Keep Calm and Carry On
Managing Anxiety in the School

Ohio School Psychologists Association
Columbus, Ohio

November 6, 2015

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Northwestern Medicine®

Agenda

- The nature of the problem
- CBT model of anxiety
- Accepted approaches to treating anxiety
- Limitations of extant approaches
- New approaches for optimizing CBT for anxiety
- Evidence for the effectiveness of CBT with youth

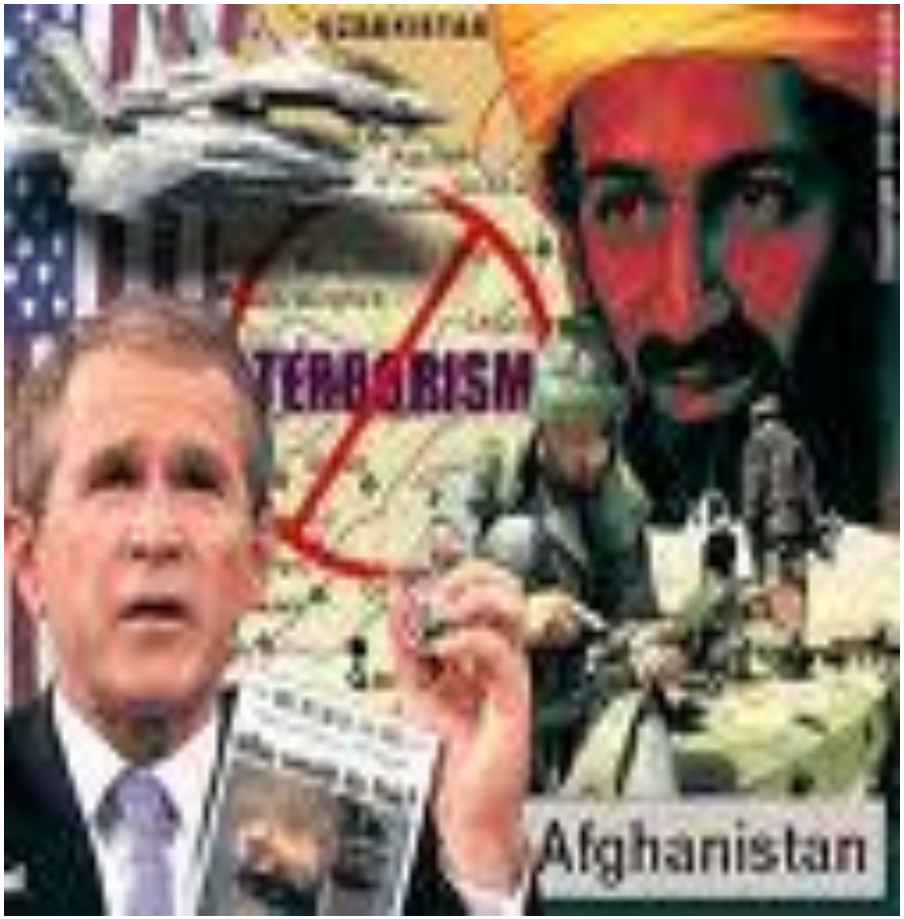
The Nature of the Problem

We’re Living in a Worried World

Every life has it’s share of anxiety, worry, fear and dread…

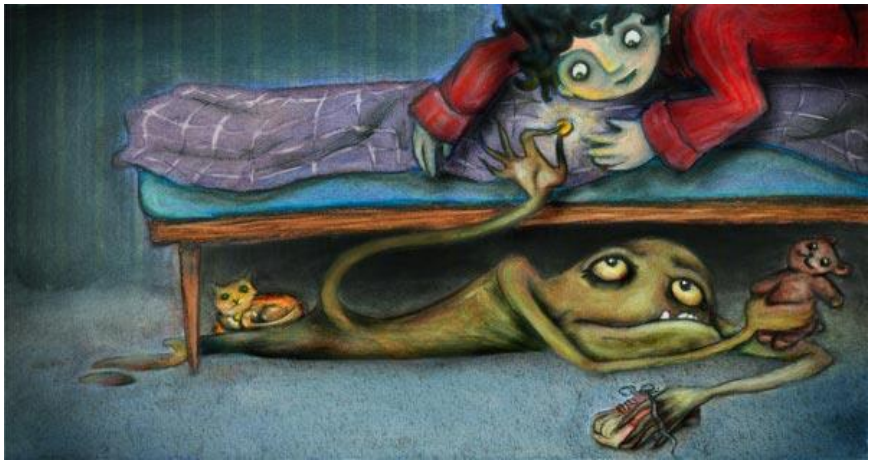
Unemployment

Terrorism



Global Warming

Normal Fears of Childhood



Normal Fears of Teens

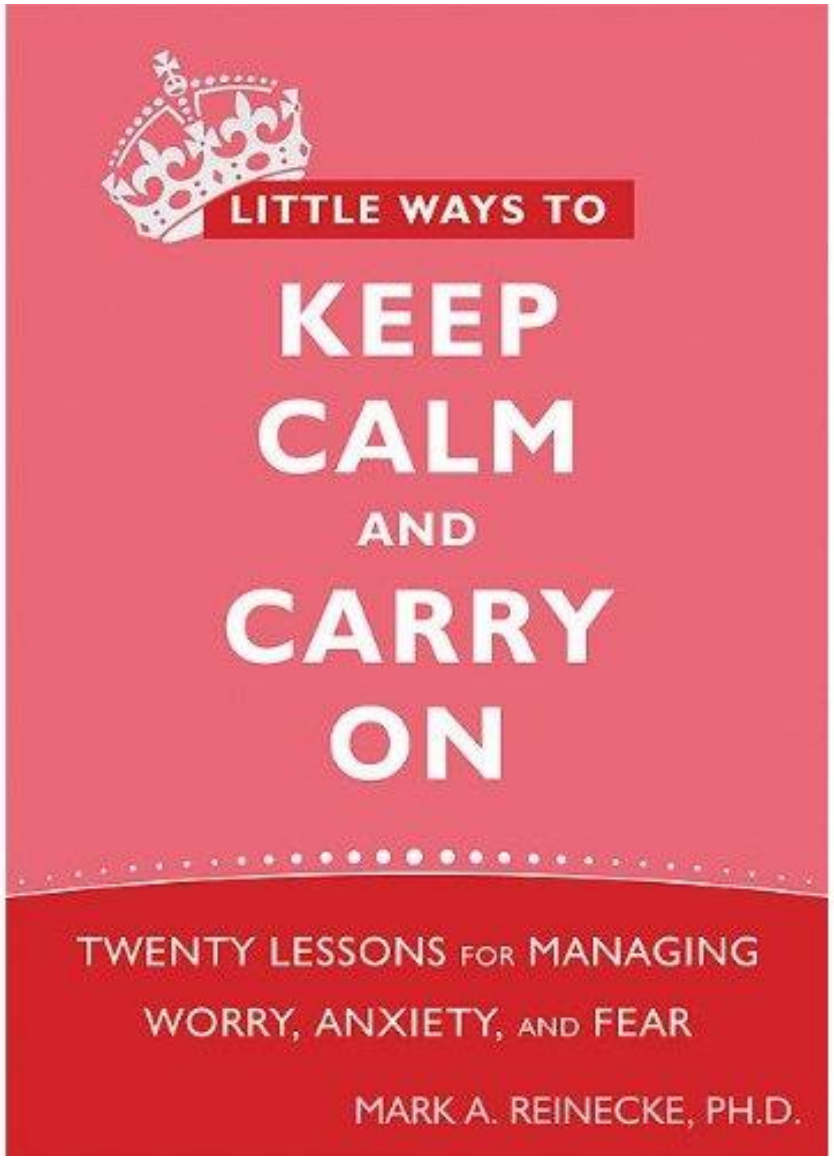
"We want you to have fun, as long as it's fun that enhances a college-admission application."

Worries In Everyday Life

Scheduling activities for 3 kids
Bullying at school
How will my son do on the ACT?
Credit card debt
Sick pet
My hot water heater died
Caring for grandparents
Chronic illness
My son shags cigarettes…is he drinking?
Empty nest…kids leaving
Boomerang…kids returning

The Professors Wife

Every life has it’s share of anxiety, worry, fear and dread…even mine.


LITTLE WAYS TO
KEEP
CALM
AND
CARRY
ON
TWENTY LESSONS FOR MANAGING
WORRY, ANXIETY, AND FEAR
MARK A. REINECKE, PH.D.

Twenty Lessons

Lesson #1	Anxiety…it works
Lesson #2	Anxiety—The Big A
Lesson #3	We overestimate risk when we're afraid
Lesson #4	The future is uncertain
Lesson #5	Influence and control
Lesson #6	You have the power to control the level of anxiety you feel
Lesson #7	Perfect solutions don't exist
Lesson #8	Sometimes bad things are controllable; sometimes not.
Lesson #9	Intrusive thoughts are normal. It's the meaning that counts.
Lesson #10	Dwelling on problems impairs one's ability to cope.
Lesson #11	Worrying is highly over rated.
Lesson #12	Do not magnify the importance of your physical sensations
Lesson #13	It's time to relax
Lesson #14	Evaluate your thoughts themselves
Lesson #15	Changing your thoughts
Lesson #16	Avoiding problems is among the worst things one can do.
Lesson #17	Social Anxiety – Worrying a bit too much what others think
Lesson #18	What's really on your mind?
Lesson #19	Flow with the current of life
Lesson #20	Live wisely

Epidemiology

5-18% of all children and adolescents

80% of adults with anxiety disorders report anxiety symptoms prior to 18 years of age

High levels of comorbidity

Increased risk of anxiety, substance abuse, and depression in adulthood

Impaired academic, social, family functioning

Epidemiology

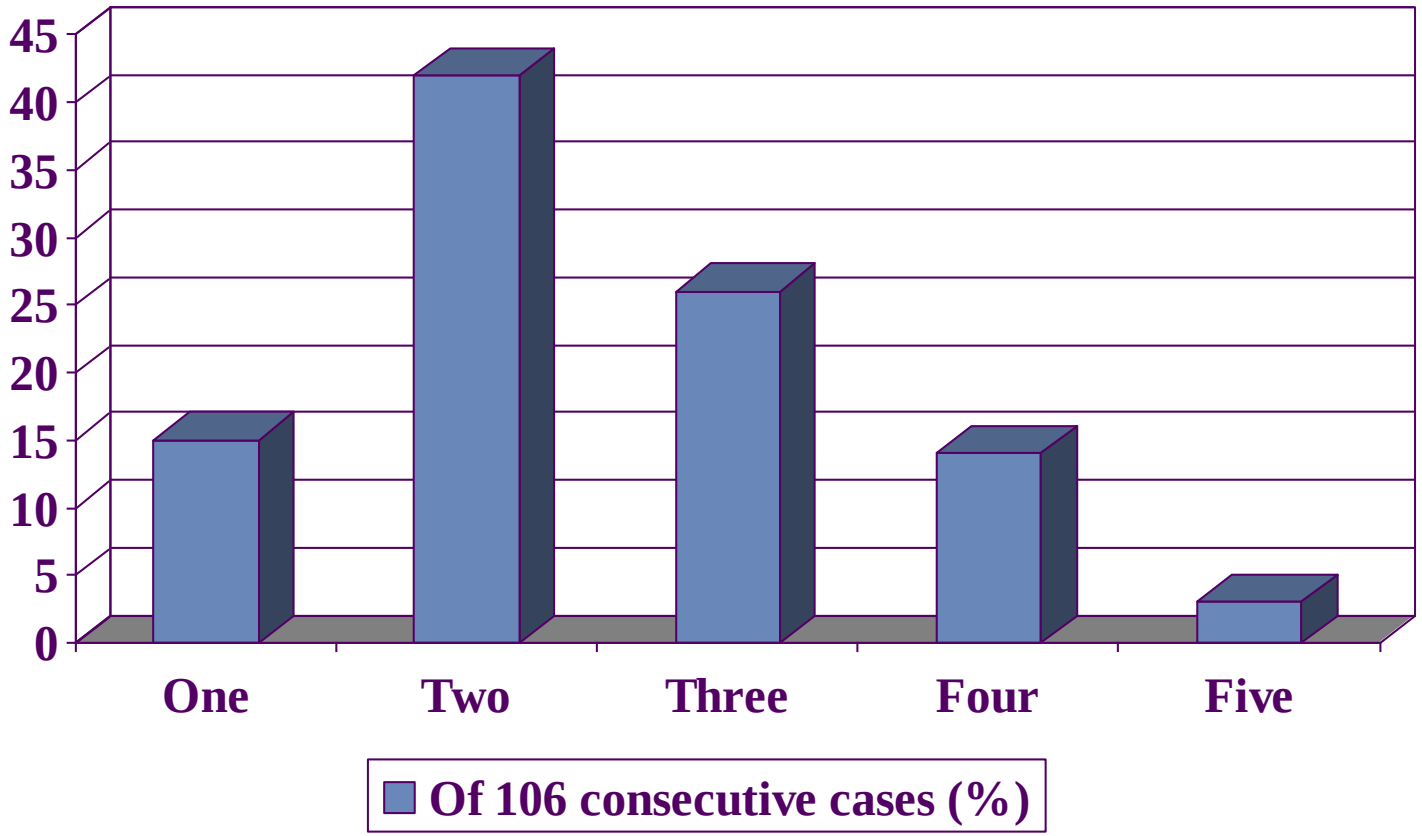
GAD	2-5%
Social Anxiety	3-18%
Selective Mutism	>1%
Specific Phobias	3-20%
Separation Anxiety	3-5%
Panic	1%
PTSD	6%
OCD	1-4%

DSM-5 Anxiety Disorders

Separation Anxiety Disorder
Selective Mutism
Specific Phobia
Social Anxiety (Social Phobia)
Panic Disorder
Agoraphobia
Generalized Anxiety Disorder
Substance/Medication Induced Anxiety
Anxiety due to medical condition
Other specified anxiety
Unspecified anxiety

➢ OCD & Trauma-related now separate categories

Comorbidity: Number of diagnoses in an anxiety disordered sample



Making the Diagnosis

K-SADS-PL

Anxiety Disorders Interview Schedule for DSM-IV (ADIS-C/P)

Assessing Fears and Anxieties
Observational Methods

Behavioral Avoidance Tests (BATs)

Parent / Teacher / Clinician Ratings

Assessing Fears and Anxieties

Think-aloud procedures

Thought-listing procedures

Cartoons with “thought bubbles”

Fear Thermometer

Assessing Fears and Anxieties -Self Report Methods-

- Revised Children's Manifest Anxiety Scale (RCMAS)
- Fear Survey Schedule for Children (FSSC)
- Scale for Child Anxiety Related Emotional Disorders (SCARED)
- Social Phobia and Anxiety Inventory for Children (SPAI-C)
- Negative Affectivity Self-Statement Questionnaire (NASSQ)
- Spence Children's Anxiety Scale (SCAS)

Assessment Instruments: Our Favorites

Multidimensional Anxiety Scale for Children (MASC)

Pediatric Anxiety Rating Scale (PARS)

Lesson 1.
Anxiety…It Works

What exactly is anxiety?

- Based in Limbic system
- A normal, highly adaptive emotional state
- Facilitates response to a *perceived* threat

The Adaptive Function of Anxiety

- Anxiety and fear have adaptive value
- Cognitive, perceptual and memory functions have evolved to direct adaptive action
- Facilitate avoidance of perceived threat

Meet C. Elegans

Small *nematode worm* (roundworm)

Natural habitat: soil

Length: ~1 mm

Food: E.Coli

Life cycle: ~3 days

Cellular structure: ~1000 eukaryotic cells; ~300 neurons

First multi-cellular organism to have its genome sequenced

C. Elegans

Sydney Brenner (1927 -)

South African biologist

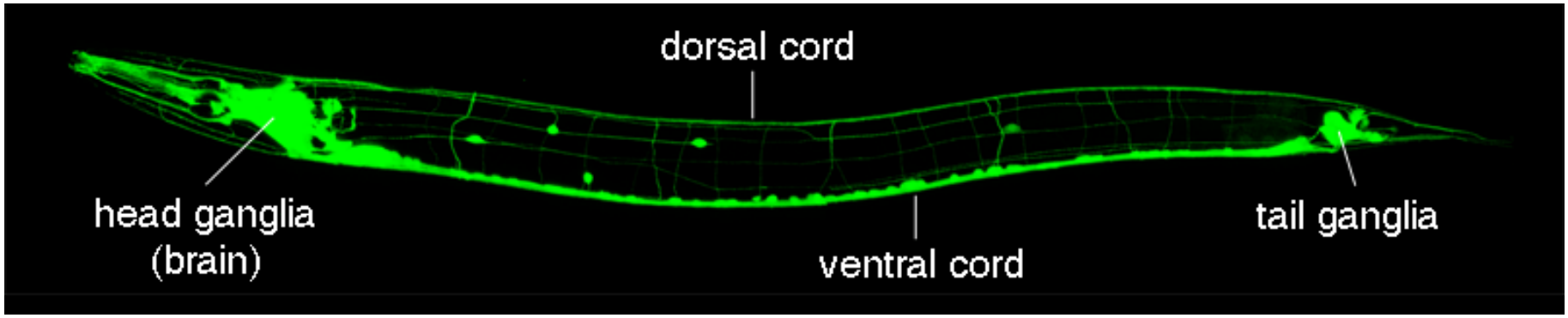
D.Phil from Oxford

Extensive work in molecular biology

Nobel Prize in 2002

Established C. Elegans as a model organism to study genetics and cell development.

In his honor, another worm was named *C. Brenneri*


dorsal cord
head ganglia
(brain)
ventral cord
tail ganglia

Heritability of Psychiatric Disorders

Heritability	Psychiatric Disorder	Other conditions
Zero		Language, Religion
20-40%	Anxiety, Depression Bulimia	Myocardial Infarction Breast Cancer, Hip Fracture, Personality
40-60%	Alcohol, Drug Dependence	Blood Pressure, Adult Onset Diabetes, Plasma Cholesterol, Asthma
60-80%	Schizophrenia, Bipolar Disorder	Weight, Bone Density
80-100%	Autism	Height, Brain Volume

RDoC (Acute Threat-Fear)

Domain: Negative Valence Systems

Units of Analysis

Genes	**Molecules**	**Cells**	**Circuits**	**Physiology**	**Behavior**	**Self-Reports**	**Paradigms**
BDNF, 5HT/5HTRs, CRF, FKB5, GABAARs, Glutamate system, NMDARs, Opioid system, , COMT, Cannabinoid system, Dopamine, DAT, Cam kinase, MAP kinase, PI-3 kinase, PKA, PKC, Acetylcholine, Norepinephrine, Strathmin, Pkap, TRBC5	NMDAR, Glutamate, Dopamine, Serotonin, BDNF, GABA, Cortisol/ Corticosterone , , Endogenous cannabinoids, orexin, NPY, CRF family, FGF2, Oxytocin, Vasopressin, CCK, Neuropeptide S, Neurosteroids	Neurons, Glia, Pyramidal cells, GABAergic cells	Central Nucleus, BasAmyg, LatAmyg, vPAG, dPAG, hippocampus (ant, post), latPFC/insula, vmPFC (il), dmPFC (pl), OFC, Hypothalamus, dorsal ACC, rostral/vent ACC, ICMs, Medial Amyg, PAG, RPVM, Pons, LC autonomic nervous system, insular cortex	Fear Potentiated Startle, Context Startle, Skin Conductance, Heart Rate, EMG, BP, Eye Tracking, Response accuracy, facial EMG, Respiration, pupillometry	Freezing, Response time, Avoidance, Response inhibition, Open field, Social approach, Analgesia, approach (early development), Risk assessment, Facial expressions	Fear survey schedule, BAI, STAI, SUDS, Fear Questionnaire, Trait Fear Inventory, Eilam Ethogram, Structured Diagnostic and Assessment scales, Albany Panic & Phobia	Fear conditioning, viewing aversive pictures or films, emotional imagery

Lesson 2.
Anxiety…The “Big A”

Anxiety has 4 components

1. Affect
2. Physiological,
3. Cognitive
4. Behavioral

Organizes perception, memory, & action

The Essence of Anxiety

1. Fearful Anticipation
2. Rumination, Worry
3. Vigilance
4. Autonomic Arousal
5. Avoidance

The Etiology of Anxiety

1. Genetics
2. Environment
3. Temperament (shy, inhibited, risk averse)
4. Cognition…the way we look at things and the way we cope

Parents, Parenting & Child Anxiety

Family/parenting styles (inconsistent findings)

Mothers (intrusive involvement in situations with negative affect)
(Hudson, Comer & Kendall, 2008)

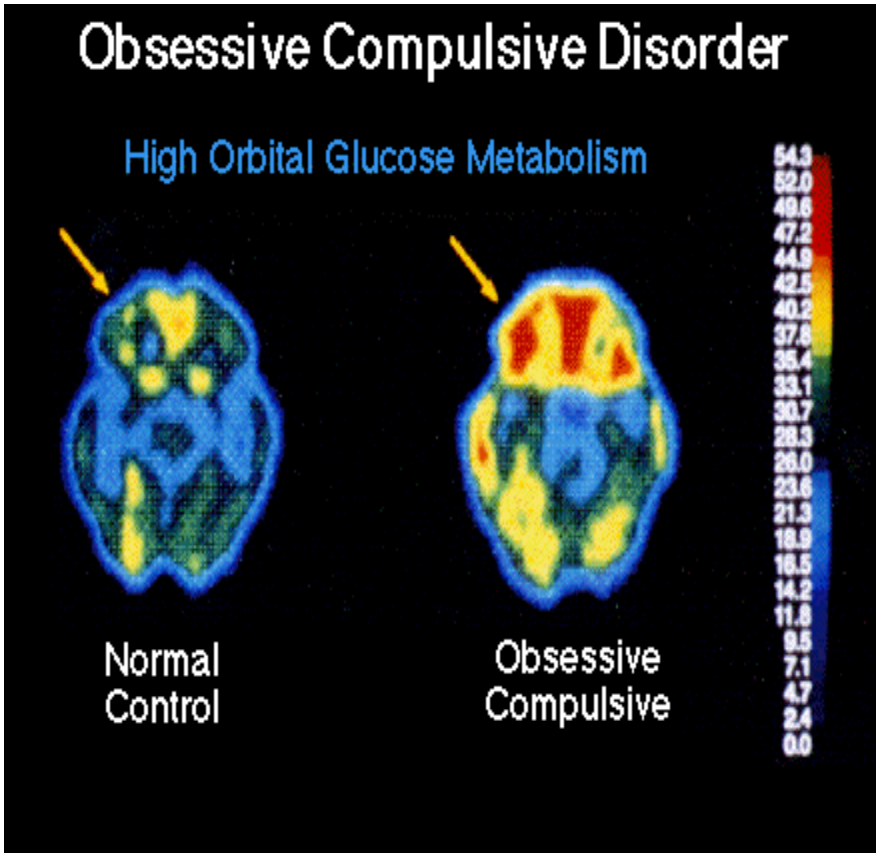
Fathers (limited risk-taking play behavior; unpredictable, punitive, explosive)
(Bogels et al, 2007; Hughes, Furr, Sood, Barmish, & Kendall, 2009)

Brain Metabolism in OCD

Basal Ganglia (Caudate)

R. Anterior Cingulate

R Orbitofrontal Cortex



Learning Theories

- Classical conditioning (E/RP)
- Operant conditioning (contingency management)
- Vicarious or observational learning (modeling)

What works?
Exposure Therapy

Repeated, systematic exposure to feared stimuli

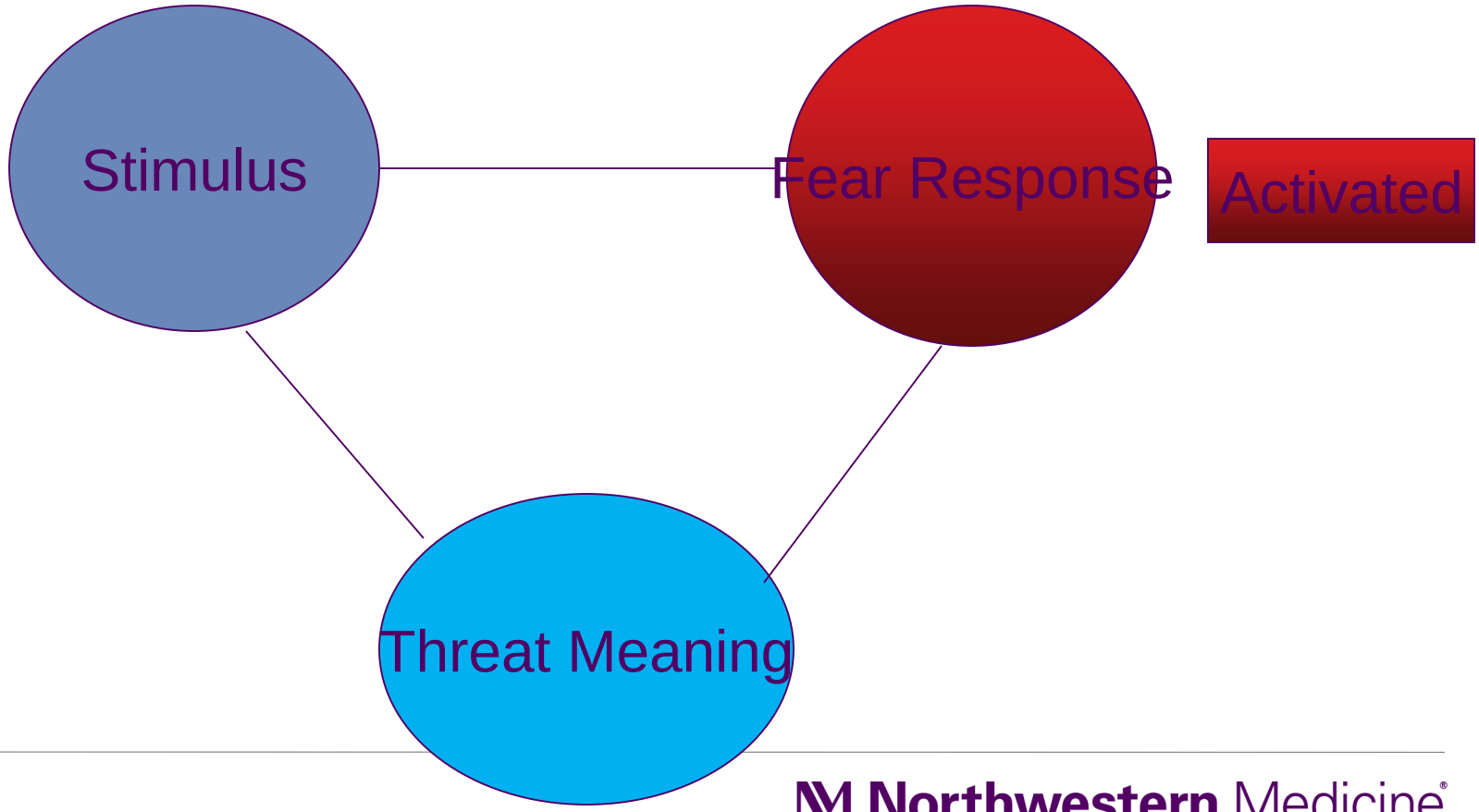
- In vivo – situations, objects, places, people
- Interoceptive – sensations
- Imaginal – images and memories

How is this done?

1. Develop a hierarchy of progressively more anxiety producing items, events, stimuli
2. Teach coping skills (i.e., cognitive, relaxation)
3. Introduce graduated or intense exposure (flooding)
4. Maintain exposure until habituation
5. Clinician- , parent- and self-directed; practice in class and at home

Foa's Emotional Processing Theory

Fear Structure



Exposure Therapy Works

Exposure-based therapies are highly effective for anxiety (e.g., Norton & Price, 2007; Hofmann & Smits, 2008)

Effective for:

- Panic
- PTSD
- OCD
- Specific Phobia
- Generalized Anxiety
- Social Anxiety

Good, But Not Good Enough…

- Treatment refusal rate of 30%
  (Issakidis & Andrews, 2004)
- Treatment attrition rate of 15-30%
  (Haby et al., 2006)
- Treatment non-response / failure rate of 40-50%
  (L'Oerince et al 2013)
- Relapse / recurrence rate of 19-62%
  (Craske et al., 2006)

What can be done?

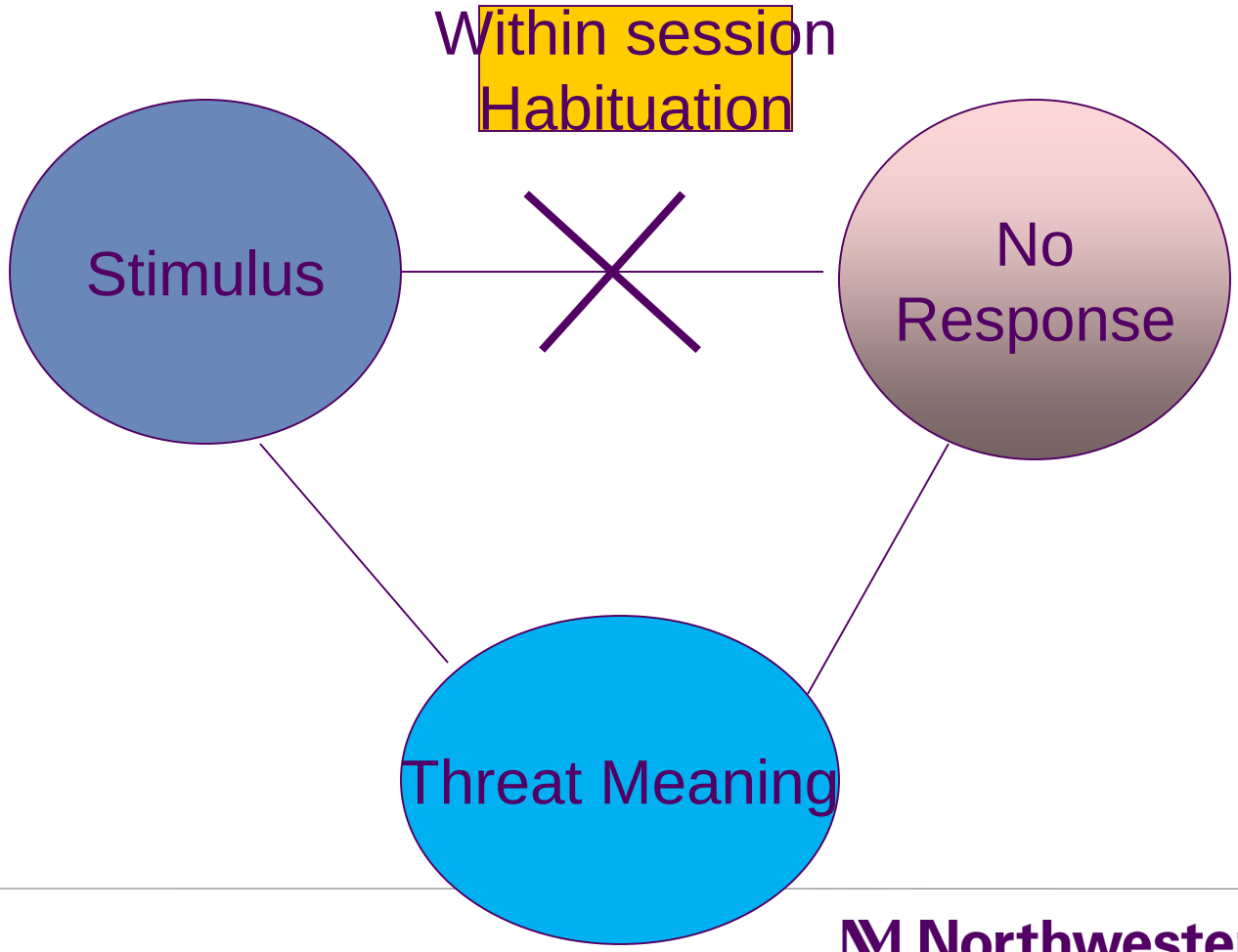
1. Identify underlying mechanisms of action of exposure-based treatments for anxiety and fear

2. “Optimize” exposure-based learning

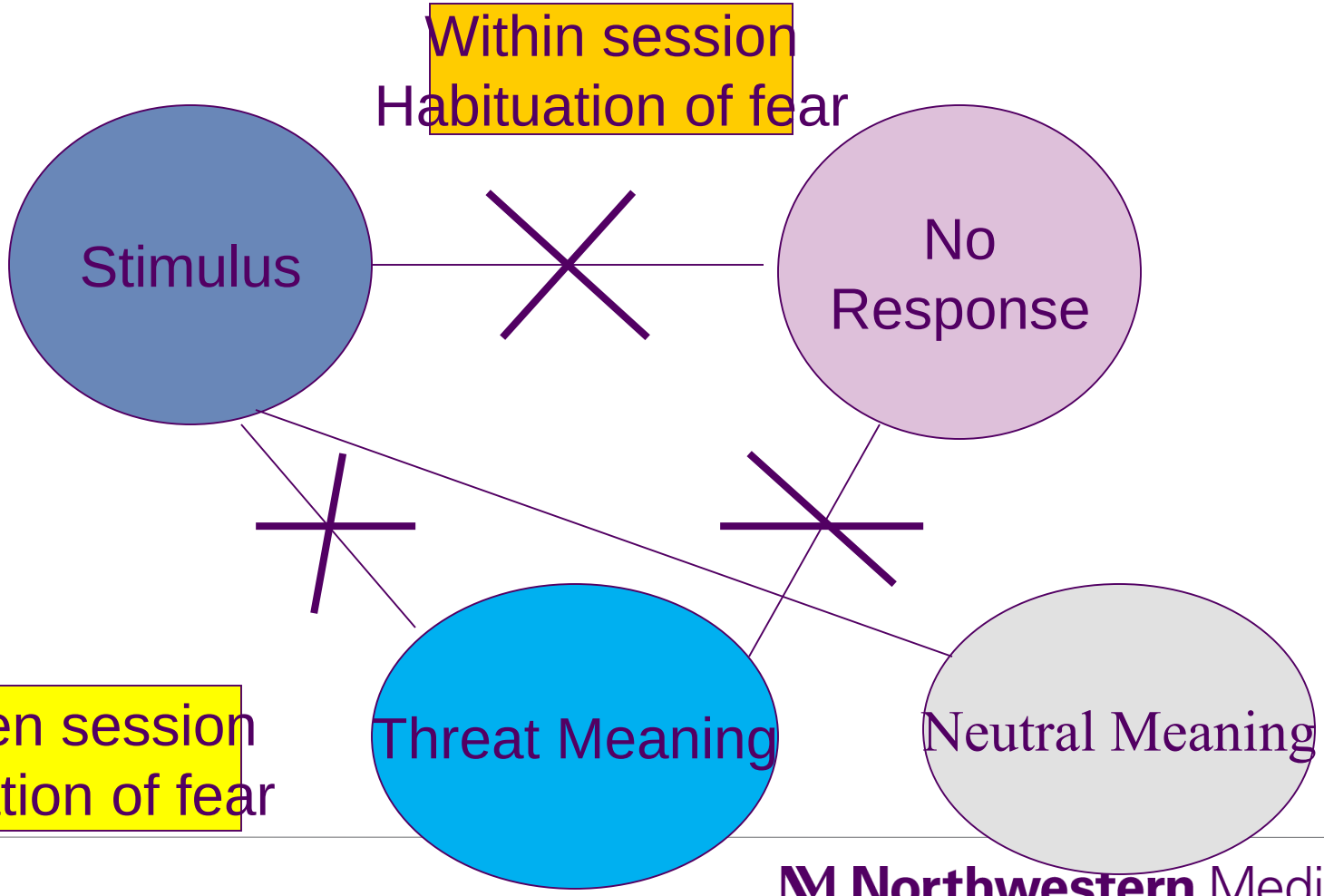
3. Develop additional strategies for reducing relapse and recurrence

Exposure and Response Prevention (E/RP)

(Foa & Kozak, 1986; Foa & McNally, 1996)



E/RP with CBT and In-Vivo Exposure



Central Role of Habituation

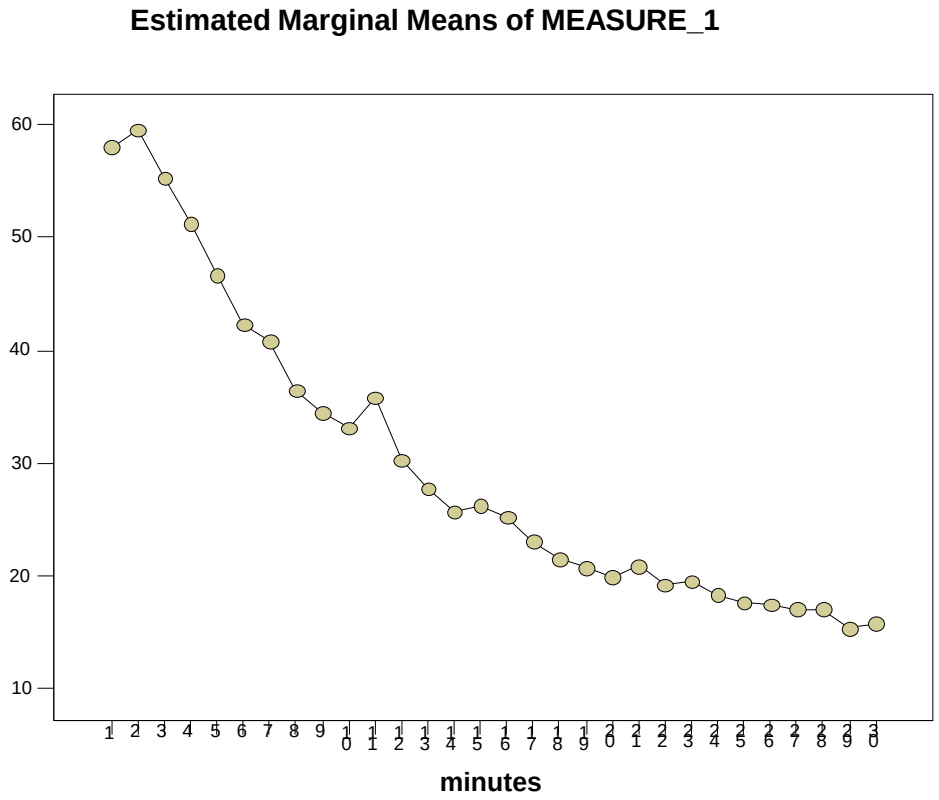
The accepted standard--“Stay in the situation until your fear subsides”

The questions--Is fear reduction actually predictive of clinical improvement? Treatment outcome?

FEAR REDUCTION DURING EXPOSURE

Subjective and physiological symptoms typically **habituate** across 30 minute exposure trials

Exposure to roof top: Acrophobia (N=31)



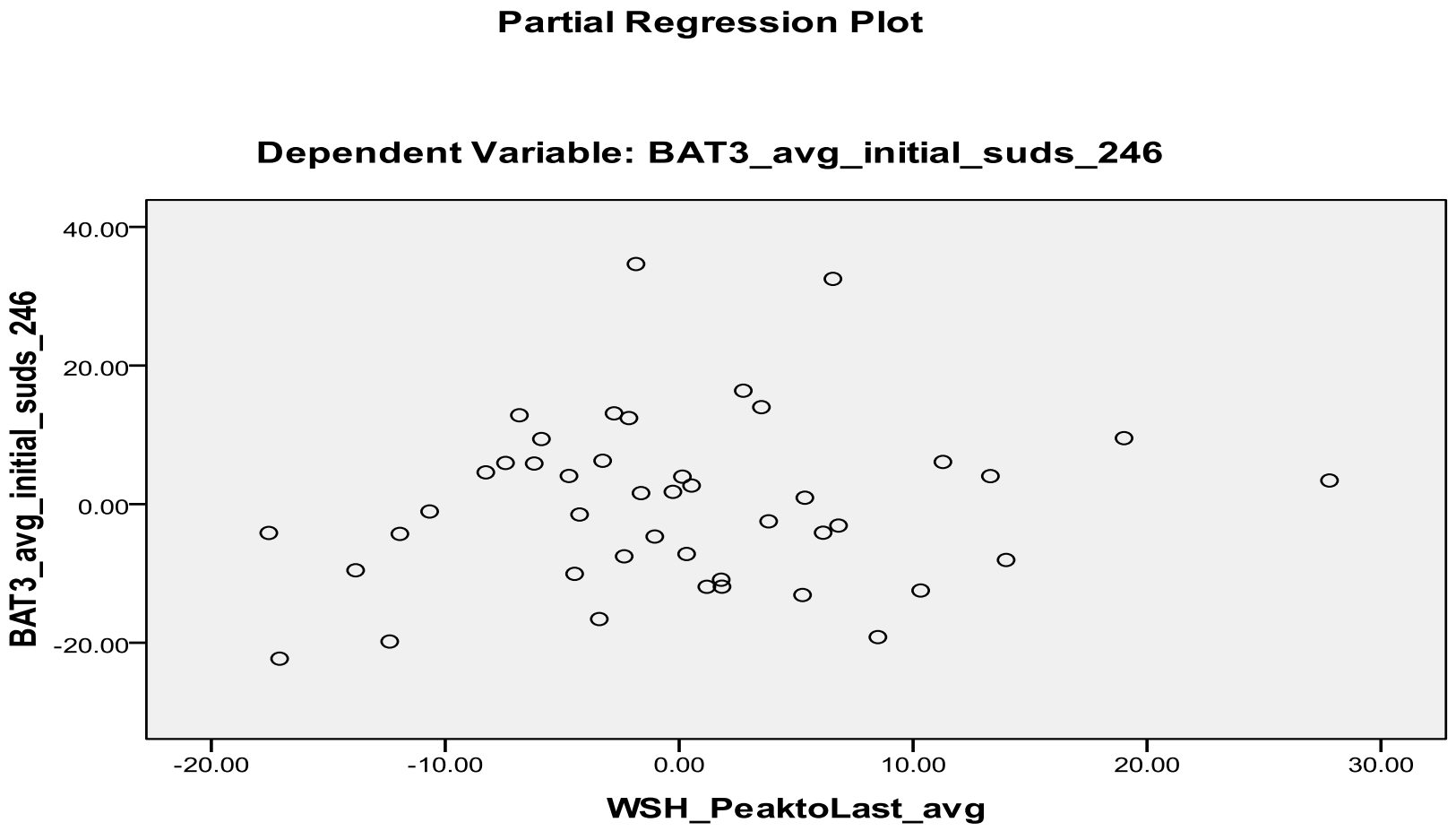
Inconsistent Results

+ Positive findings
  3 studies - methodological limitations
  (e.g., Beckham et al., 1990)

- No relationship or negative findings
  4 studies, 2 - methodological limitations
  (e.g., Kozak et al., 1988; Pitman et al., 1996)

Poor predictor of outcome

(Baker et al., 2010; Kircanski et al., 2012; Culver et al., 2012)



Distinguish “Expression” from “Learning” M. Craske

Learning (non-emotional):

- Performance during instruction not a reliable index of learning (Bjork & Bjork, 2006)

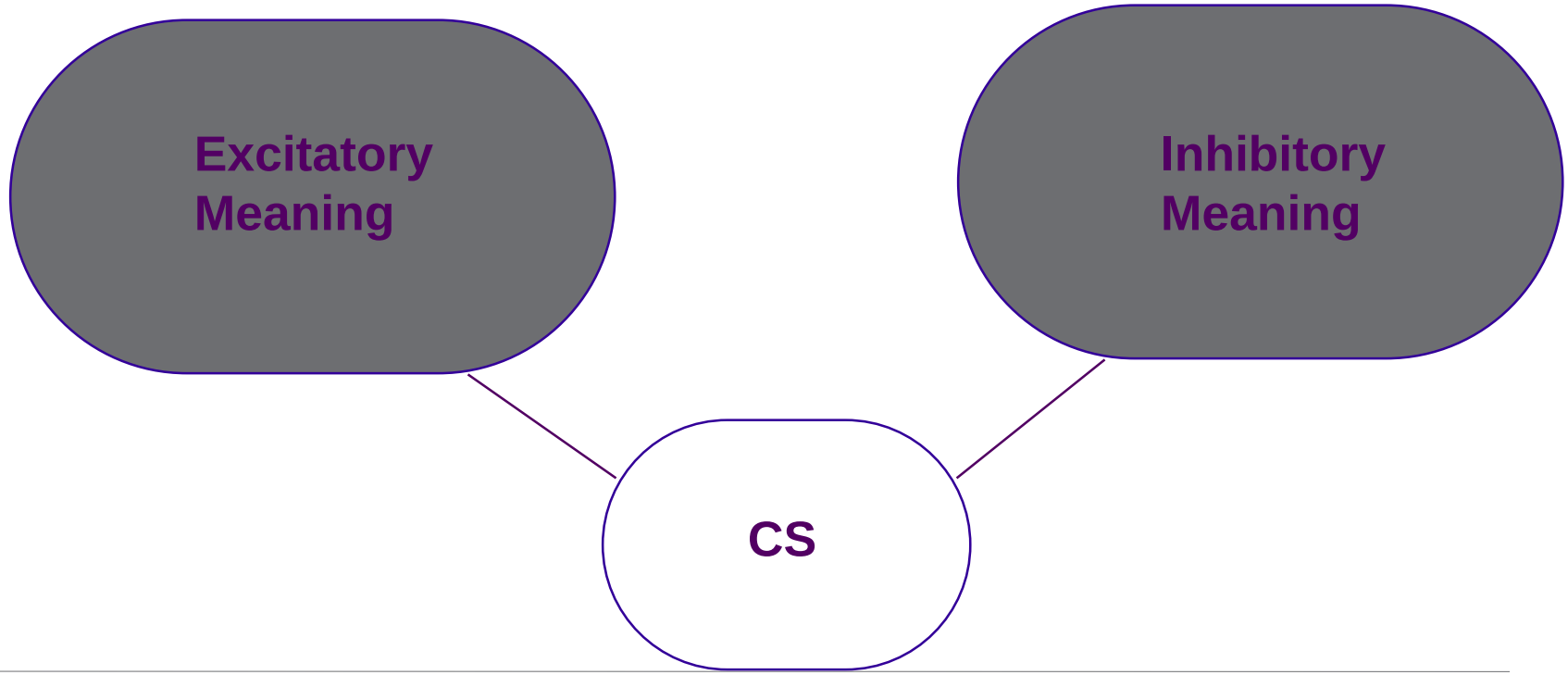
Extinction learning (emotional):

- Fear reduction during or at end of extinction training does not predict responding upon re-test
  - Animal studies (Rescorla, 2006; Plendl, Wolfgang et al., 2010)
  - Human studies (Prenoveau, Craske et al., 2013)

Mechanisms of Extinction Learning

Formation of inhibitory associations (Bouton, 1993)

- Original CS-US association *not* erased but is left intact
- Secondary inhibitory CS-noUS association is formed and competes with original association



Mechanisms of Extinction Learning

Neural mechanisms (Shin & Liberzon, 2010)

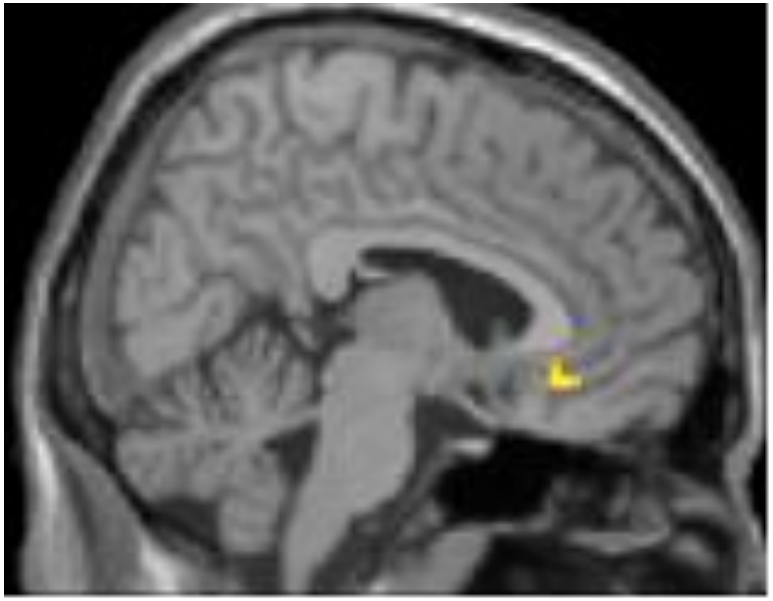
- Fear acquisition involves amygdala activation
- Fear extinction involves vmPFC activation, hypothesized to downregulate amygdala

N=10 healthy controls

vmPFC activation during extinction recall of CS+ vs CS- (t=3.20, p<.05)

vmPFC negatively correlated with amygdala activity (r=-.85, p<.05)

(Burklund, Nusslock & Craske, 2011)



Anxiety Disorders: A deficit in Inhibition M. Craske

Anxiety disorders characterized by:

- Elevated excitatory learning, amygdala activation
  (Lissek et al., 2005; Craske et al., 2008; Milad et al., 2009)

- Deficits in inhibitory learning, deficits in vmPFC
  (Lissek et al., 2005; Craske et al., 2008; Jovanovic et al., 2010; Milad et al., 2009)

- Deficits in safety learning
  (Craske et al., 2009; Craske et al., 2012; Liao & Craske, 2012)

Craske Inhibitory Learning Paradigm

To strengthen inhibitory learning:

1. Violate expectancies
2. Wean safety cues and behaviors
3. Consolidate learning
4. Teach inhibitory regulation; affect labeling
5. Increase variability of stimulus and emotion
6. Consolidation scheduling
7. Change context, offset retrieval cues

What Can Be Done?

Improve Inhibitory Learning, Violate Expectancies

- Mismatch between expectancy and outcome, violation of expectancy by surprise (Rescorla & Wagner, 1974)

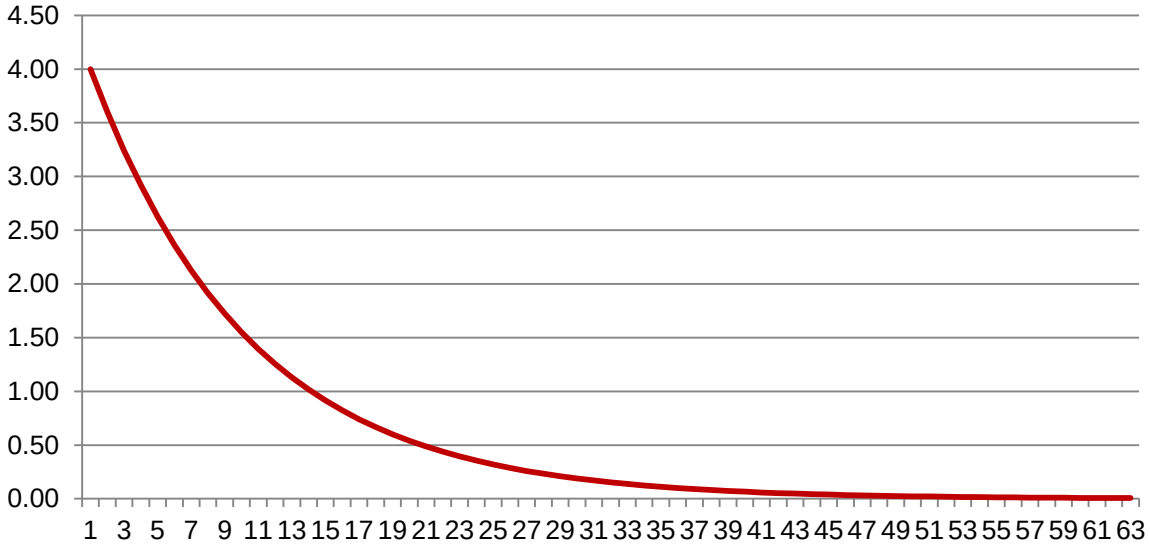
✓ The more the expectancy can be aroused and violated, the greater the learning

✓ “Always be open to the power of the unexpected!”

✓ How can you do this with your students?

Rescorla & Wagner Extinction Curve

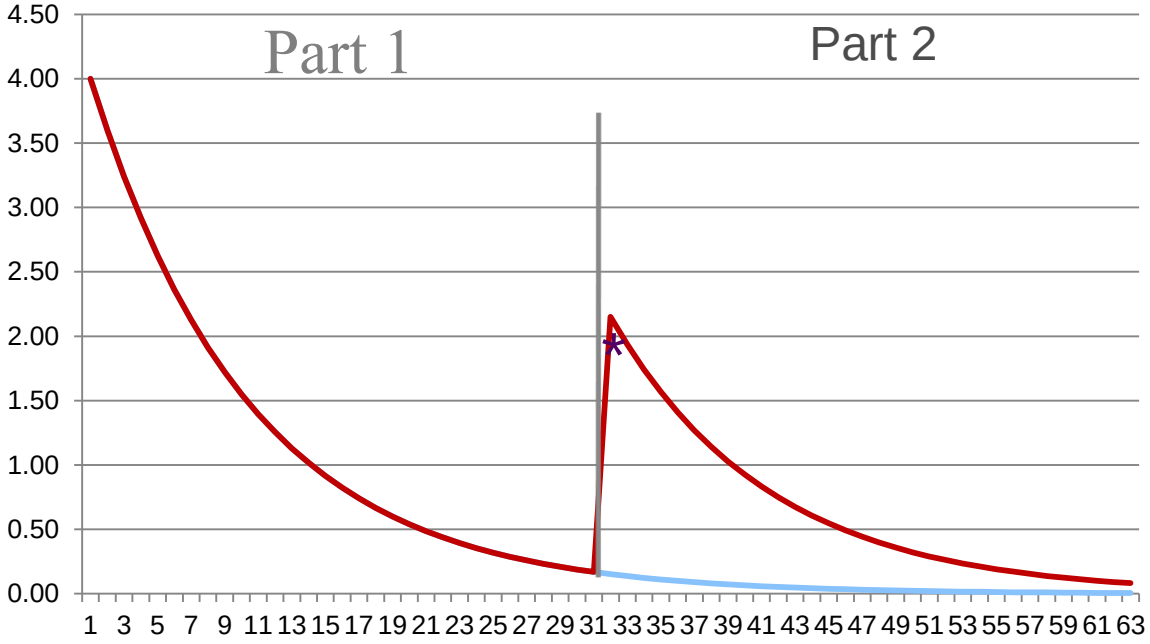
Typical Extinction Curve



Eventually the learning curve asymptotes and prevents any further learning from occurring

- There is no more surprise!

Rescorla & Wagner Extinction - Repeated



- Once the extinction curve begins to asymptote, add a second CS to inflate US expectancy and enhance learning on subsequent trials

To Improve Inhibitory Learning: Violate Expectancies

Deepened extinction (Rescorla, 2006)

- Two CSs predict US
- During extinction, present one CS, and then add second CS

✓ Enhanced violation of expectancy if not just one but two CS that used to predict the US are not followed by the US

Clinical Recommendation

Include additional feared stimuli within a single exposure trial

e.g., add physical sensations to exposure to in vivo situation

e.g., modify the setting--driving in fast lane after driving in slow lane

- How can you use this with your students?

Clinical Suggestion

Include occasional negative outcomes

"It's OK, you'll get through it"

e.g., add social rejections in exposures to social situations (e.g., "Everyone has someone who thinks they are an idiot!")

e.g., add additional physical sensations during exposures to feared situations

- How can you use this with your students?

Enhancing Learning of New Material

Traditional exposure-based treatments employ blocked trials with repeated practice, you simply repeat the exposure

Random and variable practice enhances retrieval of newly learned information (Magill & Hall, 1990)

- How can you use this with your students? How can you "mix it up"?

Clinical Recommendation

Variability in **stimulus:** enhances generalization and retrieval of new learning

Variability in **emotion**: repeated opportunity to violate expectancies

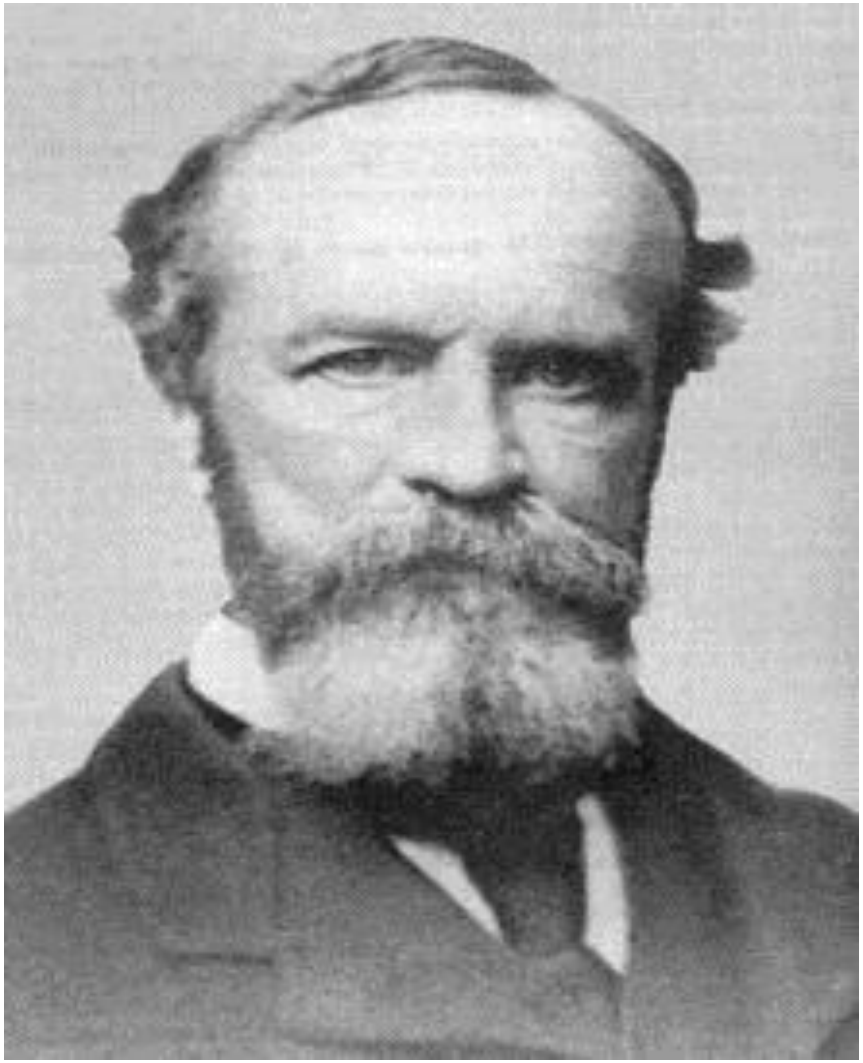
Summary

1. Extinction involves inhibitory learning and neural regulation

2. Anxious individuals show deficits in inhibitory learning and regulation

3. Improve exposure treatments by optimizing inhibitory learning and its retrieval (not just anxiety habituation)

William James



"The *first* fact for us… is that some form of thinking goes on."

Lesson 3.
We Overestimate Risk When We Are Afraid

Anxiety= f (impending threat) (impaired coping)

The specific nature of the fear will differ depending upon the perceived threat.

Epictetus (c55 –c135)

The Enchiridion

"What disturbs men's minds is not events but their judgements on events. Death is nothing dreadful, or else Socrates would have thought it so. No, the only thing dreadful about it is men's judgement that it is dreadful. When we are hindered, or disturbed, or distressed, let us never lay the blame on others, but on ourselves, that is, on our own judgements….Ask not that events should happen as you will, but let your will be that events should happen as they do , and you shall have peace."

Epictetus

Milton

“The mind is its own place, and in itself, can make a Heaven of Hell and a Hell of Heaven.”

William Shakespeare

"There is nothing either good or bad, but thinking makes it so."

Hamlet
Act II, Scene II

The Anxious Individual

Cognitive contents incorporate themes of **danger** and **vulnerability**. They view the world as a dangerous place, and feel incapable of preventing or managing these risks. Threats may be physical, social, or psychological. Anxiety serves an adaptive function in preparing the individual to avoid threat.

$$\text{Anxiety} = \int (\text{perceived threat})\ (\text{impaired coping})$$

Lesson 4.
The Future is Uncertain

1. The hardest lesson of all

2. However much we would like a guarantee, we can't have it

3. To feel secure, we must accept ambiguity

Lesson 5.
Influence and Control

Increased estimate of likelihood

Increased estimate of “awfulness”

Increased perception of responsibility

Lesson 5.
Influence and Control

Lesson 7.
Perfectionism

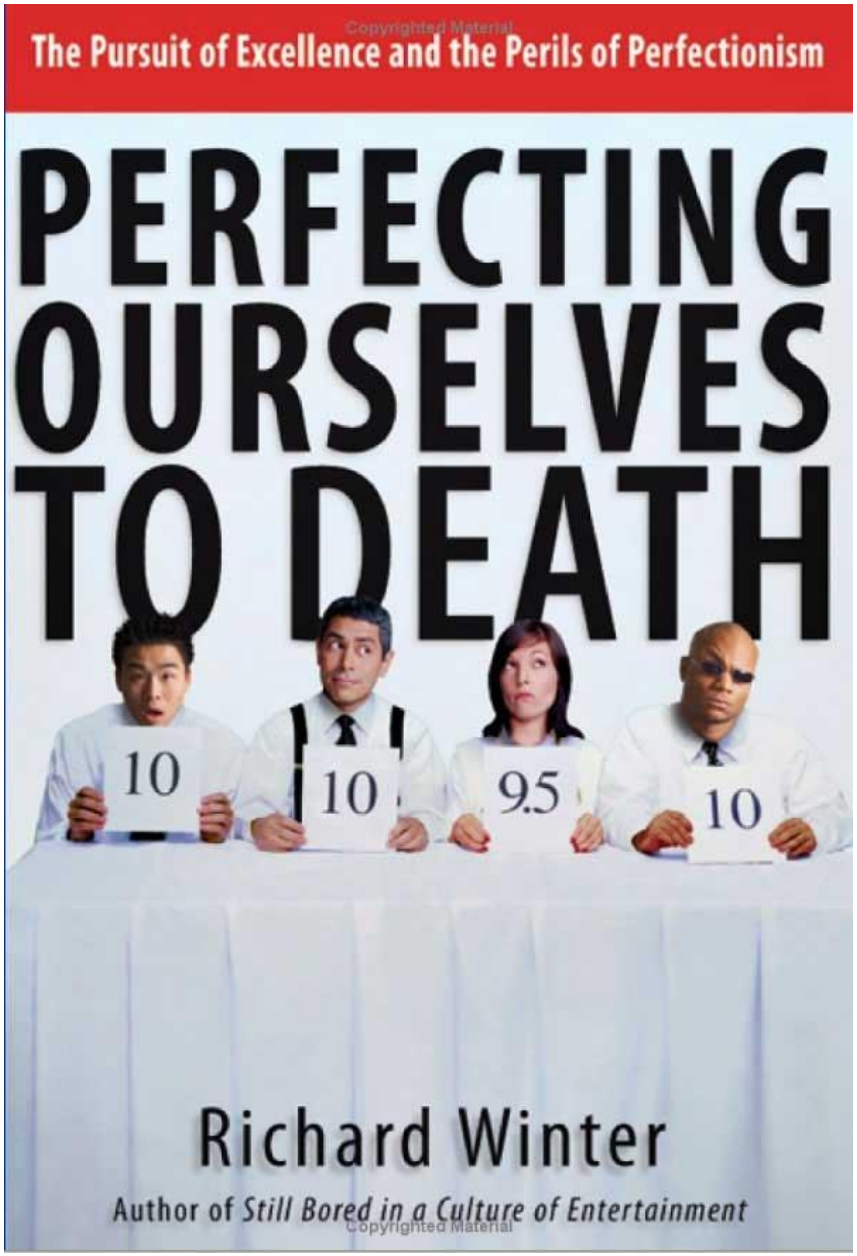
Do you believe…

- For every problem there is a single, best solution?
- There's always room for improvement?
- Perfection can and should be pursued, no matter what the cost?
- One should expect the best, and settle for nothing less?

Maniacal Perfectionism

"I'm a maniacal perfectionist. And if I weren't, I wouldn't have this company. .. It's the best rap! Nobody's going to fault me for that. I have proven that being a perfectionist can be profitable and admirable when creating content across the board: in television, books, newspapers, radio, videos. .. All that content is impeccable."

Martha Stewart (2000)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Richard Winter
Author of Still Bored in a Culture of Entertainment
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Being Imperfect…
is highly desirable

"Trying to be perfect may be sort of inevitable for people like us, who are smart and ambitious and interested in the world and in its good opinion. At one level it's too hard, and at another, it's too cheap and easy. It requires you mainly to read the zeitgeist of wherever and whenever you happen to be…and be the best of whatever the zeitgeist dictates or requires. When you're clever you can read them and do the imitation required. But nothing important, or meaningful, or beautiful, or interesting, or great ever came out of imitations. The thing that is really hard, and really amazing, is giving up on being perfect and beginning the work of becoming yourself.

Anna Quindlen (1999)

Lesson 7.
Perfect Solutions Don’t Exist

- Perfect doesn’t exist, conceptually or in practice
- Perfectionism is highly correlated with both depression and anxiety
- Failure to meet “ideal” standards is associated with stress and guilt
- In a changing world, flexibility and creativity are more valuable than a relentless pursuit of perfection

Lesson 8.
Sometimes You Can Take Control…

"I should have seen this coming"
"If only I had ____, we'd be OK"

Perceptions of responsibility and control are linked to mood

Did I actually *cause* this event?
Did other factors contribute?
How much "influence" do I actually have?

Lesson 9.
Don’t Dwell on That…

Rumination is common

Content of thoughts similar in anxious and non-anxious individuals

Secondary cognitions differ

Intrusive Thoughts

You just can’t stop the flying monkeys!

Hail Dorothy!

Lesson 11.
Worrying is Highly Overrated

1. Many people believe that worrying is a good thing

2. 7 ± 2 Bits of Information

3. Two types—Productive and unproductive

4. Two solutions—Action plan and acceptance

Steven King

Oh no! I've got to stop thinking that!

vs.

Buckets of blood at the prom. Cool! I'll write a screen play!

Lesson 14.
Evaluate Your Thoughts & Make Then Give Good Account of Themselves

1. What's the evidence?
2. Is there another, more adaptive, way of looking at this?
3. So what?
    a) Decatastrophize everything. Is it really that big of a deal?
    b) What can be done?

Downward Arrow

1. I could _____, this would be catastrophic!
2.
3.
4.
5.
6.
7.

Lesson 19.
Flow With the Current of Life

"By letting it go, it all gets done…
But when you try and try, the world is beyond winning."

Lao Tsu

Go With The Flow of the River

Be Like a Stick

Lesson 20.
Live Wisely

- Judicious use of knowledge
- Open minded
- Altruistic, empathic
- Compassion
- Self-reflection
- Insight
- Tolerance
- Awareness of larger issues

The Road to Wisdom

Does CBT Work?

Review of 21 RCT's of CBT for childhood depression and anxiety indicates CBT is a "treatment of choice"

Compton, S. et al. (2004). Cognitive-behavioral therapy for anxiety and depressive disorders in children and adolescents: A evidence-based medicine review. Journal of the American Academy of Child and Adolescent Psychiatry, 43: 930-959.

Does CBT Work?

Review of 10 RCT's of CBT for child and adolescent anxiety indicates CBT is effective compared to no-treatment control.

Cartwright-Hatton, S. et al. (2004). Systematic review of the efficacy of cognitive behaviour therapies for childhood and adolescent anxiety disorders. British Journal of Clinical Psychology, 43: 421-436.

Kendall (1994)

N=47 9-13 years old

CBT vs. Wait List Control

Treatment: 16 sessions of Coping Cat

Respondents: Self-report, parent, teacher

Measures: ADIS, RCMAS, STAIC, FSSC-R

Clinically significant improvement; Diagnosis free at 1 year follow-up: 60% vs. 10%

Kendall, P. (1994). Treating anxiety disorders in children: Results of a randomized clinical trial. Journal of Consulting and Clinical Psychology, 62: 100-110.

Kendall et al. (1997) Follow-Up

N=94 9-13 years old

CBT vs. Wait List Control

Treatment: 16 sessions of Coping Cat

Respondents: Self-report, parent, teacher

Measures: ADIS, RCMAS, STAIC, FSSC-R

Clinically significant improvement; Diagnosis free at 1 year follow-up: 71% vs. 7%

Kendall, P. et al. (1997). Therapy for youths with anxiety disorders: A second randomized clinical trial. Journal of Consulting and Clinical Psychology, 65: 366-380.

Barrett, Dadds & Rapee (1996) Griffith University Study

n=79 7-14 years old

Separation anxiety disorder, overanxious disorder, social phobia

CBT, CBT + family management; wait list

Diagnosis free at post-test: 70% vs. 26% of waitlist

At 12 month follow-up 96% of Comb and 70% of CBT did not meet criteria

- JCCP 1996 64: 333-342

POTS

Pediatric OCD Treatment Study

CBT; Sertraline (Zoloft); Combo; PBO
N=112 7-17 years old
Measure: YBOCS
Multisite, double blind PBO controlled

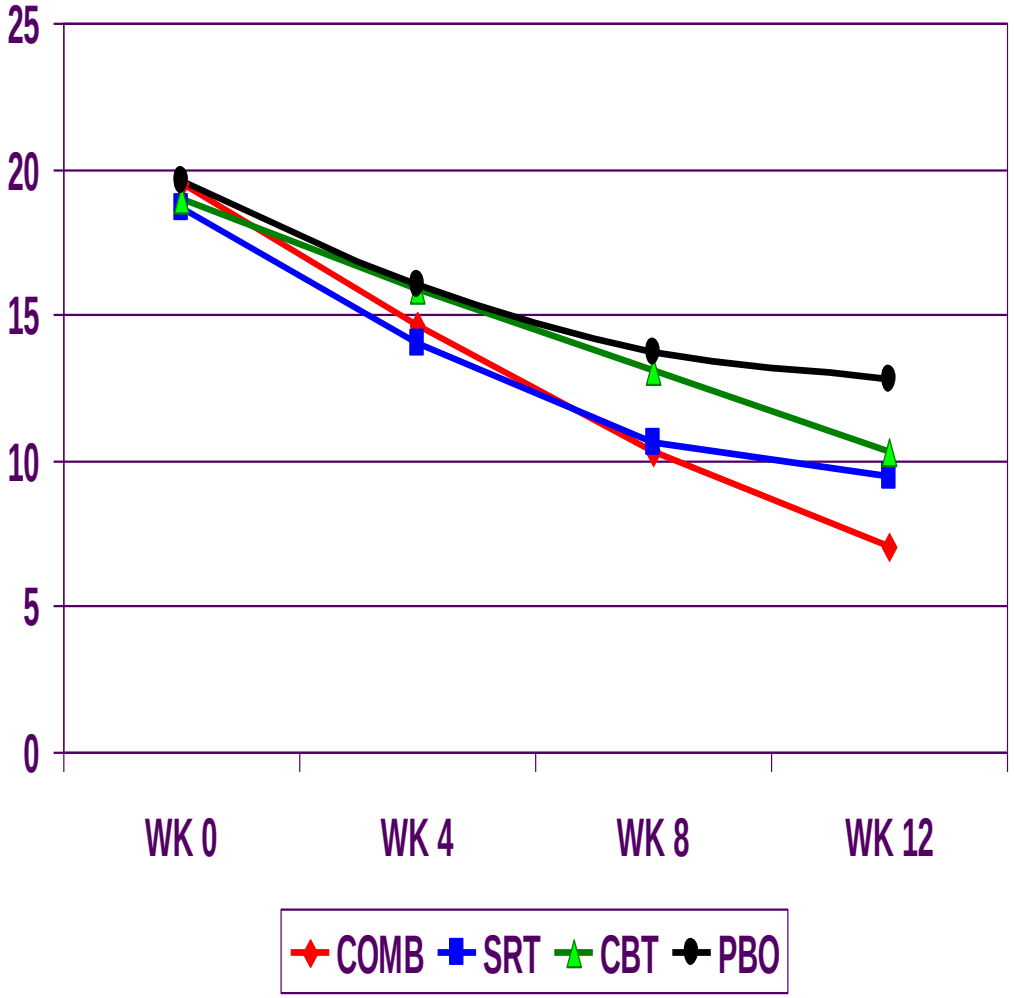
- Results: 12 week Combo >CBT=Ser >PBO
- Remission: Combo: 54%; CBT: 40%; Ser: 21%; PBO: 4%

- POTS Team (2004). Cognitive-behavior therapy, Sertraline, and their combination for children and adolescents with obsessive-compulsive disorder. JAMA , 292: 1969-1976.

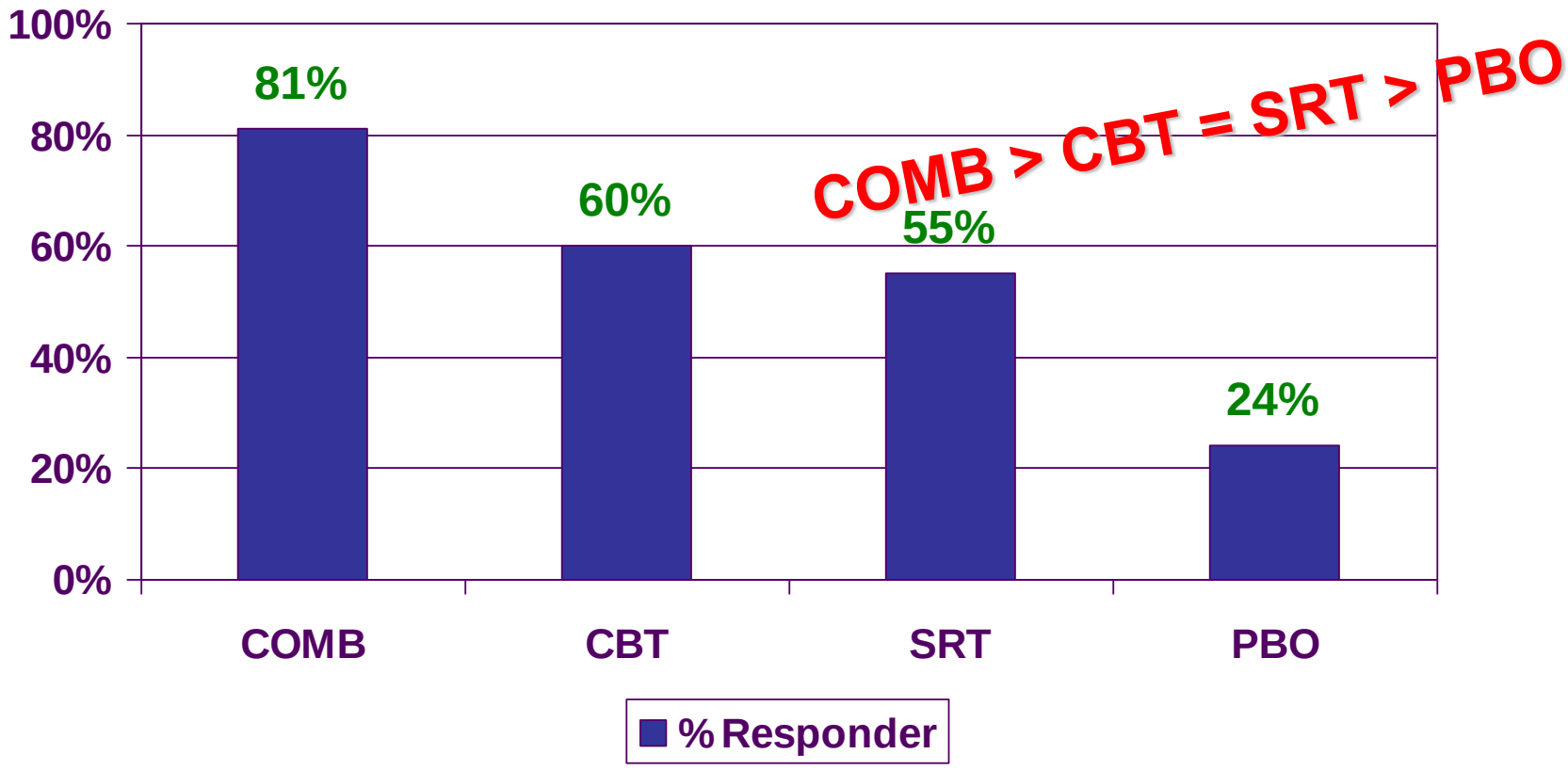
CAMS: Drop Out by Treatment Condition

	Treatment Condition			
	COMB	SRT	CBT	PBO
Completed Study	128	112	134	61
Dropped Out	12 8.6%	21 15.8%	5 3.6%	15 19.7%
Total	140	133	139	76

CAMS: PARS change over time



CAMS: Treatment Response



Summary…
What Works

- Keep in mind that anxiety works for you
- Think clearly. Keep problems in perspective
- Approach the things you fear
- Exposure, Exposure, Exposure
- Active problem solving, solution-focused thinking
- Balance active coping with mindful acceptance
- Take the long view, the larger view
- Live with faith, hope, and equanimity

Keep Calm and Carry On

Questions?

Thank You!