


A Theory of Emotion State Mismatch: A Mechanism for Applied Memory Reconsolidation



DR. MARY BOWLES

PSYD, LMFT, RRT, MIAAN, RTM

- Doctor of Psychology (PsyD)
- Licensed Marriage & Family Therapist (LMFT) – Colorado, Texas, Florida
- Certified Rapid Resolution Therapy (RRT)
- Certified in Reconsolidation of Traumatic Memories (RTM)
- International Association of Applied Neuroscience (IAAN) Supervisor

Specializations: rapid treatment of trauma, children, couples, families, parenting, high conflict divorce, blended families, de-pathologizing using systemic lens

© Mary Bowles, PsyD, LMFT - IAAN Webinar 2/17/24 Slide download: www.MindWiseInstitute.com/

1

WEBINAR ATTENDEES WILL:

- Understand the required components for successful memory reconsolidation in humans.
- Understand the distinction between extinction and erasure.
- Gain clarity around what comprises emotionally motivated approach and avoid states.
- Partake in opportunities to experience rapid applied memory reconsolidation techniques.
- Learn the status of PE as a first line treatment for PTSD and the holes in its research.
- See how laughter can be a beneficial component of psychotherapeutic treatment.
- Consider how cultural norms may prevent successful treatment, not to mention, be a major contributor of consolidated trauma networks.

© Mary Bowles, PsyD, LMFT - IAAN Webinar 2/17/24

2

INTRODUCTION

© Mary Bowles, PsyD, LMFT - IAAN Webinar 2/17/24

3

SUMMARY

THE PROBLEM

- Prolonged Exposure Therapy (PE) – gold standard
 - dropout rates (36%)
 - repeated use strengthens
- Memory Reconsolidation (MR) disagrees – brief for unlock
- HPA Axis (FFF) = ↓ learning potential
- Treatment option overwhelm

THE PURPOSE

- Investigate emotion pairing for eliciting permanent change
 - Integrated view (Psychology & Neuroscience)
- Separate what does work from what does not work
- Streamline treatment options
 - effective – speed, comfort, ease,
 - stigma – disbelief, fears
- Justify future research
- Benefits mental health patients & providers, researchers

© Mary Bowles, PsyD, LMFT - IAHN Webinar 2/17/24



4

THE LITERATURE

© Mary Bowles, PsyD, LMFT - IAHN Webinar 2/17/24

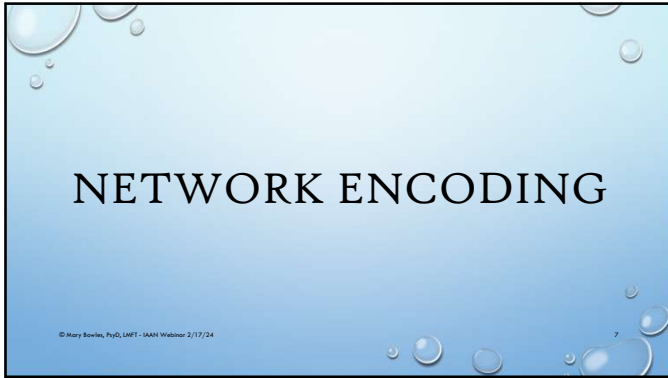
5

LITERATURE – GROUPS & RELEVANT FINDINGS

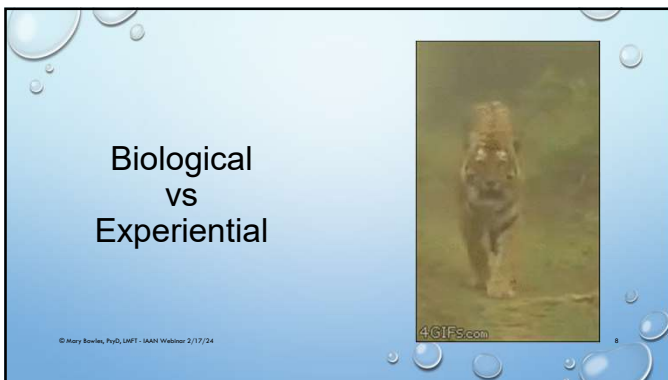
<div style="background-color: #0070C0; color: white; padding: 5px; text-align: center; font-weight: bold; font-size: small;">Memory Consolidation & Memory Reconsolidation</div> <p style="font-size: x-small; margin-top: 5px;">MEMORY CONSOLIDATION</p> <ul style="list-style-type: none"> • Hebb • Pavlov • Skinner <p style="font-size: x-small; margin-top: 5px;">MEMORY RECONSOLIDATION</p> <ul style="list-style-type: none"> • Carew et al. • Pedreira et al. 	<div style="background-color: #0070C0; color: white; padding: 5px; text-align: center; font-weight: bold; font-size: small;">Human Memory Reconsolidation</div> <ul style="list-style-type: none"> • Eisey et al. • Ecker et al. <div style="background-color: #0070C0; color: white; padding: 5px; text-align: center; font-weight: bold; font-size: small; margin-top: 10px;">PE vs Rapid Treatments</div> <ul style="list-style-type: none"> • Foa et al. • Gray et al. • Connelly 	<div style="background-color: #0070C0; color: white; padding: 5px; text-align: center; font-weight: bold; font-size: small;">Collective Components of Emotion & Motivation</div> <ul style="list-style-type: none"> • Lange et al. • Lane, • Ledoux et al. • Elliot et al., • Mehling et al., • Harmon-Jones & Harmon-Jones • Moors 
--	--	--

© Mary Bowles, PsyD, LMFT - IAHN Webinar 2/17/24

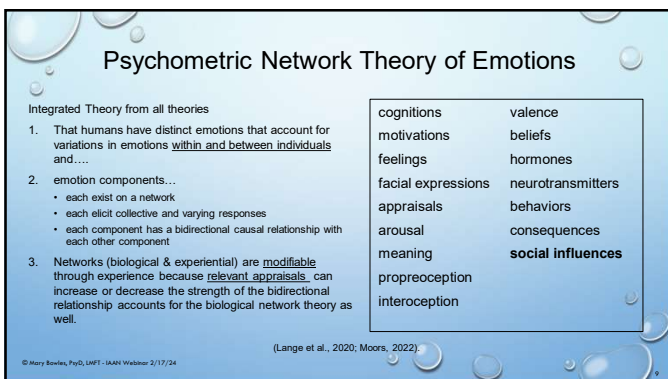
6



7



8



9


Emotion can exist before and without cognition.
(Ledoux, 1998)



© Mary Bowles, PsyD, LMFT - IAAH Webinar 2/17/24

10

Psychometric Network Theory of Emotions



Lange et al., 2020

© Mary Bowles, PsyD, LMFT - IAAH Webinar 2/17/24

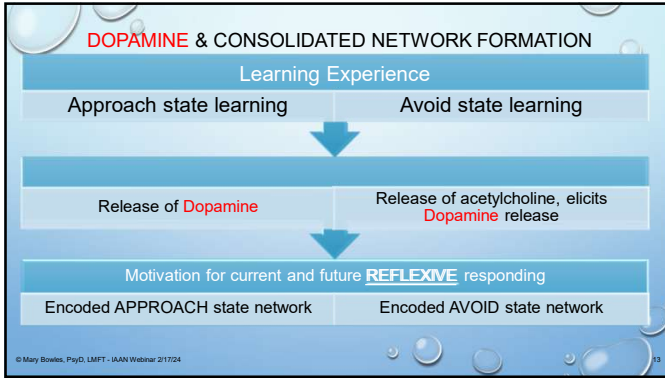
11

SAME NETWORK NOW AND LATER



© Mary Bowles, PsyD, LMFT - IAAH Webinar 2/17/24

12



13

DSM 5 - PTSD Dx

Patient must have an exposure to:

- actual or threatened death, serious injury, or sexual violence

Resulting in:

- intrusion symptoms (e.g., Re-experiencing),
- avoidance symptoms (e.g., Numbing)
- negative alterations in cognitions or mood
- alterations in arousal and reactivity
- for at least a month.

© Mary Bowles, PsyD, LMFT - IAAW Webinar 2/17/24

14

TRAUMA & DISTRESS NETWORKS

PTSD	EMOTIONAL
<ul style="list-style-type: none"> • increased synaptic f... • incre... • con... • (near reminders) 	<ul style="list-style-type: none"> • retraction of the dendritic spines • larger amygdala volume • smaller hippocampal volume • Also often not discussed openly

Continuing to avoid contextual threat cues reinforces that they are perceived threats and therefore safe (Ledoux et al, 2017).

© Mary Bowles, PsyD, LMFT - IAAW Webinar 2/17/24

15

Emotions are stored in motivational networks in the brain and engage organisms to respond to appetitive or aversive environments.
(Wasserman & Wasserman, 2020).

© Mary Bowles, PsyD, LMFT - IMAN Webinar 2/17/24

16

MOTIVATION

- Joy vs Trouble (Democritus)
- Pain vs Pleasure (Bentham, Wundt, Freud)
- Satisfaction vs Discomfort (Thorndike)
- Moving Towards vs Moving Away (Jung, Tolman, Pavlov, Horney, & Rogers)
- Positive vs Negative (Skinner)
- Appetitive vs Aversive & Reaction Potential vs Inhibitory Potential (Hull)
- Attract vs Repel (Miller)
- Good vs Bad (Sullivan)
- deficit needs & growth needs (Maslow)
- Approach & Avoidance behaviors (Hebb)**

(are determined by stimulation, respectively, ↑↓ tolerance thresholds)

© Mary Bowles, PsyD, LMFT - IMAN Webinar 2/17/24

17

EMOTION → MOTIVATION

Emotion is the “energization of behavior by, or the direction of behavior toward, positive stimuli (objects, events, possibilities), whereas avoidance motivation may be defined as the energization of behavior by, or the direction of behavior away from, negative stimuli (objects, events, possibilities)”

(Monni et al., 2020, p. 2)

© Mary Bowles, PsyD, LMFT - IMAN Webinar 2/17/24

18

EMOTION

An **E**lectrochemical signal that engages the body to take an action (motion) to approach or avoid an internal or external stimulus.

© Mary Bowles, PhD, LMFT - IAAH Webinar 2/17/24 19

19

WHAT COMPRISES EMOTIONALLY MOTIVATED APPROACH AND AVOID STATES?

5 components

- an **encoded network** (biological/experiential)
- a **stimulus** (internal OR external)
 - elicits a physiological change based on a brief reactivation of the encoded network
- a **cognitive appraisal** (i.e., feeling word, meaning, belief) ?
 - Labels influence emotion value – valence (intensity) & salience (noticeability) (↑↓)
- a **response** (mental and/or physical approach or avoid state response)
- ...**REGULATION**
 - more effective responding to (more effective transitioning between) actual/perceived threats
 - discomfort becomes tolerable
 - achieved with modification of **relevant & accurate** appraisals of emotion components

© Mary Bowles, PhD, LMFT - IAAH Webinar 2/17/24 20

20

TREATMENTS

© Mary Bowles, PhD, LMFT - IAAH Webinar 2/17/24 21

21

PROLONGED EXPOSURE vs APPLIED MEMORY RECONSOLIDATION

<p style="text-align: center;">PE</p> <ul style="list-style-type: none"> • Prolonged exposure to original distressing memories • Systematic desensitization • Psychoeducation • Narrative for emotion processing • Weekly/bi-weekly <p style="text-align: center;"><small>(Foa et al., 2018)</small></p>	<p style="text-align: center;">MR</p> <ul style="list-style-type: none"> • Memory reactivation (helps "unlocking") • Mismatch (mismatch) • Noticeable Novel, Rewriting • Time dependency • Memory specificity • Dissociation of immediate & delayed effects <p style="text-align: center;"><small>(Eisey et al., 2018)</small></p>
---	--

INFERRED NETWORK CHANGE

© Mary Bowles, PhD, LMFT - IAHN Webinar 2/17/24 22

22

RRT - BRYAN

Jon: You believe that something has continued to affect you. I want to understand.
Bryan: When I was in about the fourth grade, the effect was probably anger at my parents. The long-term effect is that I'm not able to get close to animals. We have a dog, and I don't have any feelings toward this animal. (Connelly, 2019, p. 300).

- Brief reactivation - 5 sentence exchange (Connelly, 2019, p. 315)
- imagine speaking to self at various younger ages
 - about various ways creatures change
 - how people perceive situations differently

Post-treatment – Bryan: That was amazing. I feel so much better. I can go to the scenes, especially where the cat's death was, and not feel like crying or anything like that. I am able to experience things for what they are and move on. It feels natural (Connelly, 2019, p. 315).

© Mary Bowles, PhD, LMFT - IAHN Webinar 2/17/24 23

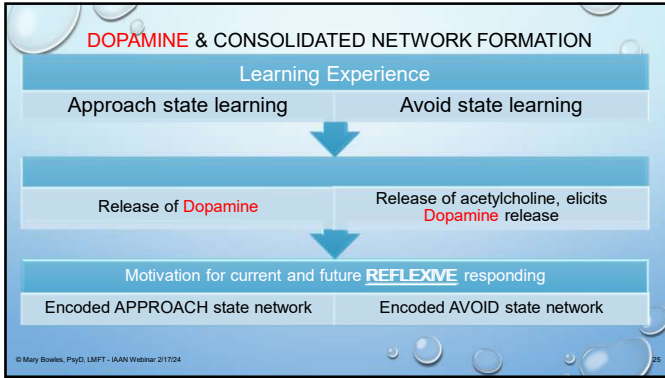
23

MISMATCH = PREDICTION ERROR

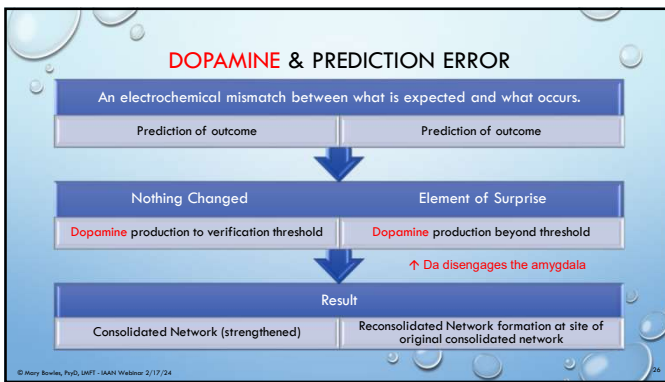
- A disagreement between what is expected and what occurs
- Emotional disagreement
- New emotional knowing (Ecker)
- Emotionally Learning I was wrong about what I knew before
- Increased dopaminergic response (electrochemical disagreement with prior learning)

© Mary Bowles, PhD, LMFT - IAHN Webinar 2/17/24 24

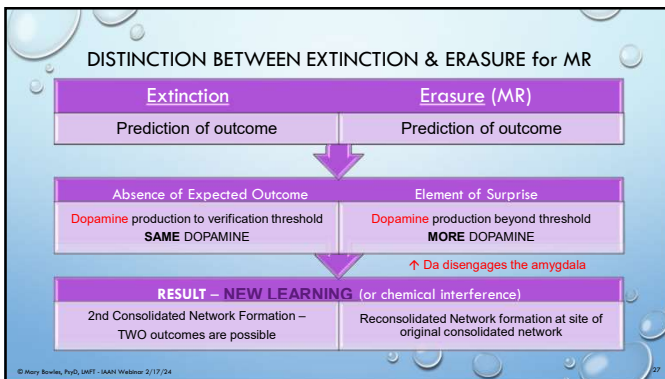
24



25



26



27

VALIDATION?

"Validation is part of the process that establishes the truth or validity of what is said in therapy" (American Psychological Association, 2020)

Validation is an agreement, not a mismatch.

- Classical/Operant Conditioning of the System
- Support building

© Merry Bowles, PsyD, LMFT - IAHN Webinar 2/17/24

28

WHAT IS EMOTION PAIRING




- Emotion is an Electrochemical signal that engages the body to take an action (motion) to approach or avoid an internal or external stimulus.
- Emotion is the energization of behavior

THIS IS AN ELECTROCHEMICAL PROCESS

© Merry Bowles, PsyD, LMFT - IAHN Webinar 2/17/24

29

**LEARNING:
SURVIVING VS THRIVING**

© Merry Bowles, PsyD, LMFT - IAHN Webinar 2/17/24

30

WHAT IS EMOTION PAIRING

1. Memory reactivation (brief)..... ...Consolidated Avoid State
2. Manipulation (mismatch)..... ...Reactivation of Consolidated Approach State OR Novel Approach State (or neutral)
3. Time dependency..... ...Step 2 occurs within less than 6 hours
4. Memory specificity..... ...requires that the original memory trace has been manipulated
5. Dissociation of immediate &..... ...Erasure – no avoidance, no effort needed
delayed effects

© Mary Bowles, PsyD, LMFT - IANW Webinar 2/17/24

31

NON-CONTEXTUAL EMOTION PAIRING





© Mary Bowles, PsyD, LMFT - IANW Webinar 2/17/24

32

THE STUDY

© Mary Bowles, PsyD, LMFT - IANW Webinar 2/17/24

33

DEMOGRAPHICS

Sample Size
21 RRT session transcripts
1 RTM treatment protocol script

Gender
6 male participants
15 female participants

Age
22y to 74y (when noted)

Topics addressed

deaths	bullying	stroke	sexual assault
shaming & guilt by others	panic attack	marital & relational conflict	miscarriage
religious trauma	poverty	weight struggles	compulsivity
addiction	abandonment	domestic abuse	traumatic hypnosis experience

© Mary Bowles, PsyD, LMFT - IAHN Webinar 2/17/24

34

HYPOTHESIS

Prolonged Exposure (PE)
unnecessary, risks
retraumatizing

RRT and RTM meet
components for MR

© Mary Bowles, PsyD, LMFT - IAHN Webinar 2/17/24

35

RESULTS

© Mary Bowles, PsyD, LMFT - IAHN Webinar 2/17/24

36

Answers to Research Questions

<p>RQ1 - How do operant and classical conditioning relate to the neuroscientific understanding of memory consolidation and reconsolidation?</p> <ul style="list-style-type: none"> • Necessary components for memory consolidation • CC & OC present and likely = components of MR as MC • CC & OC infers original synaptic change/ensures erasure 	<p>RQ2 - Is emotion a possible target for successful memory reconsolidation in humans?</p> <ul style="list-style-type: none"> • Yes, a possible target • Not conclusively the target • Informs future research 	<p>RQ3 - How successful is emotion pairing alone at reducing discomfort from trauma cues?</p> <ul style="list-style-type: none"> • Inconclusive, especially regarding emotion pairing alone. • Too many variables • Good argument for continued research on emotion pairing
--	--	---

© Mary Bowles, PsyD, LMFT - IAAW Webinar 2/17/24 37

37

HYPOTHESIS RESULTS

<ul style="list-style-type: none"> • PE takes more time than necessary for change & risks retraumatizing <p><u>Literature:</u></p> <ul style="list-style-type: none"> • PE protocol not indicative of MR <ul style="list-style-type: none"> • Prolonged vs brief • HPA axis • Learning potential • RTM meets requirements for MR 	<ul style="list-style-type: none"> • RRT & RTM meet components for MR <p><u>Findings:</u></p> <ul style="list-style-type: none"> • All RRT transcripts contained 5 required MR components. • RTM script prompted all 5
---	---

© Mary Bowles, PsyD, LMFT - IAAW Webinar 2/17/24 38

38

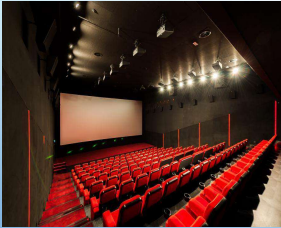
RAPID TREATMENTS

<p style="text-align: center;">RAPID RESOLUTION THERAPY (RTM)</p> <ul style="list-style-type: none"> • Void of standard manualized PE treatment techniques <ul style="list-style-type: none"> • Only brief activation • Indirect (imaginal) exposure • Unstructured • Uses approach state pairing 	<p style="text-align: center;">RECONSOLIDATION OF TRAUMATIC MEMORIES (RTM)</p> <ul style="list-style-type: none"> • Void of standard manualized PE treatment techniques <ul style="list-style-type: none"> • Brief by comparison • Indirect exposure (some imaginal) • Very Structured • Uses neutral stimulus pairing
--	---

© Mary Bowles, PsyD, LMFT - IAAW Webinar 2/17/24 39

39

RTM SCRIPT SUMMARY



- PSSI-5
- BRIEF REACTIVATION TO AROUSAL
- NAME FOR TITLE AND BOOKENDS
- GUIDED IMAGERY OF SELF WATCHING SELF – BW → COLOR REWIND
- SUDS RATING THROUGHOUT FOR MEASURE
 - 2 OR LESS
- RECHECK PSSI-5

(Gray et al., 2021, p. 2)

© Mary Boules, PsyD, LMFT - IAHN Webinar 2/17/24

40

RRT KRISTIN

Jon: Good job. Get dad to treat Bethany differently five years ago.
Kristin: It doesn't exist.
Jon: Good. You have to stop dad from criticizing Bethany five years ago. Hurry!
Kristin: I can't. It doesn't exist.
Jon: Again. Get him not to do that five years ago. Hurry up. (Slapping sound).
Kristin: I can't. It doesn't exist.
Jon: Good job. Now, check for the anger.
Kristin: (laughter) I am not angry at all. Oh, my goodness. I am not angry.

(Connelly, 2019, pp. 73-75).

https://www.youtube.com/watch?v=jqjZ_brYWt8

© Mary Boules, PsyD, LMFT - IAHN Webinar 2/17/24

41

USING WHAT ALREADY WORKS

Jon: I am looking toward what I am intending for you. I see you like this. You are experiencing the present each and every moment that you're alive. You are sourced from within with energy, power, clarity, strength, flexibility, joyfulness, grace, and balance...inner mind is responsive to symbols.... Let's create a way to symbolically represent what you are heading toward. What wild bird or animal would be inspirational?

Kristin: A butterfly. Jon: butterfly is the perfect symbol. It is what your mind has chosen and, therefore, what your mind will respond to. Is the butterfly moving or still?
Kristin: flying.
Jon: what color?
Kristin: Pink...™ (Connelly, 2019, p. 39-40).

© Mary Boules, PsyD, LMFT - IAHN Webinar 2/17/24

42

RQ1.
How do operant and classical conditioning relate to the neuroscientific understanding of memory consolidation and reconsolidation?

SUB-QUESTIONS	THEMES
<ul style="list-style-type: none"> • (1) does the presence of emotion pairing exist in the transcript (e.g., Labeling of emotions, descriptions of subject's bodily state)? <ul style="list-style-type: none"> • (1a) is the approach state emotion one that is already present in the memory of the subject or is it one suggested by the clinician? 	<ul style="list-style-type: none"> • 11/21 transcripts suggested way to activate a <u>consolidated</u> approach state memory • 100% Void of PE treatment • 14/21 transcripts contained humor

© Mary Bowles, PsyD, LMFT - IAHN Webinar 2/17/24

43

RQ2.
Is emotion a possible target for successful memory reconsolidation in humans?

SUB-QUESTIONS	THEMES
<ul style="list-style-type: none"> (2) Can the paired approach state emotion be described as one that likely elicits emotion in the subject? (4) Can emotion pairing in this transcript be considered the mismatch between what is expected by the subject and what happens, which is required for successful memory reconsolidation? (4a) Do the components of memory reconsolidation according to Eisey et al. (2018) exist in this transcript? 	<ul style="list-style-type: none"> • 100% (RRT + RTM) contained 5 MR components according to Eisey et al. (2018) • 100% used subjective pre & post measure <ul style="list-style-type: none"> • Only RTM used SUDS • RRT - abstract, somatic, feeling word • 100% demonstrated improvement • 100% contained language indicating emotion pairing occurred <ul style="list-style-type: none"> • Reactivation • Clinician suggestion or prompt • RTM neutral pairing?

© Mary Bowles, PsyD, LMFT - IAHN Webinar 2/17/24

44

RQ3.
HOW SUCCESSFUL IS EMOTION PAIRING ALONE AT REDUCING DISCOMFORT FROM TRAUMA CUES?

SUB-QUESTIONS	THEMES
<ul style="list-style-type: none"> • (3) does the transcript subject note an initial and a subsequent SUDS rating and/or an initial somatic sensation that subsequently changes? • (3a) can the noted changes be described as avoid states that transitioned to approach states • (4) can emotion pairing in this transcript be considered the mismatch between what is expected by the subject and what happens, which is required for successful memory reconsolidation • (4a) do the components of memory reconsolidation according to Eisey et al. (2018) exist in this transcript? • (5) is there a follow-up interview? • (5a) what is the subject's status at follow-up? • (5b) what is the time span between initial session and follow-up? 	<ul style="list-style-type: none"> • 100% approach state pairing <ul style="list-style-type: none"> • Suggested or consolidated • Cognitive/contextual = emotional • 100% reported a follow-up <ul style="list-style-type: none"> • Brief, ambiguous • 15/21 included hypnosis or guided meditation (RRT & RTM)

© Mary Bowles, PsyD, LMFT - IAHN Webinar 2/17/24

45

LITERATURE vs FRAMEWORKS

<h3 style="text-align: center;">AGREEMENTS</h3> <ul style="list-style-type: none"> • PE is not indicative of MR • Gold-standard treatment <ul style="list-style-type: none"> • Risky • Unnecessary 	<h3 style="text-align: center;">DISAGREEMENTS</h3> <ul style="list-style-type: none"> • Dissimilarity From Original Memory Does Not Necessarily Inhibit MR <ul style="list-style-type: none"> • Emotion as Electrochemical • Pairing Is Firing (CC, HP) • Emotional Arousal Is Not Required For MR? <ul style="list-style-type: none"> • But Is It More Effective? (OC) • Is arousal not accurately defined?
---	--

© Mary Bowles, PsyD, LMFT - IAHN Webinar 2/17/24

46

RECOMMENDATIONS FOR FUTURE RESEARCH

- Don't stop assessing 'First line treatment' (bias)
- Increase applied neuroscience research
- Research alternative treatments
- Hone mismatch target
- Intervening variables
 - Repetition
 - Measures & definitions for arousal
 - Meditation/hypnosis
 - Establish timelines for follow-up
 - Effectiveness for outliers - Alexithymia, Alexisomia, Aphantasia, Dissociation (RTM)
- Neutral pairing (RTM) vs aroused pairing (RRT)
- **Non-contextual emotion pairing!**

© Mary Bowles, PsyD, LMFT - IAHN Webinar 2/17/24

47

EXAMPLES

© Mary Bowles, PsyD, LMFT - IAHN Webinar 2/17/24

48

DRESS LENGTHS ICE CUBES TEETH

© Mary Bowles, PsyD, LMFT - IAHN Webinar 2/17/24

49

HUMOR

Jon: One day I brought some bread to the duck pond. ... Oh, it's great. I had this piece of bread. I lob it out and Mr. Duck grabs it in his mouth. He's so happy for about a second until this other duck, duck #2, pulls up alongside him, yanks that piece of bread out of his mouth and quickly swallows it. You know what duck #1 did? He sailed away peacefully. I found that so interesting because I don't know anybody who would do that. I wanted to discover what it was about, so I swam out to duck #1 and said, "Mr. Duck! What about the bread?!" Mr. Duck said, "what bread?"

(Connelly, 2019, p. 43-44).

© Mary Bowles, PsyD, LMFT - IAHN Webinar 2/17/24

50

RRT

ELEMENT OF SURPRISE WITH HUMOR

Cheri: I'm so embarrassed!

Jon: Embarrassed? You didn't even say anything yet! I mean, if you are going to be embarrassed, let me in on it so that I can enjoy it.

Cheri: (begins to laugh)

Jon: that's better. Just tell me about it, don't re-live it

(Connelly, 2019, p. 348)

© Mary Bowles, PsyD, LMFT - IAHN Webinar 2/17/24

51

Jon: Teach him about tadpoles and how they stop being tadpoles and become frogs. Teach him how caterpillars are transformed into butterflies... There is a group of people listening to a sound. It gets higher in pitch until a human can't hear it. there is a dog and he can clearly hear the sound, but the people think the sound has stopped existing. They feel sorry for the sound because they think it is gone. Show him this. There are people who have developed a great deal of affection for a caterpillar and, as the caterpillar is transformed into a butterfly, they think it has disappeared. They feel sorry for it. Show him. Show him a little fish. When the body of the fish dies, there is transformation. He can't see it like he could with the butterfly, just as people couldn't hear the sound as it became too high in pitch.... Tell me about a time when you felt thrilled.

Bryan: Hitting an ace in tennis, really being able to put the racket on it.

Jon: Take him into the future and show him what is in store for him. he's going to be impatient to do it. Tell him he will have to wait a little while.

Bryan: (Smiling) he doesn't want to wait.

(Connelly, 2019)

© Mary Bowles, PsyD, LMFT - IAHN Webinar 2/17/24

52

How cultural norms may prevent treatment success and contribute to encoding trauma networks:

- Should, Shouldn't, Shouldn't have - TIME
- Guilt/Shame
- Being wrong is bad
- "I can't" is bad
- Selfish (vs self preservation)
- Cultural conditioning – reflexive responding

Norms offer predictability, but do not challenge our ineffective tolerance levels.

© Mary Bowles, PsyD, LMFT - IAHN Webinar 2/17/24

53

LET'S TRY IT!

© Mary Bowles, PsyD, LMFT - IAHN Webinar 2/17/24

54

ACTIVITY

- blog
- bulbous
- chunky
- clogged
- cockroach
- curd
- dripping
- feces
- fester
- fetus
- gurgle
- jowls
- lugubrious
- maggots
- moist
- mucus
- munch
- orifice
- panties
- phlegm
- pustule
- queasy
- secrete
- slacks
- slurp
- smear
- squirt
- viscous
- vomit
- yolk
- person's name
- location name

© Mary Bowles, PsyD, LMFT - IAHN Webinar 2/17/24 55

55

ACTIVITY

**1: REACTIVATE
(CUE WORD)**

- Briefly state the trigger word you'd like to remove
- Somatic awareness
 - Body location
 - Physical sensation descriptor

**2: PAIRING
APPROACH STATE**

- Recall your funniest memories
- Somatic awareness
 - Body location
 - Physical sensation descriptor
- Briefly, again, recall that word, but this time replace feeling of the word with the feeling from the memory.
- Repeat (at least 3x)

3: VERIFY

- How has the original feeling changed?
- Can you recreate the feeling?
- Go ahead and try again to recreate it." (Repeat step 2 if necessary)

© Mary Bowles, PsyD, LMFT - IAHN Webinar 2/17/24 56

56

CONCLUSION

© Mary Bowles, PsyD, LMFT - IAHN Webinar 2/17/24 57

57

SOME TAKE AWAYS

- Trauma is stored in the limbic system (emotion center), you can't get it out if you don't unlock it first.
- Erasure requires an increase in dopamine.
- You can't just think your way out of stress.
- Emotion pairings don't necessarily need to be cognitively related, but they do have to be emotionally activated.

© Mary Bowles, PsyD, LMFT - IMAN Webinar 2/17/24 58

58

**QUESTIONS
& ANSWERS**

© Mary Bowles, PsyD, LMFT - IMAN Webinar 2/17/24 59

59

REFERENCES

Ecker, B., & Bridges, S. K. (2020). How the science of memory reconsolidation advances the effectiveness and unification of psychotherapy. *Clinical social work journal*, 48(3), 287-300. <https://doi.org/10.1007/s10615-020-00754-z>

Eisley, J. W., Van ast, V. A., & Kindt, M. (2018). Human memory reconsolidation: A guiding framework and critical review of the evidence. *Psychological bulletin*, 144(8), 797-848. <https://doi.org/10.1037/bul0000152>

Connelly, J. (2019). *Life changing conversations: A single conversation can be a life-changing event*. Rapid resolution therapy.

Gray, R. M., Budden-potts, D., Schwall, R. J., & Bourke, F. F. (2021). An open-label, randomized controlled trial of the reconsolidation of traumatic memories protocol (RTM) in military women. *Psychological trauma: theory, research, practice, and policy*. <https://doi.org/10.1037/tra0000986>

Lane, R. D. (2020). Memory reconsolidation, emotional arousal and the process of change in psychoanalysis. In M. Leuzinger-bohleber, M. Solms, & S. E. Arnold (eds.), *Outcome research and the future of psychoanalysis: clinicians and researchers in dialogue*, 188-205. Routledge/taylor & francis group. <https://doi.org/10.4324/9780429281112-19>

© Mary Bowles, PsyD, LMFT - IMAN Webinar 2/17/24 60

60
