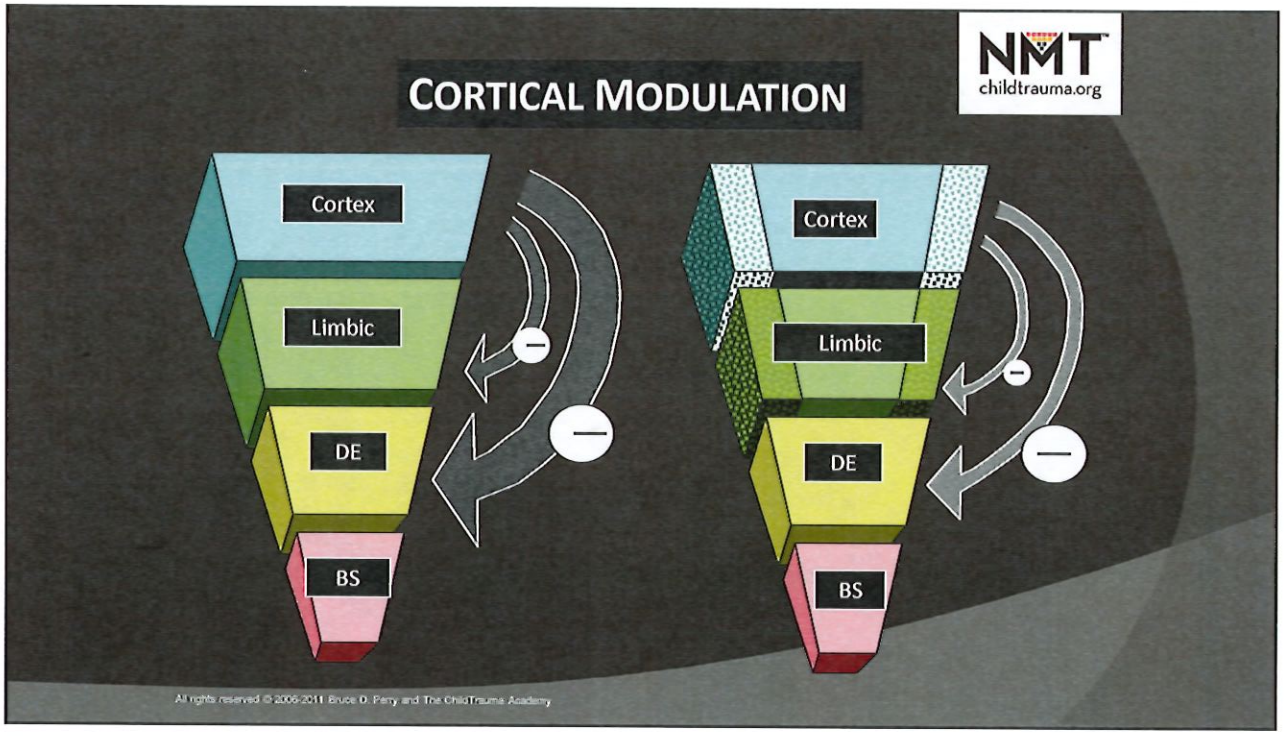
29

Adverse Childhood Experiences

30


Neglect
3 Year Old Children
Normal
Extreme Neglect

31


CORTICAL MODULATION
NMT
childtrauma.org
Cortex
Limbic
DE
BS
Cortex
Limbic
DE
BS
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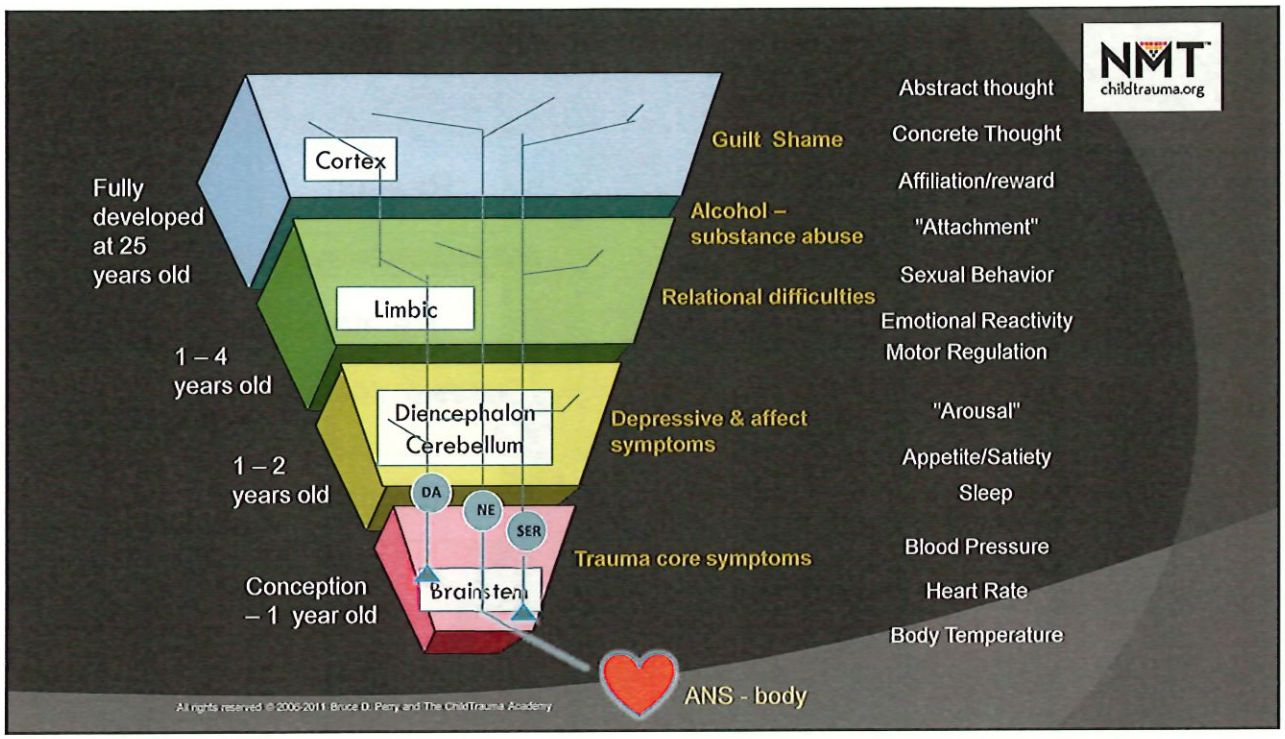
32


NMT
childtrauma.org
Cortex
Limbic
Diencephalon
Cerebellum
Brainstem
DA
NE
SER
Fully developed at 25 years old
1 – 4 years old
1 – 2 years old
Conception – 1 year old
Guilt Shame
Alcohol – substance abuse
Relational difficulties
Depressive & affect symptoms
Trauma core symptoms
ANS - body
Abstract thought
Concrete Thought
Affiliation/reward
"Attachment"
Sexual Behavior
Emotional Reactivity
Motor Regulation
"Arousal"
Appetite/Satiety
Sleep
Blood Pressure
Heart Rate
Body Temperature
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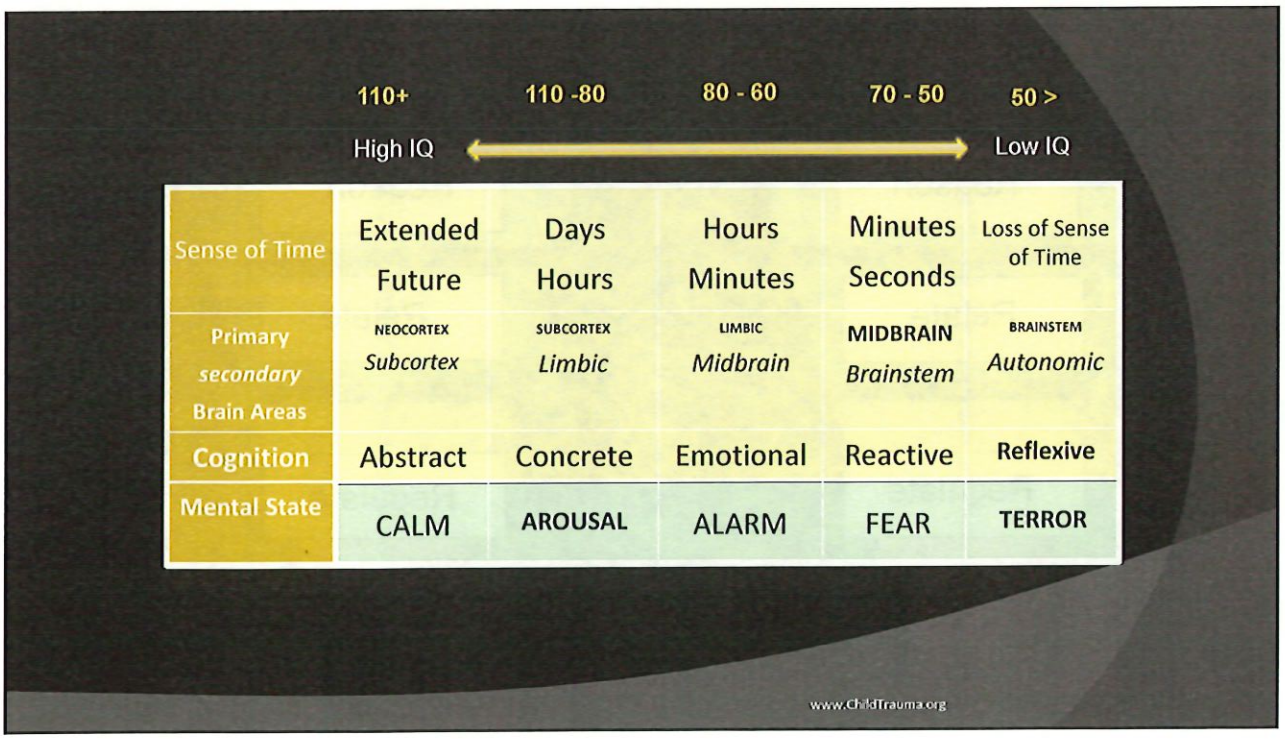
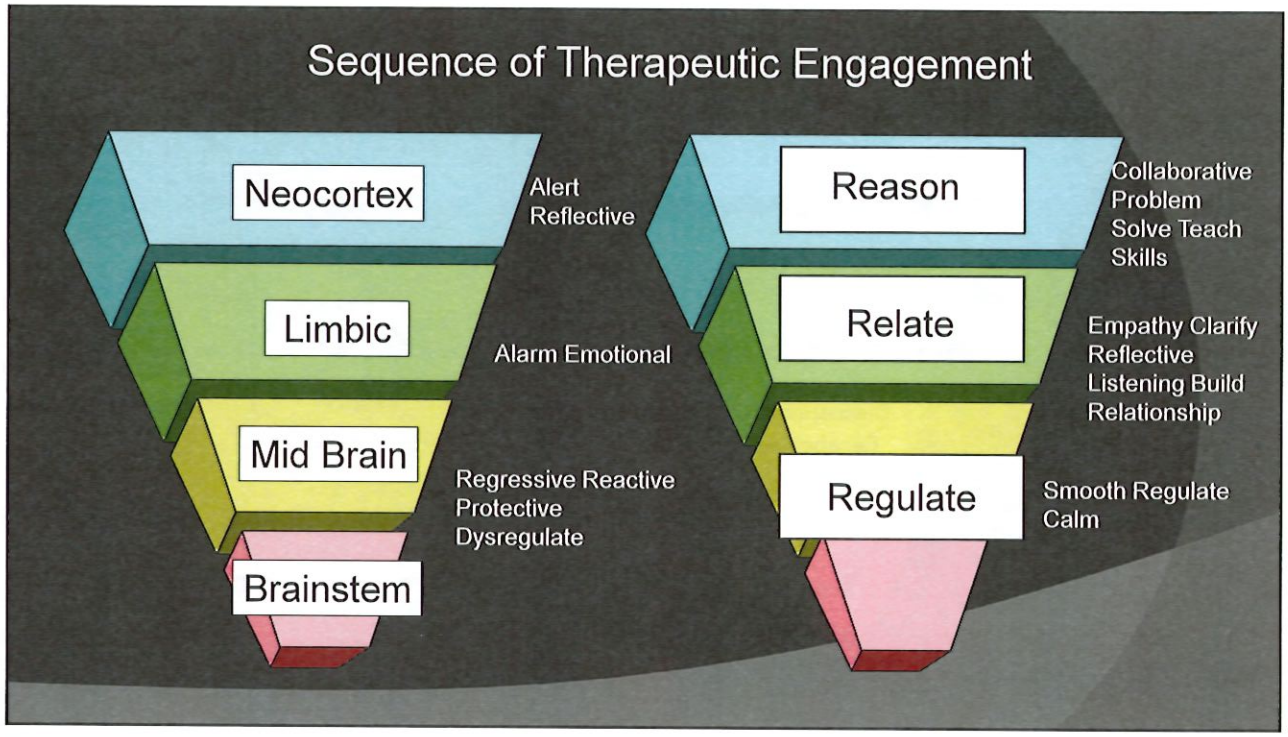
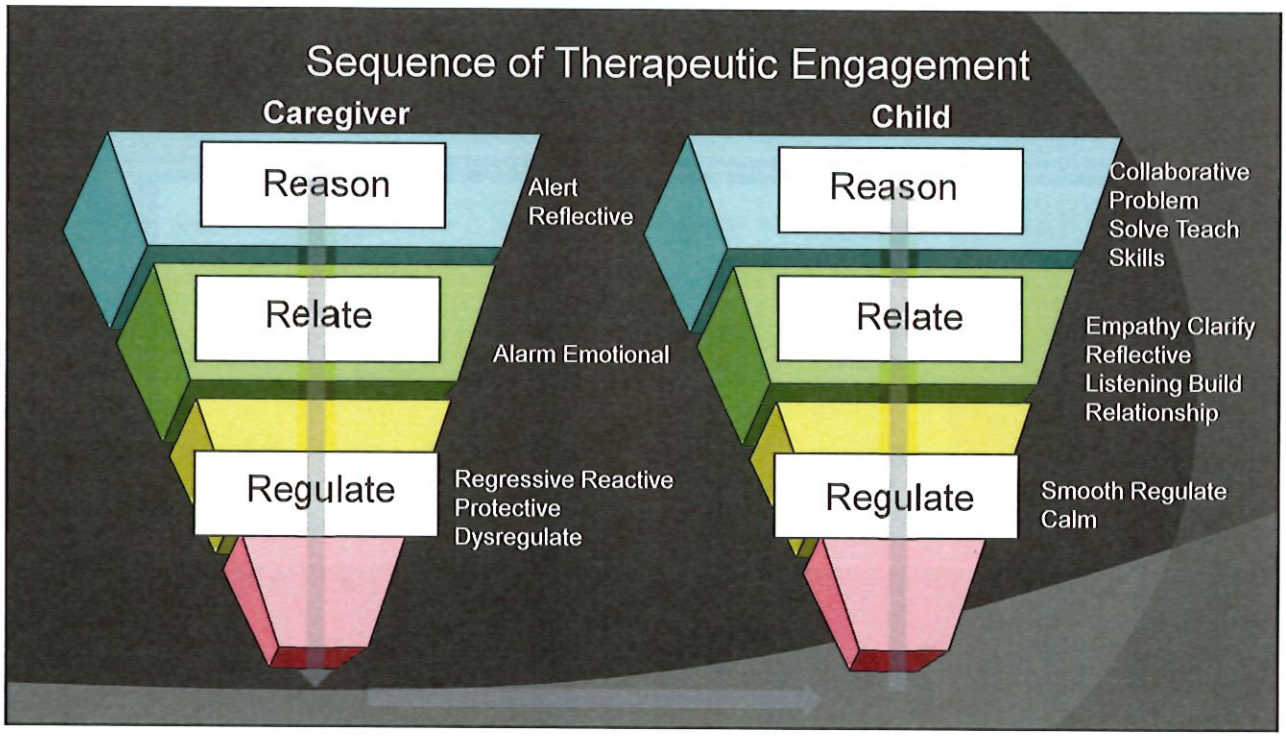
33


110+
110 -80
80 - 60
70 - 50
50 >
High IQ
Low IQ
Sense of Time
Extended Future
Days Hours
Hours Minutes
Minutes Seconds
Loss of Sense of Time
Primary secondary Brain Areas
NEOCORTEX Subcortex
SUBCORTEX Limbic
LIMBIC Midbrain
MIDBRAIN Brainstem
BRAINSTEM Autonomic
Cognition
Abstract
Concrete
Emotional
Reactive
Reflexive
Mental State
CALM
AROUSAL
ALARM
FEAR
TERROR
www.ChildTrauma.org

34


Sequence of Therapeutic Engagement
Neocortex
Alert
Reflective
Limbic
Alarm Emotional
Mid Brain
Regressive Reactive
Protective
Dysregulate
Brainstem
Reason
Collaborative
Problem
Solve Teach
Skills
Relate
Empathy Clarify
Reflective
Listening Build
Relationship
Regulate
Smooth Regulate
Calm

35


Sequence of Therapeutic Engagement
Caregiver
Child
Reason
Alert
Reflective
Relate
Alarm Emotional
Regulate
Regressive Reactive
Protective
Dysregulate
Reason
Collaborative
Problem
Solve Teach
Skills
Relate
Empathy Clarify
Reflective
Listening Build
Relationship
Regulate
Smooth Regulate
Calm

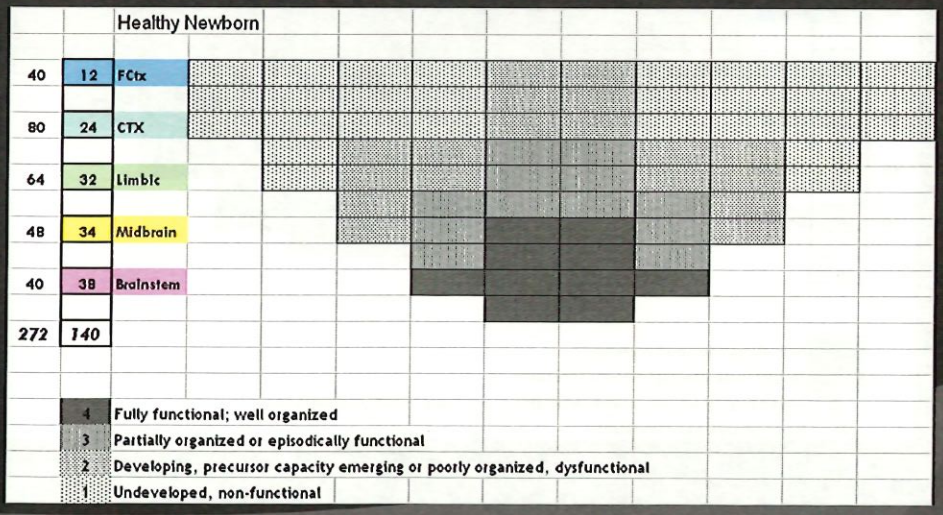
36

Dr. Perry's brain mapping

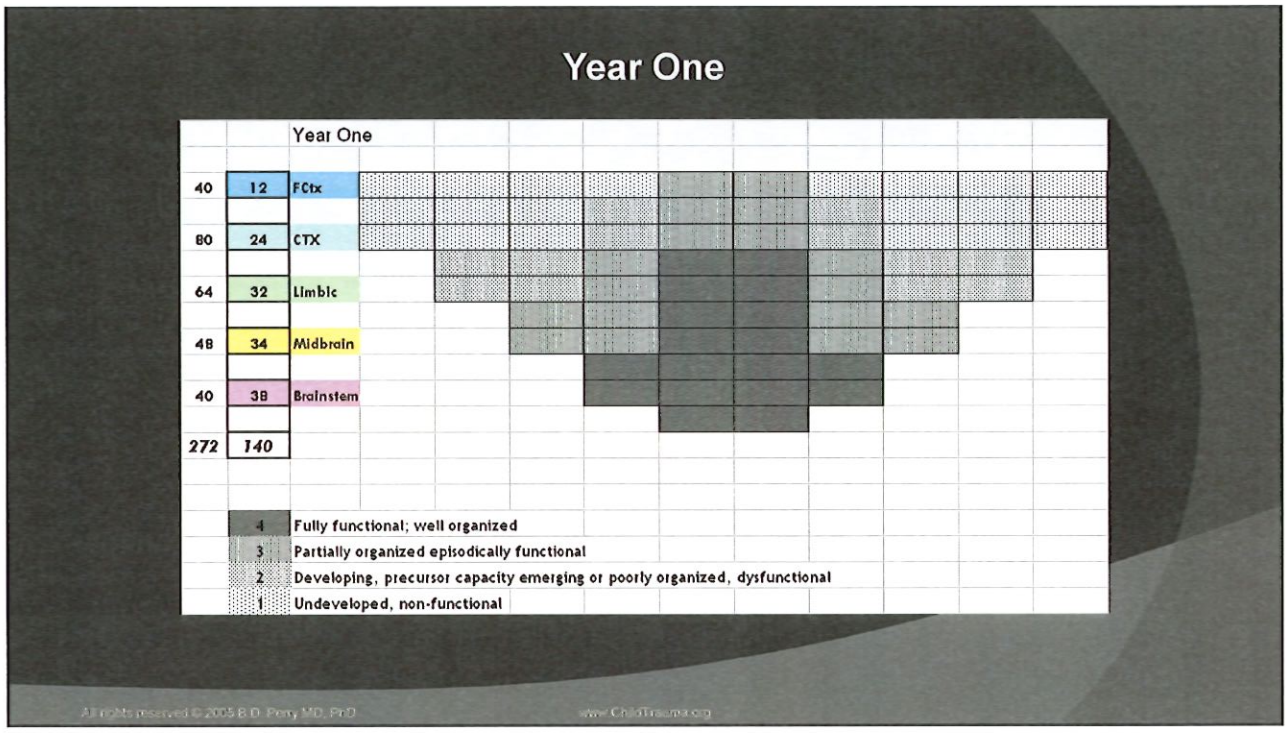
25 Insight/ Reflective Cognition	23 Planning/ Sequencing	21 Motor Activity/ Integration	22 Modulate Reactivity/Impulsivity	24 Abstract/ Conceptual Cognitive	26 Morality/Values/ Spirituality
19 Speech Articulation	17 Cognitive Primary & Concrete	15 Somato-sensory Integration	16 Sense Time/ Delay Gratification	18 Self Awareness Self Image	20 Language Expressive/Receptive
13 Share/Relational	11 Attunement	9 Affect/Mood	10 Threat Response Complex	12 Play/Pleasure	14 Short term Memory/Learning
	7 Coordination/ Balance	5 Sleep	6 Feeding/ Appetite	8 Fine Motor Skills	
		3 Attention/ impulsivity	4 Cardiovascular/ physiological		
		1 Metabolism	2 Arousal/ Self-regulation		

37

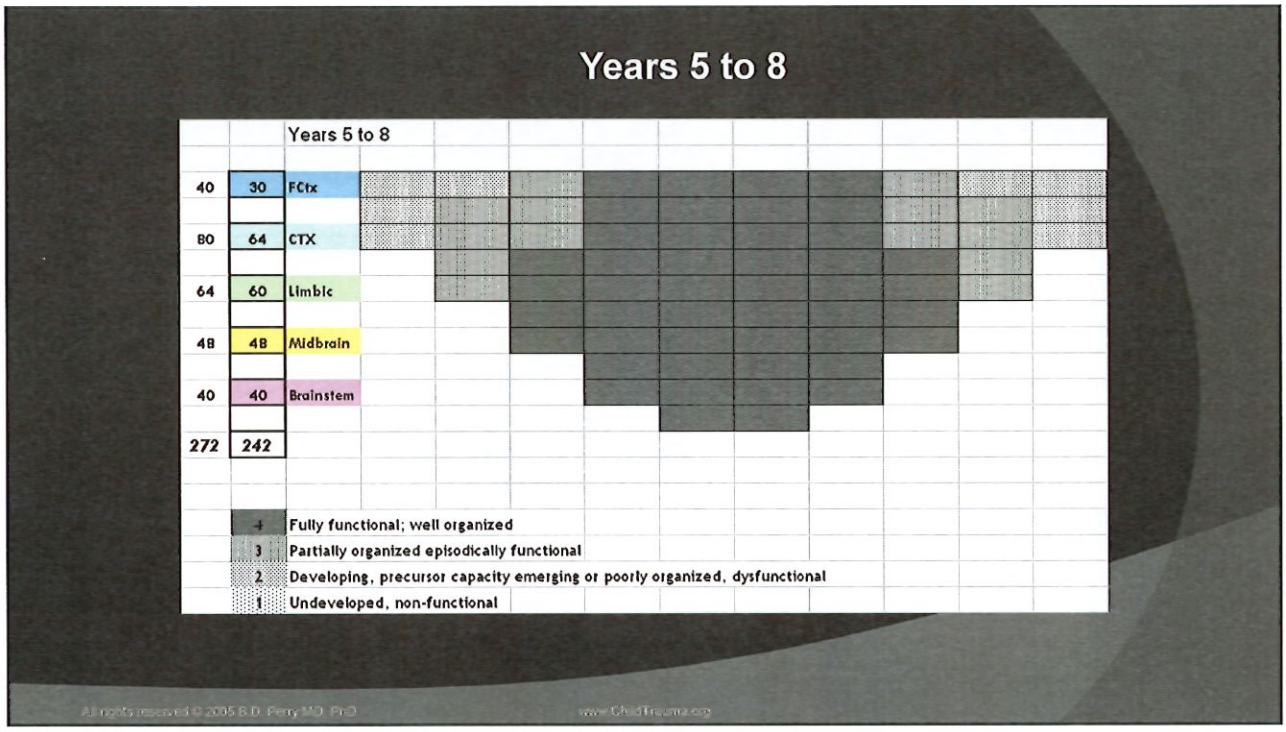
Healthy Newborn



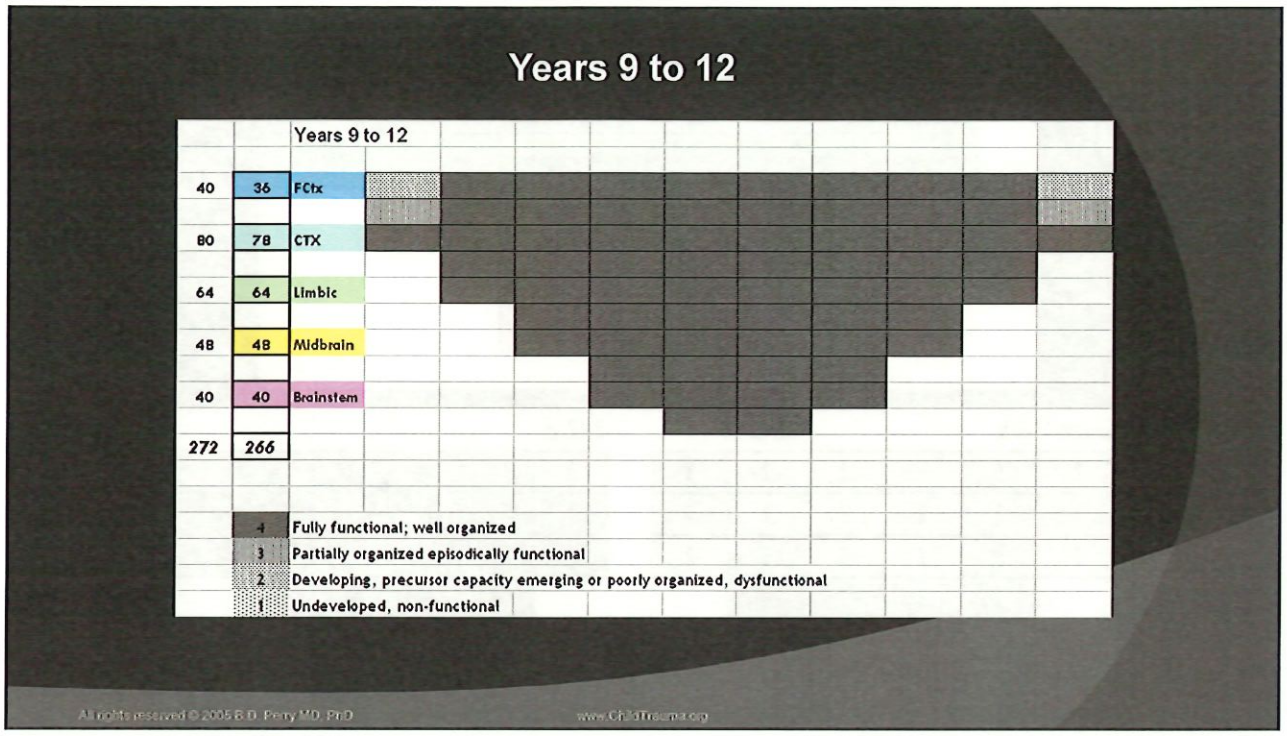
38


Year One
Year One
40
12
FCtx
80
24
CTX
64
32
Limbic
48
34
Midbrain
40
38
Brainstem
272
140
4
Fully functional; well organized
3
Partially organized episodically functional
2
Developing, precursor capacity emerging or poorly organized, dysfunctional
1
Undeveloped, non-functional

39


Years 5 to 8
Years 5 to 8
40
30
FCtx
80
64
CTX
64
60
Limbic
48
48
Midbrain
40
40
Brainstem
272
242
4
Fully functional; well organized
3
Partially organized episodically functional
2
Developing, precursor capacity emerging or poorly organized, dysfunctional
1
Undeveloped, non-functional

40


Years 9 to 12
Years 9 to 12
40 36 FCtx
80 78 CTX
64 64 Limbic
48 48 Midbrain
40 40 Brainstem
272 266
4 Fully functional; well organized
3 Partially organized episodically functional
2 Developing, precursor capacity emerging or poorly organized, dysfunctional
1 Undeveloped, non-functional
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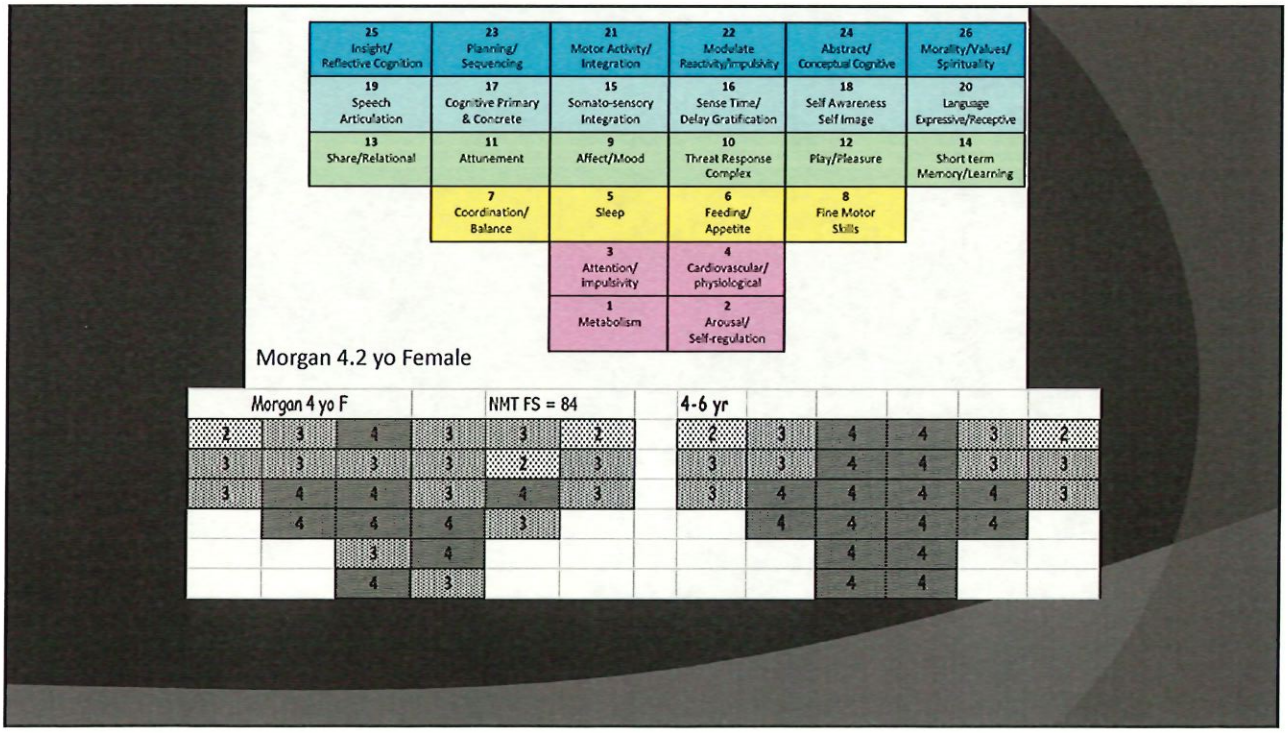
www.ChildTrauma.org

41


25 Insight/ Reflective Cognition
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18 Self Awareness Self Image
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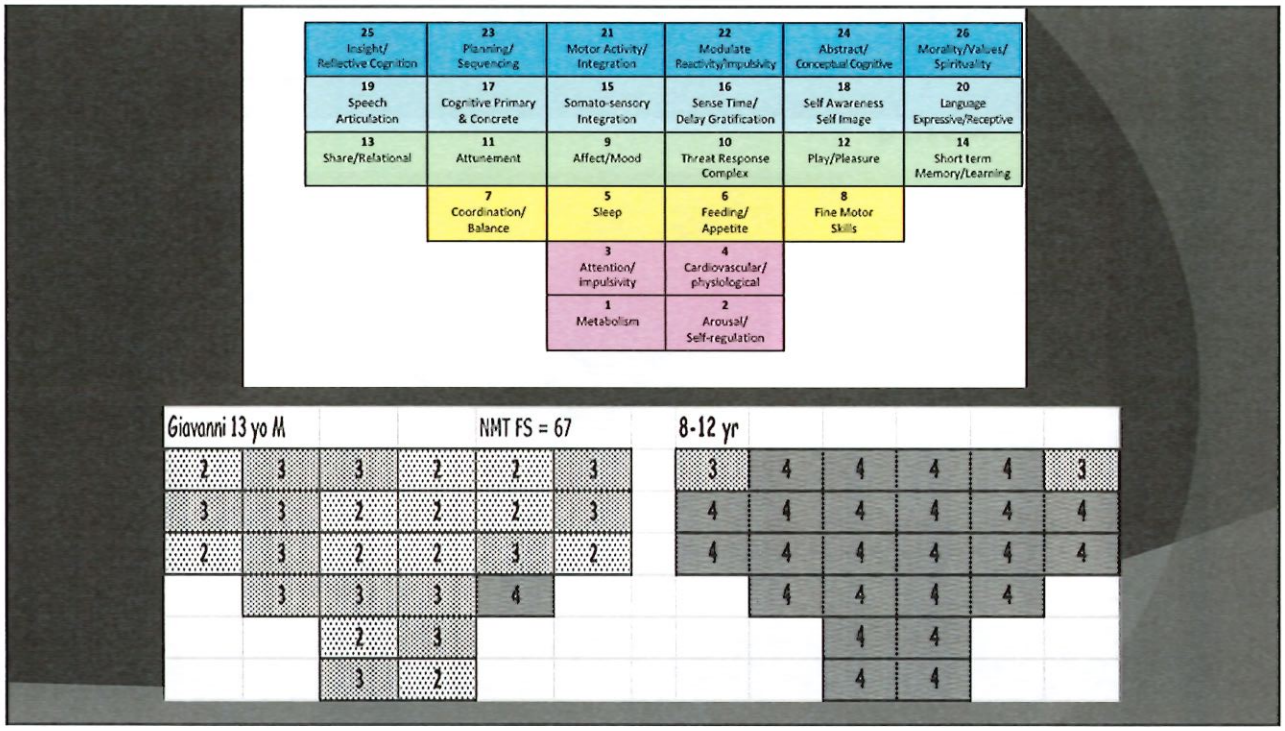
13 Share/Relational
11 Attunement
9 Affect/Mood
10 Threat Response Complex
12 Play/Pleasure
14 Short term Memory/Learning
7 Coordination/ Balance
5 Sleep
6 Feeding/ Appetite
8 Fine Motor Skills
3 Attention/ Impulsivity
4 Cardiovascular/ physiological
1 Metabolism
2 Arousal/ Self-regulation
Morgan 4.2 yo Female
Morgan 4 yo F
NMT FS = 84
4-6 yr

42



43

Possible Brain Stem Problems develops between 0 & 1 year

Arousal Regulation Problem

- Tantrums
- Overly reactive to stimuli
- Difficulties with sleep
- Irritable
- Difficulties transitioning between states

Mutual Attention and Attunement

- Clingy
- Defiant
- Eye contact/mutual gaze
- Demands excessive personal attention

44

More Brain Stem

Sensory Processing Problems

- Integration issues
- Focusing attention on stimuli – can't filter out
- Can't identify stimuli

Metabolism Issues

- Height and Weight gains or lack of
- Hording, gorging, purging

45

Brain Stem Enhancements

Attunement/Calming
- Music
- Singing
- Rocking
- Bouncing ball
- Read to child/Dr. Seuss
- Poetry
- Rhyming

Relaxation Exercise
- Progressive muscle relaxation
- Breathing exercises
- Guided imagery
- Swimming
- Yoga/Martial Arts
- drumming

Sensory
- Sand, play dough
- Finger foods
- Scents
- Painting and coloring

Touch
- Massage – hands, fingers, feet
- Tending to injuries/hurts

Rituals and Routines
- Nicknames
- Hand shakes
- Celebrations
- Special songs or chants

46

Diencephalon Problems fully developed between 1 & 2 years

- Integration of multiple sensory inputs
- Problems with behavioral control
- Tantrums when frustrated
- Poor motor control/balance/body tone/planning and purposeful gestures/rhythm
- Affiliation, attunement, relational flexibility
- Plays near others but not as part of the group
- Remains in solitary play
- Sleep disturbance/regulation
- Appetite/eating disorders

47

Diencephalon enhancements

Movement

- Hula hoops
- Building with blocks
- Swimming
- Trampoline
- Ball bouncing
- Simon says
- Balance beams
- Tunnels or mazes
- swinging

Outdoor play

Exercise Equipment

- Jungle gym
- Teeter totter
- Slides
- Merry go round

Fine Motor

- Legos
- Puzzles
- Tidily winks
- String macaroni/popcorn

48

Diencephalon Enhancements

- Draw a map to a treasure
- Give directions/take turns following directions/follow the leader
- Give distances
- Use a compass
- Mime
- Play in slow motion

49

Possible Limbic Problems fully developed between 1 & 4 year

- Emotional regulation
- Lack of empathy
- Seldom seeks emotional closeness from caregiver
- Suspicious and distrustful
- Social isolation
- Poor social skills
- Poor boundaries
- Poorly engaged in social pretend play
- Difficulty expressing needs
- Little mastery of play
- Poor emotional regulation
- Difficulty understanding feelings
- Few words or symbols to share feelings
- Difficulty with turn taking
- Difficulty sharing
- Needs support to play with others

50

Limbic Enhancements

- Social skill games & stories
- Sharing games
- Chores
- Rituals
- Study faces in mirror/pictures
- Social Group rituals
- Spend time in nature discovering objects
- Read Social Stories
- Creative Dance & movement
- Art Activities
- Crafts for creative expression
- Skits and plays
- Pretend play/dramatic play
- Practice giving and following directions
- Hide and Seek
- Games of cooperation

51

Possible Cortex Problems fully developed at 25 years

- Trouble with words/symbols
- Dramatic play doesn't make sense
- Difficulty explaining wants and wishes
- Dislikes playing competitive games
- Lack of sustained curiosity
- Difficulty processing new information
- Difficulty with object constancy
- Poor time/space orientation
- Difficulty with problem solving
- Difficulties with planning
- Difficulty with rules/moral & ethical confusion
- Conversation doesn't match behavior
- Problems with self-image

52

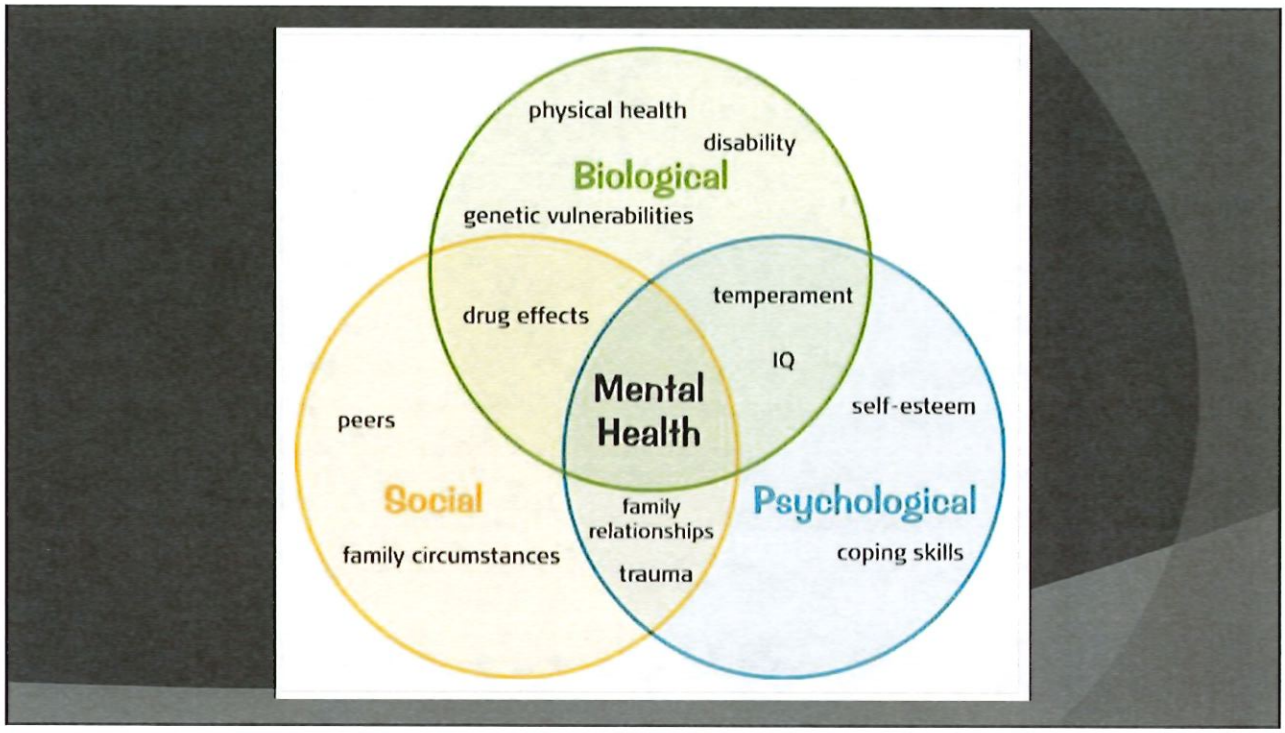
Cortex Enhancements

- Bibliotherapy – stories with lessons
- Conversations
- Performing or creative arts
- Field trips and discussion about
- Role play abstract themes
- Logical problems
- Problem solving
- Physical games and sports
- Social skills training

53

Understanding disorders

54


physical health
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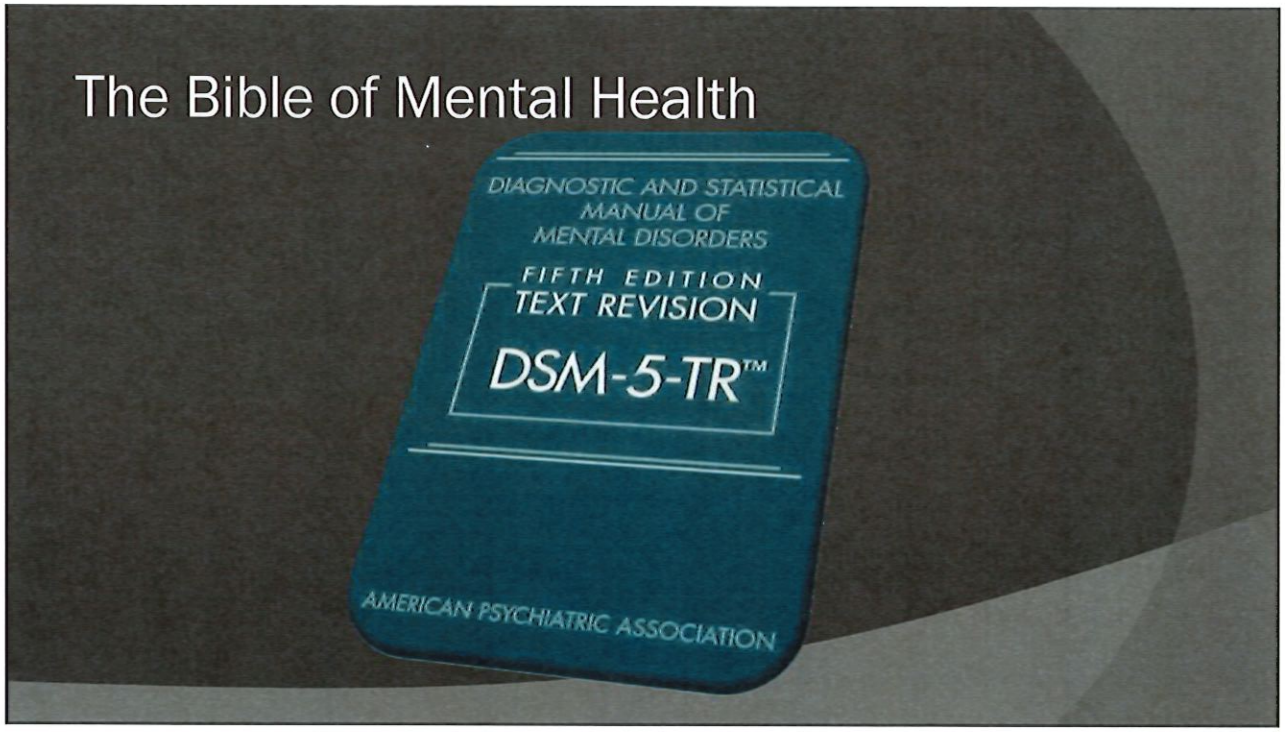
coping skills
trauma

55


The Bible of Mental Health
DIAGNOSTIC AND STATISTICAL MANUAL OF MENTAL DISORDERS
FIFTH EDITION
TEXT REVISION
DSM-5-TR™
AMERICAN PSYCHIATRIC ASSOCIATION

56

Attention-Deficit/Hyperactivity Disorder

- A. A persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development, as characterized by (1) and/or (2):
  - 1. **Inattention:** Six (or more) of the following symptoms have persisted for at least 6 months to a degree that is inconsistent with developmental level and that negatively impacts directly on social and academic/occupational activities.

    Note: The symptoms are not solely a manifestation of oppositional behavior, defiance, hostility, or failure to understand tasks or instructions. For older adolescents and adults (age 17 and older), at least symptoms are required.
    - a. Often fails to give close attention to details or makes careless mistakes in schoolwork, at work, or during other activities (e.g., overlooks or misses details, work is inaccurate).
    - b. Often has difficulty sustaining attention in tasks or play activities (e.g., has difficulty remaining focused during lectures, conversations, or lengthy reading).
    - c. Often does not seem to listen when spoken to directly (e.g., mind seems elsewhere, even in the absence of any obvious distraction).
    - d. Often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (e.g., starts tasks but quickly loses focus and is easily side-tracked).
    - e. Often has difficulty organizing tasks and activities (e.g., difficulty managing sequential tasks; difficulty keeping materials and belongings in order; messy, disorganized work; has poor time management; fails to meet deadlines).
    - f. Often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (e.g., schoolwork or homework; for older adolescents and adults, preparing reports, completing forms, reviewing lengthy papers).
    - g. Often loses things necessary for tasks or activities (e.g., school materials, pencils, books, tools, wallets, keys, paperwork, eyeglasses, mobile telephones).
    - h. Is often easily distracted by extraneous stimuli (for older adolescents and adults, may include unrelated thoughts).
    - i. Is often forgetful in daily activities (e.g., doing chores, running errands, for older adolescents and adults, returning phone calls, paying bills, keeping appointments).
  - 2. **Hyperactivity and impulsivity:** Six (or more) of the following symptoms have persisted for at least 6 months to a degree that is inconsistent with developmental level and that negatively impacts directly on social and academic/occupational activities.

    Note: The symptoms are not solely a manifestation of oppositional behavior, defiance, hostility, or failure to understand tasks or instructions. For older adolescents and adults (age 17 and older), at least symptoms are required.
    - a. Often fidgets with or taps hands or feet or squirms in seat.
    - b. Often leaves seat in situations when remaining seated is expected (e.g., leaves his or her place in the classroom, in the office or other workplace, or in other situations that require remaining in place).
    - c. Often runs about or climbs in situations where it is inappropriate. (**Note:** In adolescents or adults, may be limited to feeling restless.)
    - d. Often unable to play or engage in leisure activities quietly.
    - e. If often "on the go" , acting as if "driven by a motor" (e.g., is unable to be comfortable being still for extended time, as in restaurants, meetings; may be experienced by others as being restless or difficulty to keep up with).
    - f. Often talks excessively.
    - g. Often blurts out an answer before a question has been completed (e.g., completes people's sentences; cannot wait for turn in conversation).
    - h. Often has difficulty waiting his or her turn (e.g., while waiting in line).

57

Anxiety Disorders

- **Separation Anxiety Disorder 309.21**
  - A. Developmentally inappropriate and excessive fear or anxiety concerning separation from those to whom the individual is attached, as evidenced by at least 3 of the following:
    - 1. Recurrent excessive distress when anticipating or experiencing separation from home or from major attachment figures.
    - 2. Persistent and excessive worry about losing major attachment figures or about possible harm to them, such as illness, injury, disasters, or death.
    - 3. Persistent and excessive worry about experiencing an untoward event (e.g., getting lost, being kidnapped, having an accident, becoming ill) that causes separation from a major attachment figure.
    - 4. Persistent reluctance or refusal to go out, away from home, to school, to work, or elsewhere because of fear of separation.
    - 5. Persistent and excessive fear of or reluctance about being alone or without major attachment figures at home or in other settings.
    - 6. Persistent reluctance or refusal to sleep away from home or to go to sleep without being near a major attachment figure.
    - 7. Repeated nightmares involving the theme of separation.
    - 8. Repeated complaints of physical symptoms (e.g., headaches, stomachaches, nausea, vomiting) when separation from major attachment figures occurs or is anticipated.
  - B. The fear, anxiety, or avoidance is persistent, lasting at least 4 weeks in children and adolescents and typically 6 months or more in adults.
  - C. The disturbance causes clinically significant distress or impairment in social, academic, occupational, or other important areas of functioning.
  - D. The disturbance is not better explained by another mental disorder, such as refusing to leave the home because of excessive resistance to change in autism spectrum disorder; delusions or hallucinations concerning separation in psychotic disorders; refusal to go outside without a trusted companion in agoraphobia; worries about ill health or other harm befalling significant others in generalized anxiety disorder; or concerns about having an illness in illness anxiety disorder.

58

Anxiety Disorders

- **Social Anxiety Disorder (Social Phobia) 300.23**
  - A. Marked fear or anxiety about one or more social situations in which the individual is exposed to possible scrutiny by others. Examples include social interactions (e.g., having conversation, meeting unfamiliar people), being observed (e.g., eating or drinking), and performing in front of others (e.g., giving a speech).
    - **Note:** In children, the anxiety must occur in peer setting and not just during interactions with adults.
  - B. The individual fears that he or she will act in a way or show anxiety symptoms that will be negatively evaluated (i.e., will be humiliating or embarrassing; will lead to rejection or offend others).
  - C. The social situations almost always provoke fear or anxiety.
    - **Note:** In children, the fear or anxiety may be expressed by frying, tantrums, freezing, clinging, shrinking, or failing to speak in social situations).
  - D. The social situations are avoided or endured with intense fear or anxiety.
  - E. The fear or anxiety is out of proportion to the actual threat posed by the social situation and to the sociocultural context.
  - F. The fear, anxiety, or avoidance is persistent , typically lasting for 6 months of more.
  - G. The fear, anxiety, or avoidance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.
  - H. The fear, anxiety, or avoidance is not attributable to the physiological effects of a substance (e.g., a drug of abuse, a medication) or another medical condition.
  - I. The fear, anxiety, or avoidance is not better explained by the symptoms of another mental disorder, such as panic disorder, body dysmorphic disorder, or autism spectrum disorder.
  - J. If another medical condition (e.g., Parkinson's disease, obesity, disfigurement from burn or injury) is present, the fear, anxiety, or avoidance is clearly unrelated or excessive.
    - *Specify if:*
      - **Performance only:** If the fear is restricted to speaking or performing in public.

59

Anxiety Disorders

- **Generalized Anxiety Disorder 300.02**
  - A. Excessive anxiety and worry (apprehensive expectation), occurring more days than not for at least 6 months, about a number of events or activities (such as work or school performance).
  - B. The individual finds it difficult to control the worry.
  - C. The anxiety and worry are associated with three (or more) of the following six symptoms(with at least some symptoms having been present for more days than not for the past 6 months):
    - **Note:** Only one item is required for children.
      - **1.** Restlessness or feeling keyed up or on edge.
      - **2.** Being easily fatigued.
      - **3.** Difficulty concentrating or mind going blank.
      - **4.** Irritability.
      - **5.** Muscle Tension
      - **6.** Sleep disturbance (difficulty falling or staying asleep, or restless, unsatisfying sleep).
  - D. The anxiety, worry, or physical symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.
  - E. The disturbance is not attributable to the physiological effects of a substance (e.g., a drug of abuse, a medication) or another medical condition (e.g., hyperthyroidism).
  - F. The disturbance is not better explained by another mental disorder (e.g., anxiety or worry about having panic attacks in panic disorder, negative evaluation in social anxiety disorder [social phobia], contamination or other obsessions in obsessive-compulsive disorder, separation from attachment figures in separation anxiety disorder, reminders of traumatic events in posttraumatic stress disorder, gaining weight in anorexia nervosa, physical complaints in somatic symptom disorder, perceived appearance flaws in body dysmorphic disorder, having a serious illness in illness anxiety disorder, of the content of delusional beliefs in schizophrenia or delusional disorder)

60

Obsessive-Compulsive and Related Disorders

Obsessive-Compulsive Disorder
Diagnostic Criteria 300.3 (F42)
A. Presence of obsessions, compulsions, or both:
Obsessions are defined by (1) and (2):
1. Recurrent and persistent thoughts, urges, or images that are experienced, at some
time during the disturbance, as intrusive and unwanted, and that in most individuals
cause marked anxiety or distress.
2. The individual attempts to ignore or suppress such thoughts, urges, or images, or to
neutralize them with some other thought or action (i.e., by performing a compulsion).
Compulsions are defined by (1) and (2):
1. Repetitive behaviors (e.g., hand washing, ordering, checking) or mental acts (e.g.,
praying, counting, repeating words silently) that the individual feels driven to perform
in response to an obsession or according to rules that must be applied rigidly.
2. The behaviors or mental acts are aimed at preventing or reducing anxiety or distress,
or preventing some dreaded event or situation; however, these behaviors or
mental acts are not connected in a realistic way with what they are designed to neutralize
or prevent, or are clearly excessive.
Note: Young children may not be able to articulate the aims of these behaviors or mental acts.
B. The obsessions or compulsions are time-consuming (e.g., take more than 1 hour per
day) or cause clinically significant distress or impairment in social, occupational, or
other important areas of functioning.
C. The obsessive-compulsive symptoms are not attributable to the physiological effects
of a substance (e.g., a drug of abuse, a medication) or another medical condition.
D. The disturbance is not better explained by the symptoms of another mental disorder
(e.g., excessive worries, as in generalized anxiety disorder; preoccupation with appearance,
as in body dysmorphic disorder; difficulty discarding or parting with possessions,
as in hoarding disorder; hair pulling, as in trichotillomania [hair-pulling disorder];
skin picking, as in excoriation [skin-picking] disorder; stereotypies, as in stereotypic
movement disorder; ritualized eating behavior, as in eating disorders; preoccupation
with substances or gambling, as in substance-related and addictive disorders; preoccupation
with having an illness, as in illness anxiety disorder; sexual urges or fantasies,
as in paraphilic disorders; impulses, as in disruptive, impulse-control, and conduct disorders;
guilty ruminations, as in major depressive disorder; thought insertion or delusional
preoccupations, as in schizophrenia spectrum and other psychotic disorders; or
repetitive patterns of behavior, as in autism spectrum disorder).
Specify if:
With good or fair insight: The individual recognizes that obsessive-compulsive disorder
beliefs are definitely or probably not true or that they may or may not be true.
With poor insight: The individual thinks obsessive-compulsive disorder beliefs are probably true.
With absent insight/delusional beliefs: The individual is completely convinced that
obsessive-compulsive disorder beliefs are true.

61

Depressive Disorders

Disruptive Mood Dysregulation 296.99

- A. Severe recurrent temper outbursts manifested verbally (e.g., verbal rages) and/or behaviorally (e.g., physical aggression toward people or property) that are grossly out of proportion in intensity or duration to the situation or provocation.
- B. The temper outbursts are inconsistent with developmental level.
- C. The temper outbursts occur, on average, three or more times per week.
- D. The mood between temper outbursts is persistently irritable or angry most of the day, nearly every day, and is observable by others (e.g., parents, teachers, peers).
- E. Criteria A-D have been present for 12 or more months. Throughout that time, the individual has not had a period last 3 or more consecutive months without all of the symptoms in Criteria A-D.
- F. Criteria A and D are present in at least two of three settings (i.e., at home, at school, with peers) and are severe in at least one of these.
- G. The diagnosis should not be made for the first time before age 6 years or after age 18 years.
- H. By history or observation, the age at onset of Criteria A-E is before 10 years.
- I. There has never been a distinct period lasting more than 1 day during which the full symptom criteria, except duration, for a manic or hypomanic episode have been met.

Note: Developmentally appropriate mood elevation, such as occurs in the context of a highly positive event or its anticipation, should not be considered as a symptom of mania or hypomania.

- J. The behaviors do not occur exclusively during an episode of major depressive disorder and are not better explained by another mental disorder (e.g., autism spectrum disorder, posttraumatic stress disorder, separation anxiety disorder, persistent depressive disorder [dysthymia]). **Note:** This diagnosis cannot coexist with oppositional defiant disorder, intermittent explosive disorder, or bipolar disorder, though it can coexist with others, including major depressive disorder, attention-deficit/hyperactivity disorder, conduct disorder, and substance use disorders. Individuals whose symptoms meet criteria for both disruptive mood dysregulation disorder and oppositional defiant disorder should only be given the diagnosis of disruptive mood dysregulation disorder. If an individual has ever experienced a manic or hypomanic episode, the diagnosis of disruptive mood dysregulation disorder should not be assigned.
- K. These symptoms are not attributable to the physiological effects of a substance or to another medical or neurological condition.

62

Depressive Disorders

- **Major Depressive Disorder w/ specifiers**
  - A. Five (or more) of the following symptoms the same 2-week period and represent a change from previous functioning, at least one of the symptoms is either (1) depressed mood or (2) loss of interest or pleasure.
    - **Note:** Do not include symptoms that are clearly attributable to another medical condition.
    - 1. Depressed mood most of the day, nearly every day, as indicated by either subjective report (e.g., feels sad, empty, hopeless) or observation made by others (e.g., appears tearful). **(Note:** In children and adolescents, can be irritable mood.)
    - 2. Markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day (as indicated by either subjective account or observation).
    - 3. Significant weight loss when not dieting or weight gain (e.g., a change of more than 5% of body weight in a month), or decrease or increase in appetite nearly every day. **(Note:** In children, consider failure to make expected weight gain.)
    - 4. Insomnia or hypersomnia nearly every day.
    - 5. Psychomotor agitation or retardation nearly every day (observable by others, not merely subjective feelings of restlessness or being slowed down).
    - 6. Fatigue or loss of energy nearly every day.
    - 7. Feelings of worthlessness or excessive or inappropriate guilt (which may be delusional) nearly every day (not merely self-reproach or guilt about being sick).
    - 8. Diminished ability to think or concentrate, or indecisiveness, nearly every day (either subjective account or as observed by others).
    - 9. Recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide.
  - B. The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.
  - C. The episode is not attributable to the physiological effects of a substance or to another medical condition.
    - **Note:** Criteria A-C represent a major depressive episode.
    - **Note:** Responses to a significant loss (e.g., bereavement, financial ruin, losses from a natural disaster, a serious medical illness or disability) may include the feelings of intense sadness, rumination about the loss, insomnia, poor appetite, and weight loss noted in Criterion A, which may resemble a depressive episode. Although such symptoms may be understandable or considered appropriate to the loss, the presence of a major depressive episode in addition to the normal response to a significant loss should also be carefully considered. This decision inevitably requires the exercise of clinical judgment based on the individual's history and the cultural norms for the expression of distress in the context of loss.
  - D. The occurrence of the major depressive episode is not better explained by a persistent schizoaffective disorder, schizophrenia, schizophreniform disorder, delusional disorder, or other specified or unspecified schizophrenia spectrum and other psychotic disorder.
  - E. There has never been a manic episode or a hypomanic episode. **Note:** This exclusion does not apply if all of the manic-like or hypomanic-like episodes are substance-induced or are attributable to the physiological effects of another medical condition.
  - Coding and Recording Procedures: Will need to specify if episode is mild, moderate, severe and specify if with/without psychotic features.
  - *Specify* if:
    - With anxious distress
    - With mixed features
    - With melancholic features
    - With atypical features
    - With mood-congruent psychotic features
    - With mood-incongruent psychotic features
    - With catatonia
    - With peripartum onset
    - With seasonal pattern

63

Disruptive, Impulse-Control, and Conduct Disorders

- **Oppositional Defiant Disorder 313.81**
- A. A pattern of angry/irritable mood, argumentative/defiant behavior, or vindictiveness lasting at least 6 months as evidenced by at least four symptoms from any of the following categories, and exhibited during interaction with at least one individual who is not a sibling.
  - **Angry/Irritable Mood**
    - 1. Often loses temper
    - 2. Is often touchy or easily annoyed
    - 3. Is often angry and resentful
  - **Argumentative/Defiant Behavior**
    - 4. Often argues with authority figures or , for children and adolescents, with adults.
    - 5. Often actively defies or refuses to comply with requests from authority figures or with rules.
    - 6. Often deliberately annoys others.
    - 7. Often blames others for his or her mistakes or misbehavior.
  - **Vindictiveness**
    - 8. Has been spiteful or vindictive at least twice within the past 6 months.
  - **Note:** The persistence and frequency of these behaviors should be used to distinguish a behavior that is within normal limits form a behavior that is symptomatic. For children younger than 5 years, the behavior should occur on most days for a period of at least 6 months, unless otherwise noted (Criterion A8). For individuals 5 years or older, the behavior should occur at least once per week for at least 6 months, unless otherwise noted (Criterion A8). While these frequency criteria provide guidance on a minimal level of frequency to define symptoms, other factors should also be considered, such as whether the frequency and intensity of the behaviors are outside a range that is normative for the individual's developmental level, gender, and culture.
- B. The disturbance in behavior is associated with distress in the individual or others in his or her immediate social context (e.g., family, peer group, work colleagues), or it impacts negatively on social, educational, occupational, or other important areas of functioning.
- C. The behaviors do not occur exclusively during the course of a psychotic, substance use, depressive, or bipolar disorder.
- *Specify* current severity
  - **Mild:** Symptoms are confined to only one setting (e.g., at home, at school, at work, with peers).
  - **Moderate:** Some symptoms are present in at least two settings.
  - **Severe:** Some Symptoms are present in three or more settings.

64

Disruptive, Impulse-Control, and Conduct Disorders

- **Intermittent Explosive Disorder 312.34**
- A. Recurrent behavior outbursts representing a failure to control aggressive impulses as manifested by either of the following:
  - 1. Verbal aggression (e.g., temper tantrum, tirades, verbal arguments or fights) or physical aggression toward property, animals, or other individuals, occurring twice weekly, on average for a period of 3 months. The physical aggression does not result in damage or destruction of property and does not result in physical injury to animals or other individuals.
  - 2. Three behaviors outbursts involving damage or destruction to property and /or physical assault involving physical injury again animals or other individuals occurring within a 12-month period.
- B. The magnitude of aggressiveness expressed during the recurrent outbursts is grossly out of proportion to the provocation or to any precipitating psychosocial stressors.
- C. The recurrent aggressive outbursts are not premeditated (i.e., they are impulsive and /or anger based) and are not committed to achieve some tangible objective (e.g., money, power, intimidation).
- D. The recurrent aggressive outbursts cause either marked distress in the individual or impairment in occupation or interpersonal functioning, or are associated with financial or legal consequences.
- E. Chronological age is at least 6 years (or equivalent developmental level).
- F. The recurrent aggressive outbursts are not better explained by another mental disorder (e.g., major depressive disorder, bipolar disorder, disruptive mood dysregulation disorder, a psychotic disorder, antisocial personality disorder, borderline personality disorder) and are not attributable to another medical condition (e.g., head trauma, Alzheimer's disease) or to the physiological effects of a substance (e.g., a drug of abuse, a medication) For children ages 6-18 years, aggressive behavior that occurs as part of an adjustment disorder should not be considered for this diagnosis.
- **Note:** This diagnosis can be made in addition to the diagnosis of attention-deficit/hyperactivity disorder, conduct disorder, oppositional defiant disorder, or autism spectrum disorder when recurrent impulsive aggressive outbursts are in excess of those usually seen in these disorders and warrant independent clinical attention.

65

Traumas-and Stressor-Related Disorders

- **Reactive Attachment Disorder 313.89**
  - A. A consistent pattern of inhibited, emotionally withdrawn behavior toward adult caregivers, manifested by both of the following:
    - 1. The child rarely or minimally seeks comfort when distressed.
    - 2. The child rarely or minimally responds to comfort when distressed.
  - B. A persistent social and emotional disturbance characterized by at least two of the following.
    - 1. Minimal social and emotional responsiveness to others.
    - 2. Limited positive affect.
    - 3. Episodes of unexplained irritability, sadness, or fearfulness that are evident even during nonthreatening interactions with adult caregivers.
  - C. The child has experienced a pattern of extremes of insufficient care as evidenced by at least one of the following:
    - 1. Social neglect or deprivation in the form of persistent lack of having basic emotional needs for comfort, stimulation, and affection met by caregiving adults.
    - 2. Repeated changes of primary caregivers that limit opportunities to form stable attachments (e.g., frequent changes in foster care).
    - 3. Rearing in unusual settings that severely limit opportunities to form selective attachments (e.g., institutions with high child-to-caregiver ratios)
  - D. The care in Criterion C is presumed to be responsible for the disturbed behavior in Criterion A (e.g., the disturbances in Criterion A began following the lack of adequate care in Criterion C).
  - E. The criteria are not met for autism spectrum disorder.
  - F. The disturbance is evident before age 5 years.
  - G. The child has a developmental age of at least 9 months.
  - *Specify* if:
    - **Persistent:** The disorder has been present for more than 12 months.
  - *Specify* current severity:

  Reactive attachment disorder is specified as **severe** when a child exhibits all symptoms of the disorder, with each symptom manifesting at relatively high levels.

66

Traumas-and Stressor-Related Disorders

- **Disinhibited Social Engagement Disorder 313.89**
  - A. A pattern of behavior in which a child actively approaches and interacts with unfamiliar adults and exhibits at least two of the following:
    - 1. Reduced or absent reticence in approaching and interacting with unfamiliar adults.
    - 2. Overly familiar verbal or physical behavior (that is not consistent with culturally sanctioned and with age-appropriate social boundaries).
    - 3. Diminished or absent checking back with adult caregivers after venturing away, even in unfamiliar settings.
    - 4. Willingness to go off with an unfamiliar adult with minimal or no hesitation.
  - B. The behaviors in Criterion A are not limited to impulsivity (as in attention-deficit/hyperactivity disorder) but include socially disinhibited behavior.
  - C. The child has experienced a pattern of extremes of insufficient care as evidenced by at least one of the following:
    - 1. Social neglect or deprivation in the form of persistent lack of having basic emotional needs for comfort, stimulation, and affection met by caregivers.
    - 2. Repeated changes of primary caregivers that limit opportunities to form stable attachments (e.g., frequent changes in foster care).
    - 3. Rearing in unusual settings that severely limit opportunities to form selective attachments (e.g., institutions with high child-to-caregiver ratios)
  - D. The care in Criterion C is presumed to be responsible for the disturbed behavior in Criterion A (e.g., the disturbances in Criterion A began following the pathogenic care in Criterion C).
  - E. The child has a developmental age of at least 9 months.
  - *Specify* if:
    - **Persistent:** The disorder has been present for more than 12 months.
  - *Specify* current severity:

  Disinhibited social engagement disorder is **severe** when the child exhibits all symptoms of the disorder, with each symptom manifesting at relatively high levels.

67

Traumas-and Stressor-Related Disorders

- **Posttraumatic Stress Disorder 309.81**
- **Note:** The following criteria apply to adults, adolescents, and children older than 6 years. For Children 6 years or younger, see corresponding criteria below.
- A. Exposure to actual or threatened death, serious injury, or sexual violence in one (or more) of the following ways:
  - 1. Directly experiencing the traumatic events(s).
  - 2. Witnessing, in person, the event(s) as it occurred to others.
  - 3. Learning that the traumatic event(s) occurred to a close family member or close friend. In cases of actual or threatened death of a family member of friend, the event(s) must have been violent or accidental.
  - 4. Experiencing repeated or extreme exposure to aversive details of the traumatic event(s) (e.g., first responders collecting human remains; police officers repeatedly exposed to details of child abuse).
    - **Note:** Criterion A4 does not apply to exposure through electronic media, television, movies, or pictures, unless this exposure is work related.
- **B.** Presence of one (or more) of the following intrusion symptoms associated with the traumatic event(s), beginning after the traumatic event(s) occurred: occurred:
  - 1. Recurrent, involuntary, and intrusive distressing memories of the traumatic event(s).
    - **Note:** In children older than 6 years, repetitive play may occur in which themes or aspects of the traumatic event(s) are expressed.
  - 2. Recurrent distressing dreams in which the content and/or affect of the dream are related to the traumatic event(s).
    - **Note:** In children, there may be frightening dreams without recognizable content.
  - 3. Dissociative reactions (e.g., flashbacks) in which the individual feels or acts as if the traumatic event(s) were recurring. (Such reactions may occur on a continuum, with the most extreme expression being a complete loss of awareness of present surroundings.)
  - 4. Intense or prolonged psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).
  - 5. Marked physiological reactions to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).

68

Traumas-and Stressor-Related Disorders

- **Posttraumatic Stress Disorder for Children 6 years and Younger**
- A. In children 6 years and younger, exposure to actual or threatened death, serious injury, or sexual violence in on (or more) of the following ways:
  - 1. Directly experiencing the traumatic events(s).
  - 2. Witnessing, in person, the event(s) as it occurred to others, especially primary caregivers.
  - **Note:** Witnessing does not include events that are witnessed only in electronic media, television, movies, or pictures.
  - 3. Learning that the traumatic event(s) occurred to a parent or caregiving figure.
- B. Presence of one (or more) of the following intrusion symptoms associated with the traumatic event(s), beginning after the traumatic event (s) occurred:
  - 1. Recurrent, involuntary, and intrusive distressing memories of the traumatic event(s).
    - **Note:** Spontaneous and intrusive memories may not necessarily appear distressing and may be expressed as play reenactment.
  - 2. Recurrent distressing dreams in which the content and/or affect of the dream are related to the traumatic event(s).
    - **Note:** It may not be possible to ascertain that the frightening content is related to the traumatic event (s)
  - 3. Dissociative reactions (e.g., flashbacks) in which the child feels or acts as if the traumatic event(s) were recurring. (Such reactions may occur on a continuum, with the most extreme expression being a complete loss of awareness of present surroundings.) Such a trauma-specific reenactment may occur in play.
  - 4. Intense or prolonged psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).
  - 5. Marked physiological reactions to reminders of the traumatic event(s).
- C. One (or more) of the following symptoms, representing either persistent avoidance of stimuli associated with the traumatic event(s) or negative alterations in cognitions and mood associated with the traumatic event(s), must be present, beginning after the event(s) or worsening after the event(s):
  - **Persistent Avoidance of Stimuli**
    - 1. Avoidance of or efforts to avoid activities, places, or physical reminders that arouse recollections of the traumatic event (s)
    - 2. Avoidance of or efforts to avoid people, conversations, or interpersonal situations that arouse recollections of the traumatic event(s).
  - **Negative Alterations in Cognitions**
    - 3. Substantially increased frequency of negative emotional states (e.g., fear, guilt, sadness, shame, confusion).
    - 4. Markedly diminished interest or participation in significant activities, including constriction of play.
    - 5. Socially withdrawn behavior.
    - 6. Persistent reduction in expression of positive emotions.

69

Bipolar I Disorder

Diagnostic Criteria
For a diagnosis of bipolar I disorder, it is necessary to meet tlie following criteria for a manic episode. The manic episode may have been preceded by and may be followed by hypomanic or major depressive episodes.
Manic Episode
A. A distinct period of abnormally and persistently elevated, expansive, or irritable mood and abnormally and persistently increased goal-directed activity or energy, lasting at least 1 week and present most of the day, nearly every day (or any duration if hospitalization is necessary).
B. During the period of mood disturbance and increased energy or activity, three (or more) of the following symptoms (four if the mood is only irritable) are present to a significant degree and represent a noticeable change from usual behavior:
1. Inflated self-esteem or grandiosity.
2. Decreased need for sleep (e.g., feels rested after only 3 hours of sleep).
3. More talkative than usual or pressure to keep talking.
4. Flight of ideas or subjective experience that thoughts are racing.
5. Distractibility (i.e., attention too easily drawn to unimportant or irrelevant external stimuli), as reported or observed.
6. Increase in goal-directed activity (either socially, at work or school, or sexually) or psychomotor agitation (i.e., purposeless non-goal-directed activity).
7. Excessive involvement in activities that have a high potential for painful consequences (e.g., engaging in unrestrained buying sprees, sexual indiscretions, or foolish business investments).
C. The mood disturbance is sufficiently severe to cause marked impairment in social or occupational functioning or to necessitate hospitalization to prevent harm to self or others, or there are psychotic features.
D. The episode is not attributable to the physiological effects of a substance (e.g., a drug of abuse, a medication, other treatment) or to another medical condition.
Note: A full manic episode that emerges during antidepressant treatment (e.g., medication, electroconvulsive therapy) but persists at a fully syndromal level beyond the physiological effect of that treatment is sufficient evidence for a manic episode and, therefore, a bipolar I diagnosis.
Note: Criteria A-D constitute a manic episode. At least one lifetime manic episode is required for the diagnosis of bipolar I disorder.
Hypomanic Episode
A. A distinct period of abnormally and persistently elevated, expansive, or irritable mood and abnormally and persistently increased activity or energy, lasting at least 4 consecutive days and present most of the day, nearly every day.
B. During the period of mood disturbance and increased energy and activity, three (or more) of the following symptoms (four if the mood is only irritable) have persisted, represent a noticeable change from usual behavior, and have been present to a significant degree:

70

71

The re-wired brain

CHANGING THE DEVELOPING BRAIN

Are we changing the brain of our children?

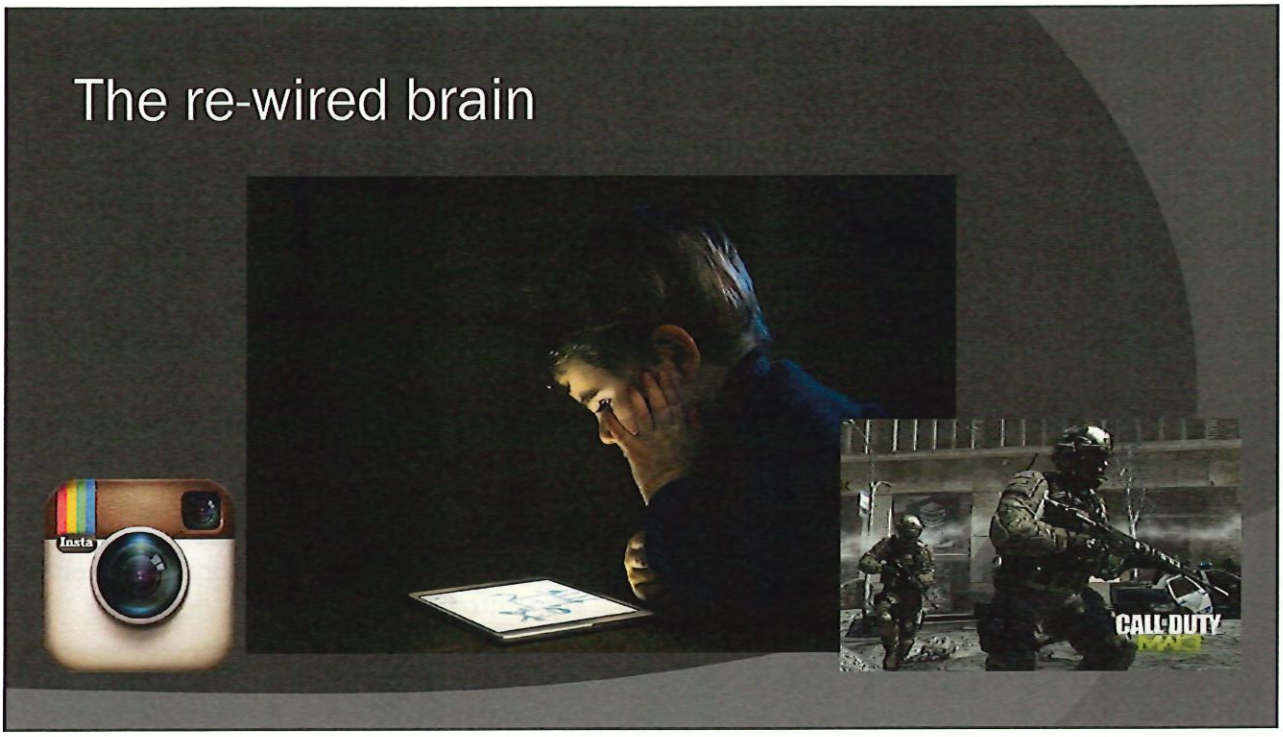
The I-Phone was invented in 2007 (first smart phone).

2010—2015 Suicides rose 31% across the country among 13 to 18 year old! 34% in Kansas!

University of San Diego (Jean Twenge) found that teens who were on social media for 5 or more hours a day had a 70% chance of dying by suicide!

We are rewiring the brain with negative images.

72



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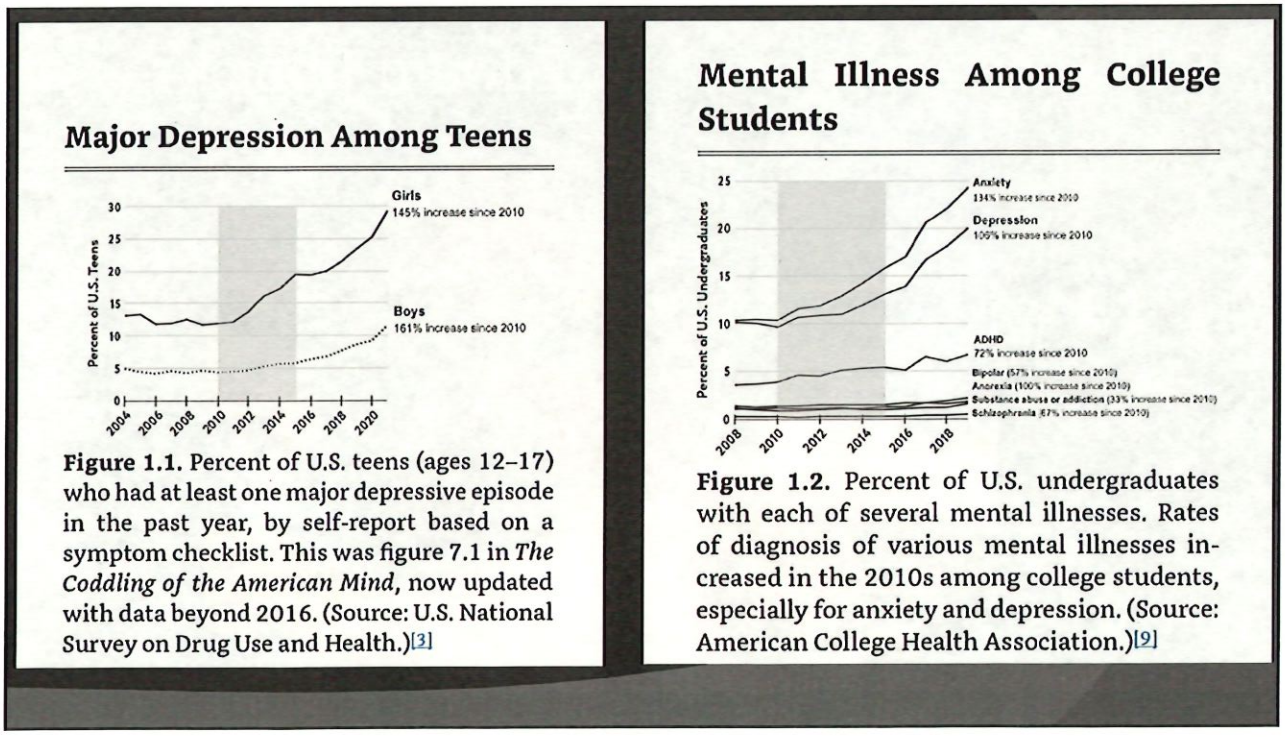


Figure 1.1. Percent of U.S. teens (ages 12–17) who had at least one major depressive episode in the past year, by self-report based on a symptom checklist. This was figure 7.1 in *The Coddling of the American Mind*, now updated with data beyond 2016. (Source: U.S. National Survey on Drug Use and Health.)[3]

Figure 1.2. Percent of U.S. undergraduates with each of several mental illnesses. Rates of diagnosis of various mental illnesses increased in the 2010s among college students, especially for anxiety and depression. (Source: American College Health Association.)[9]

74

Emergency Room Visits for Self-Harm

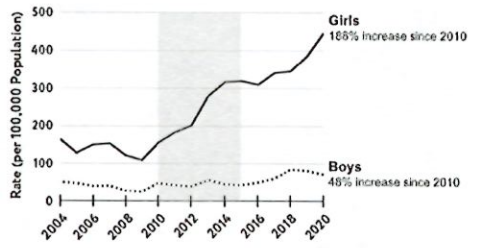


Figure 1.4. The rate per 100,000 in the U.S. population at which adolescents (ages 10–14) are treated in hospital emergency rooms for nonfatal self-injury. (Source: U.S. Centers for Disease Control, National Center for Injury Prevention and Control.)[20]

Suicide Rates for Younger Adolescents

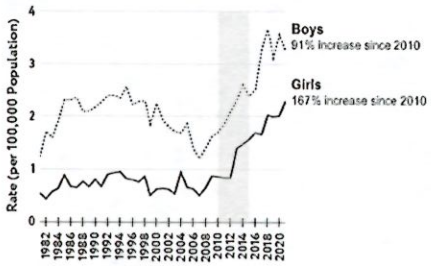
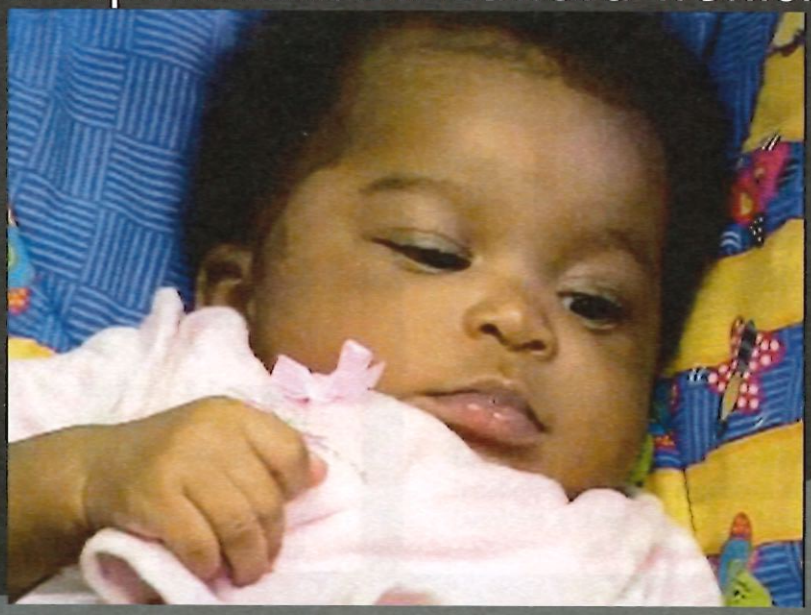


Figure 1.5. Suicide rates for U.S. adolescents, ages 10–14. (Source: U.S. Centers for Disease Control, National Center for Injury Prevention and Control.)[22]

75

Still Face Experiment Dr. Edward Tronick



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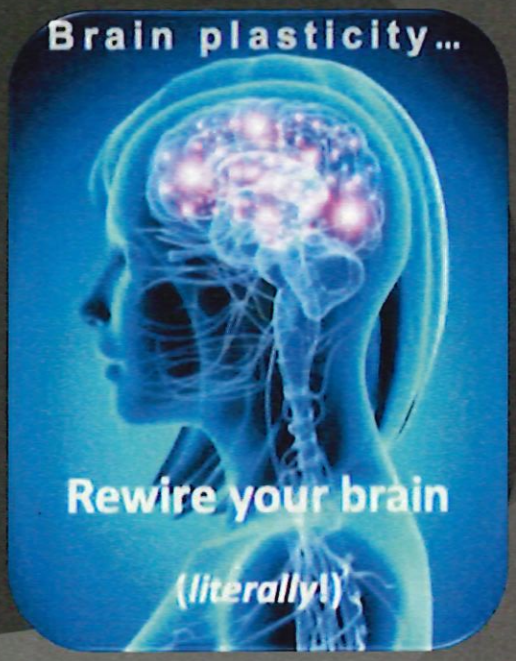
A wired brain can be rewired.



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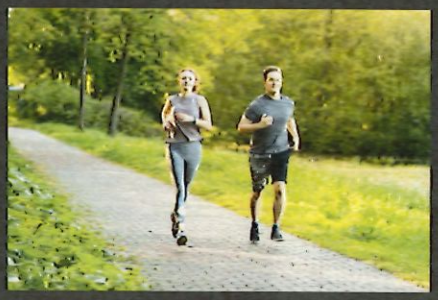
Relationship

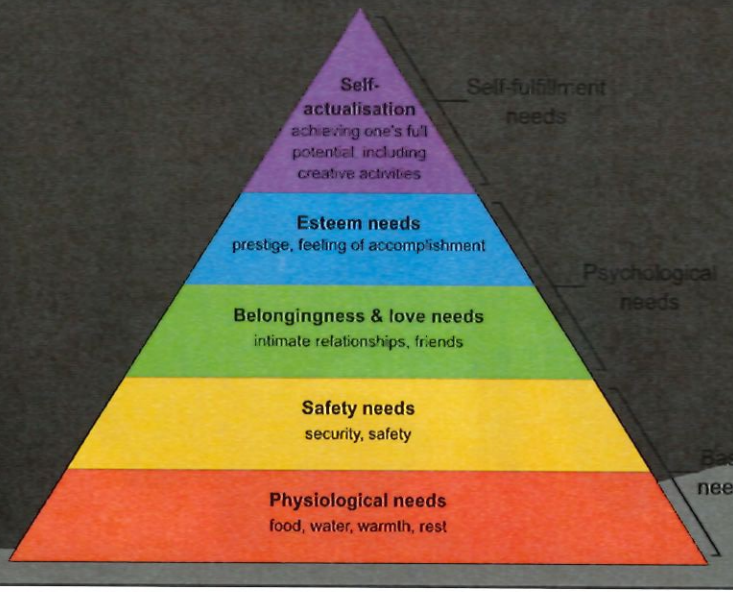
78

Self Care


79

Maslow's Hierarchy of Needs



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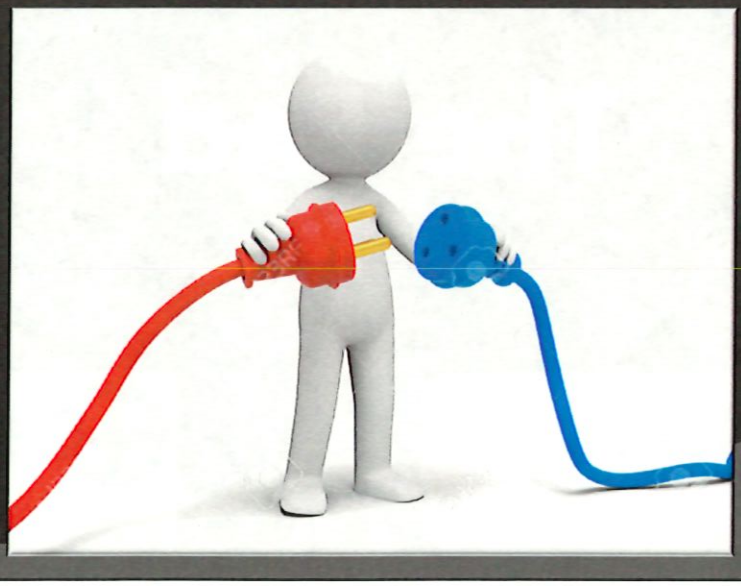
Mindfulness in schools

81

Connecting the brain



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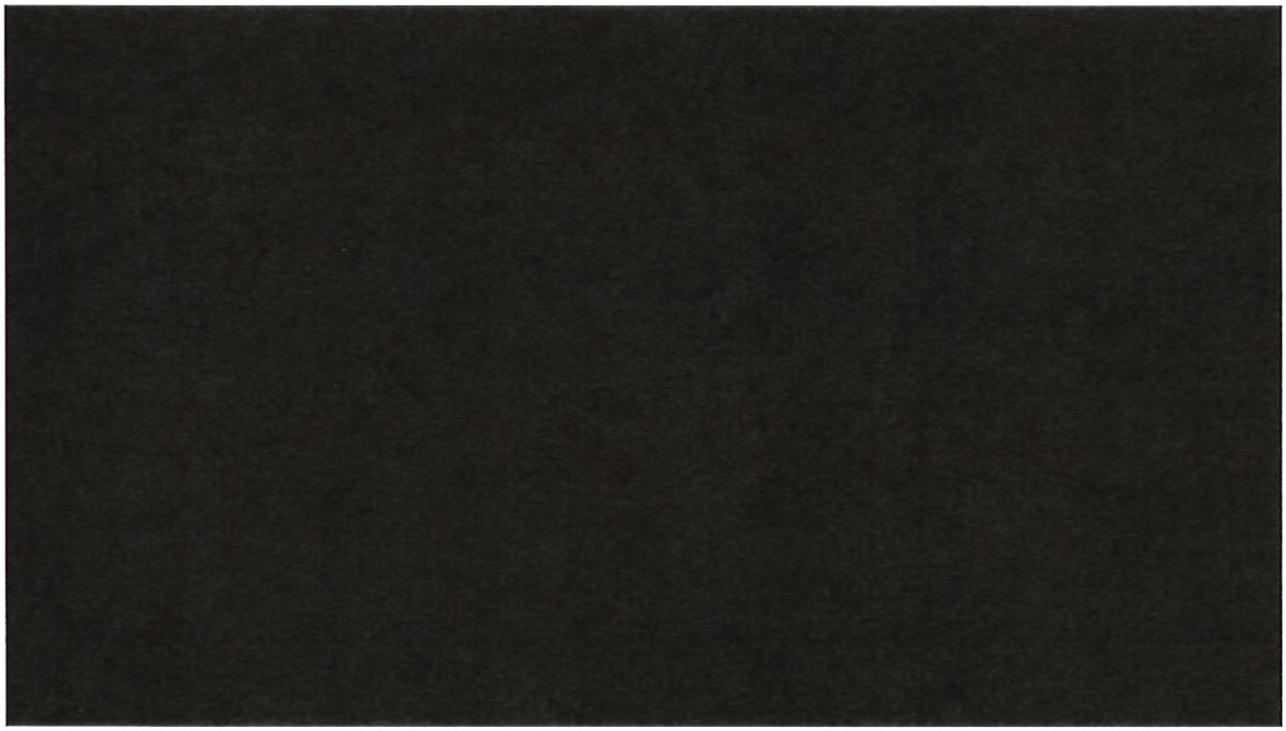

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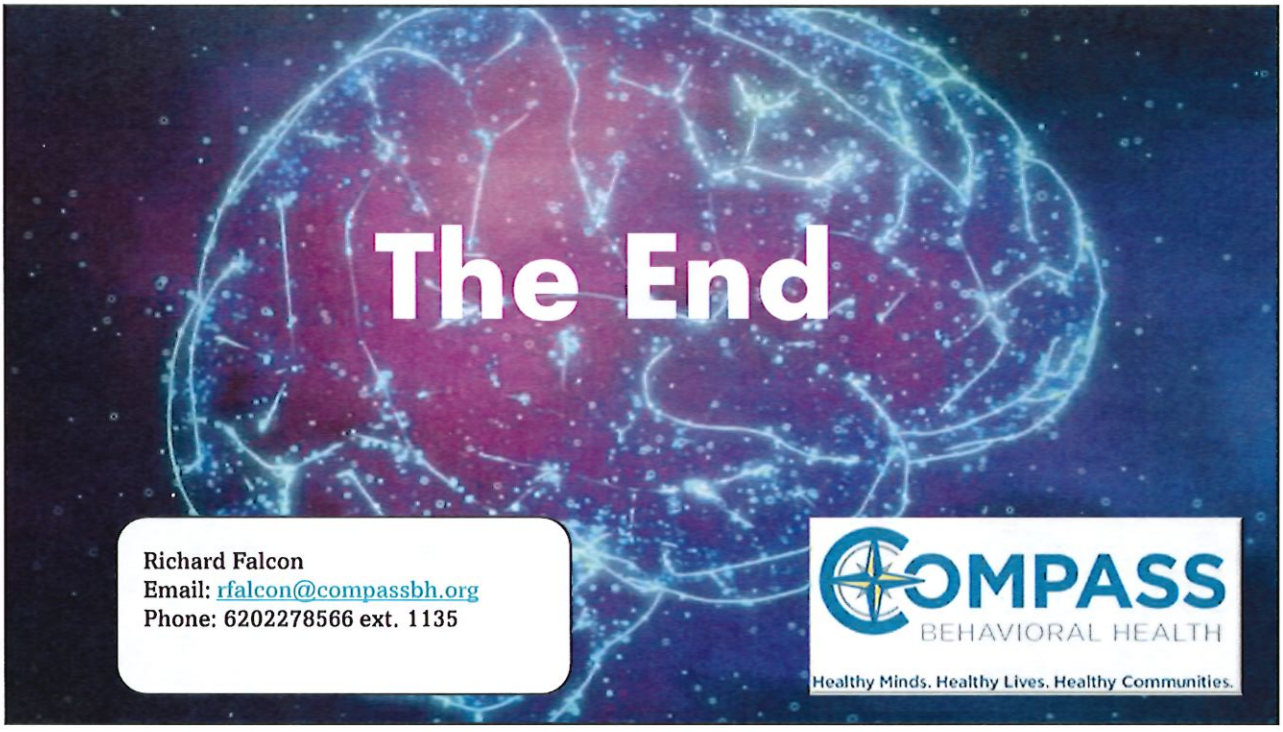
The End
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COMPASS
BEHAVIORAL HEALTH
Healthy Minds. Healthy Lives. Healthy Communities.

84