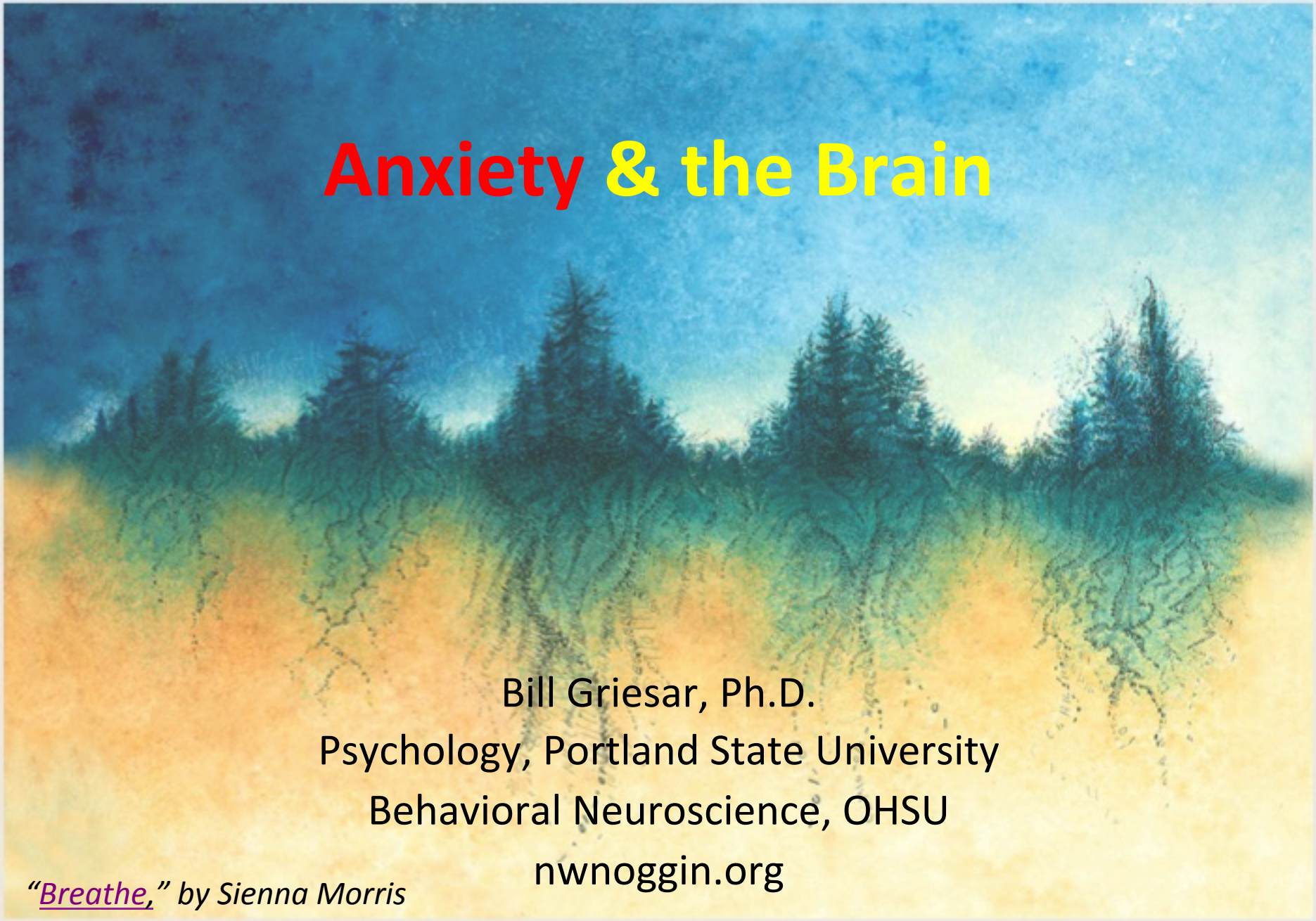

Anxiety & the Brain

Bill Griesar, Ph.D.
Psychology, Portland State University
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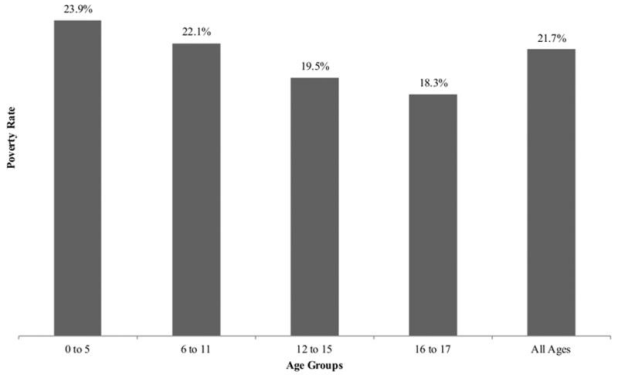
nwnoggin.org

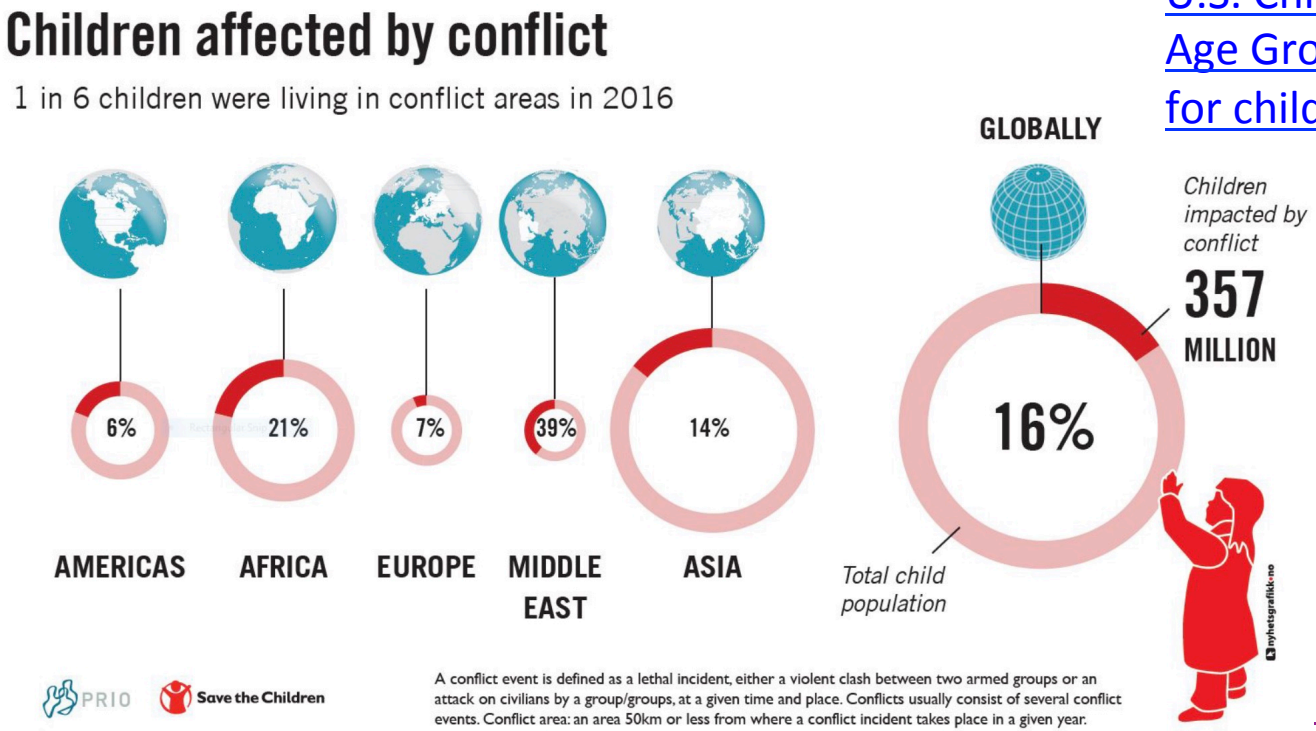
"Breathe," by Sienna Morris

Very common experience

- Lifetime prevalence of 28%
- Median onset at age 11
- Significant impairments w/o treatment
- *Exacerbated by environment (conflicts)*



U.S. Child Poverty Rates by Age Group (2014): 23.9% for children age 0-5



ALSO…

Poverty

Inequality

Bias

IMAGE SOURCE

Common in schools

NW Noggin outreach: Many questions about anxiety and the brain

"Anxiety disorders are the most frequent conditions in children, followed by behavior disorders, mood disorders, and substance use disorders…"

Epidemiology of mental disorders in children &adolescents

What is anxiety?

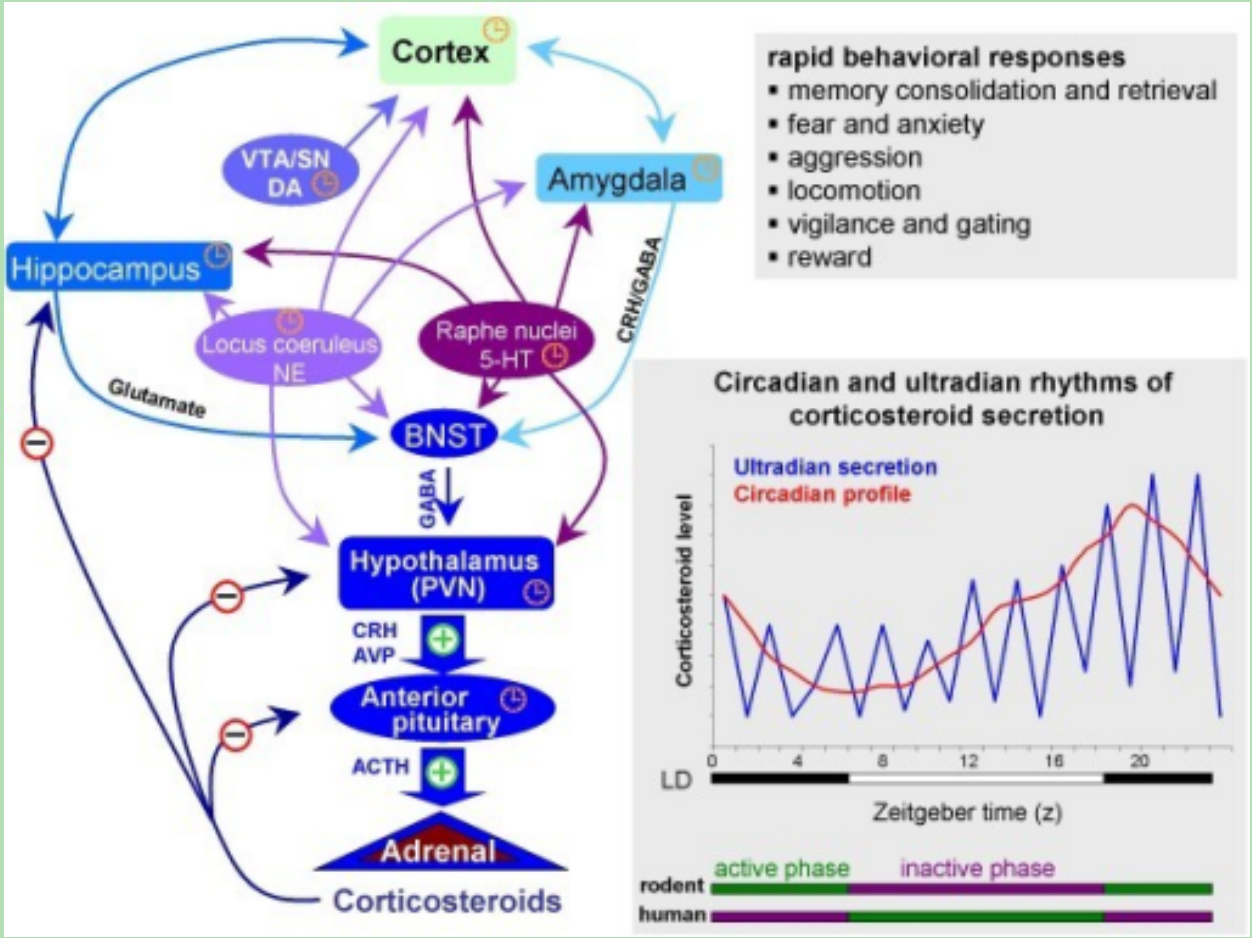
- **DSM V**: *an excessive fear response and/or worry that interferes with functioning or causes significant distress.*
- Includes **panic disorder** (PD), **specific phobia** (SP), **social anxiety disorder** (SAD), **PTSD**, **generalized anxiety disorder** (GAD) - *is this a continuum..?*
- **Fear**: phasic, abrupt fight-or-flight in response to an immediate and identifiable threat, *versus…*
- **Anxiety**: a more prolonged state of tension, worry, apprehension about uncertain, potentially negative, future events…

Benefits of Fear and Anxiety

"The Scream,"
by Edvard Munch

- **Fear**: helps deal with immediate threats
- **Anxiety**: increases vigilance (sustained attention); improves our ability to identify uncertain or potential threats
- **Disorders**: when anxiety or fear response is excessive or in the absence of a true threat, either immediate or future…

Brain & Anxiety



SOURCE: [Corticosteroids: way upstream]

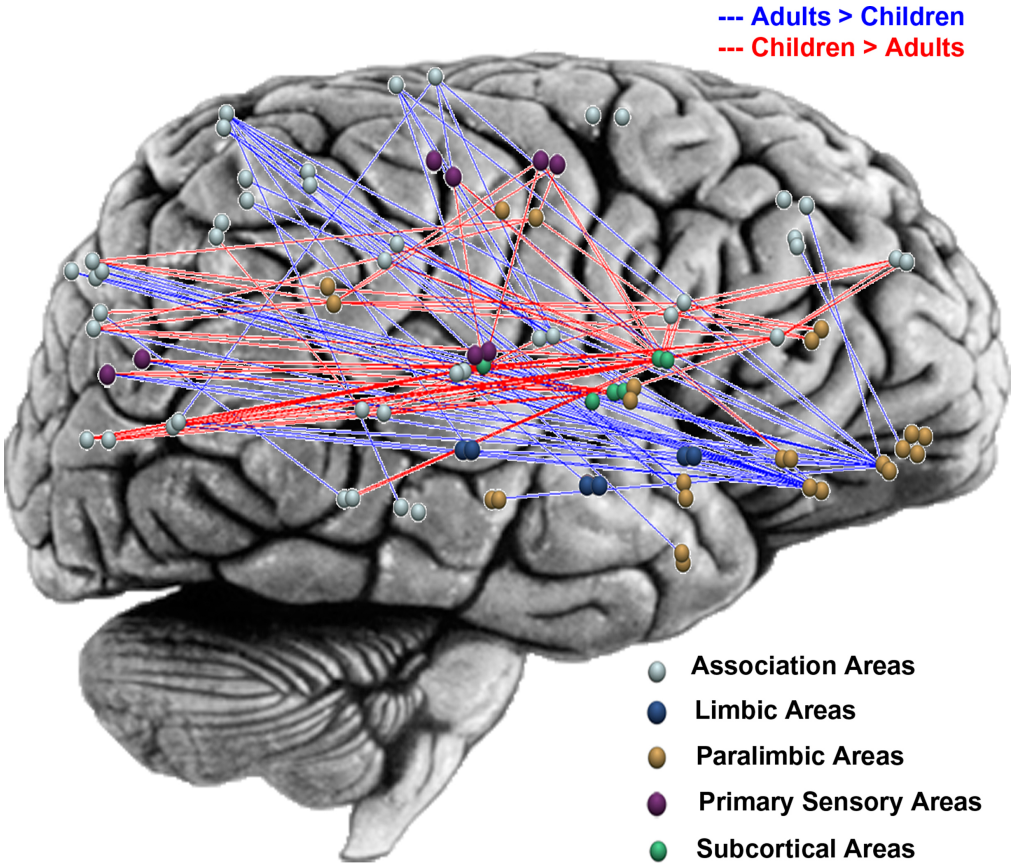
<u>Subcortical</u>
Hypothalamus
Amygdala
VTA
BNST
LC
Raphe

<u>Cortical</u>
Frontal lobe
Insular lobe
Parietal lobe
MTL/Hipp.

Emotional Reactivity vs. Regulation

- **Reactivity**: automatic; autonomic
- **Regulation**: monitoring, evaluating, modifying (e.g., distraction, suppression, re-appraisal) emotional reactions; intrinsic/extrinsic
- Emotional reactivity is more instinctive; dependent on subcortical contributions
- ***Improving emotional regulation takes experience, and development,*** particularly in cortical networks (e.g., frontal/insular lobes)

Network development



"Adults have weaker short-range functional connectivity and stronger long-range functional connectivity than do children. Taken together, studies by Fair et al. (2007a , 2009) , Kelly et al. (2009) , & Supekar et al. (2009) suggest ***a developmental process of greater functional segregation in children and greater functional integration in adults at the whole-brain level, as well as in specific networks such as the attentional control network and the default mode network****…"* FROM: Typical and atypical development of functional human brain networks

Shinrin-Yoku
"Forest Bathing"

- Walk in nature
- Get a houseplant
- Look at landscape art

- Improved immune response
- Better cardiovascular function
- Fewer allergies
- Increased mental relaxation
- Reduced depression & anxiety

Lily E. White (American, 1865-1944), Evening on the Columbia

Not just scenery: Viewing nature pictures improves executive attention in older adults

Room for mistakes

- We differ in emotional reactivity
- We differ in environmental experience (bias, conflict, access to nature, resources)
- We differ in age, and our ability to regulate
- Be kind; increasing emotional reactivity only makes regulation harder to achieve
- ***Development is an ongoing process***

Section of "Mirror Mirror," by Sienna Morris