

Virtual Reality-Exposure: Compressed Treatment of Complex PTSD



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VR: EVIDENCE-BASED RESEARCH

CLINICAL PROBLEM	GOAL(s) OF TREATMENT
Simple phobia	Master fear of... (flying, tunnels etc.)
PTSD	Master fear of... (IEDs, cars, combat)
Substance use disorders	Master craving for... (alcohol, drugs)
Nicotine addiction	Master craving, practice quitting
Teaching	Virtual patients, decisions, outcomes

TREATMENT PARADIGM

- ❖ The patient enters a virtual environment-(COMBAT) and is confronted with incidents or items that cause distress or cravings
- ❖ The therapist adjusts the intensity of the stressful experience using computer firmware-adding or reducing sights, sounds, scents
- ❖ The patient experiences increased anxiety in this setting, then learns to master that anxiety
- ❖ This virtual desensitization can be paired with “in vivo” experiences such as exposure to vehicles, combat or smells, sounds, etc.

PTSD TREATMENT

Virtual Reality is a Prolonged Exposure model:

❖ **Similarities to traditional (PE) model:**

- ❖ Both use therapist-guided imagery
- ❖ Can still stop and debrief at any point, de-escalate
 - ❖ SUDS (subjective distress scale)
 - ❖ PCL scales to monitor effects, graduated exposures

❖ **Differences:**

- ❖ “Virtual” vs. imaginal recreation of trauma
- ❖ More suitable for patients who are less abstract, less verbal, more action-oriented
- ❖ More popular with video, electronic OIF/OEF vets
- ❖ Patients can control the situation better than in their imagination

GOALS OF VR PTSD TREATMENT

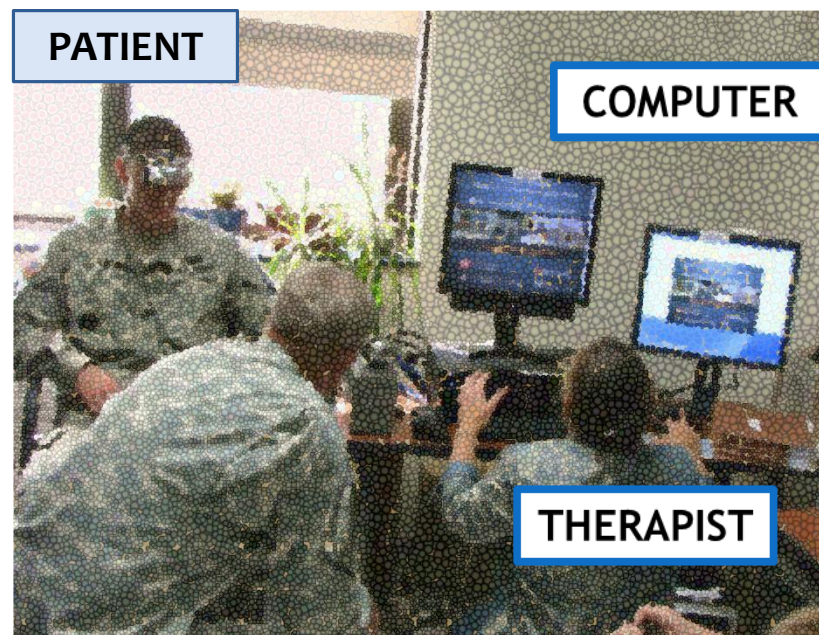
- ❖ **Emotional Processing:** Repeated reliving helps organize the memory and process the trauma... thinking about the trauma is not dangerous... that being anxious or upset is not dangerous.
- ❖ **Habituation:** Repeated reliving the experience will lower anxiety, and disconfirm the belief that anxiety will last "forever".
- ❖ **Differentiation:** Exposure will decrease the generalization of fear from the specific trauma to similar but safe situations.
- ❖ **Repetition:** Repetition and long exposures are necessary because the fear resulting from the trauma was so intense. It often takes longer to process this kind of memory and decrease to the fear.
- ❖ **Increased Mastery:** Exposure enhances your sense of self-control and personal competence. You feel progressively better about yourself as you stop avoiding and master your fears.

VIRTUAL REALITY EQUIPMENT FOR PTSD

Urban Warfare Scenario



Stock USAF Photo of Simulated Patient
& Therapist



Humvee Scenario

Dr. Decker, M.D. & Simulated Patient

SOURCES OF VIRTUAL REALITY EQUIPMENT

❖ **Virtually Better™, Inc.:**

- ❖ **Bundled System:** Laptop or desktop, visor, controller (“rifle” for PTSD or joystick), scent machine, software
- ❖ **Software Modules:** WAR: Iraq, Afganistan, Vietnam, Phobias, Substance Use, Smoking cessation
- ❖ **Price varies by number of systems:** \$8-10,000

❖ **-eMagin EyeBud™ 800 Video iPod HMD visor**

- ❖ Price much lower BUT no software with it (\$75-150)
- ❖ Most therapists do not write software so its usefulness is limited unless site has software for treatment

SETTINGS FOR VR: Special Considerations

- ❖ **Inpatient:** suicidal ideation, aggression (PTSD), relapse, AMA discharge
- ❖ **Residential:** suicidal ideation, aggression (PTSD), relapse, AMA discharge
- ❖ **Outpatient:** inter-session anxiety, suicidal ideation, relapse, shame or guilt
- ❖ **Distance or “Telemental Health”:** access to emergent services, medical problems, equipment failures in session

Treatment Protocol

IDEALLY:

- ❖ 14 sessions originally, now 8-10
- ❖ 2 -13 are 90 minutes each; compressed to 60 minutes
- ❖ 1 and 14 are 120 minutes each
- ❖ 1x or 2x per week

MODIFICATIONS:

- ❖ Substance use disorders
- ❖ Other psychiatric (comorbid disorder-e.g. depression)
- ❖ Geography/Time constraints

SESSION CONTENT

❖ **SESSION ONE:**

- ❖ Information Gathering
- ❖ Trauma Interview
- ❖ Discuss Common Reactions to Trauma
- ❖ Brief Rationale for Treatment
- ❖ Breathing Retraining

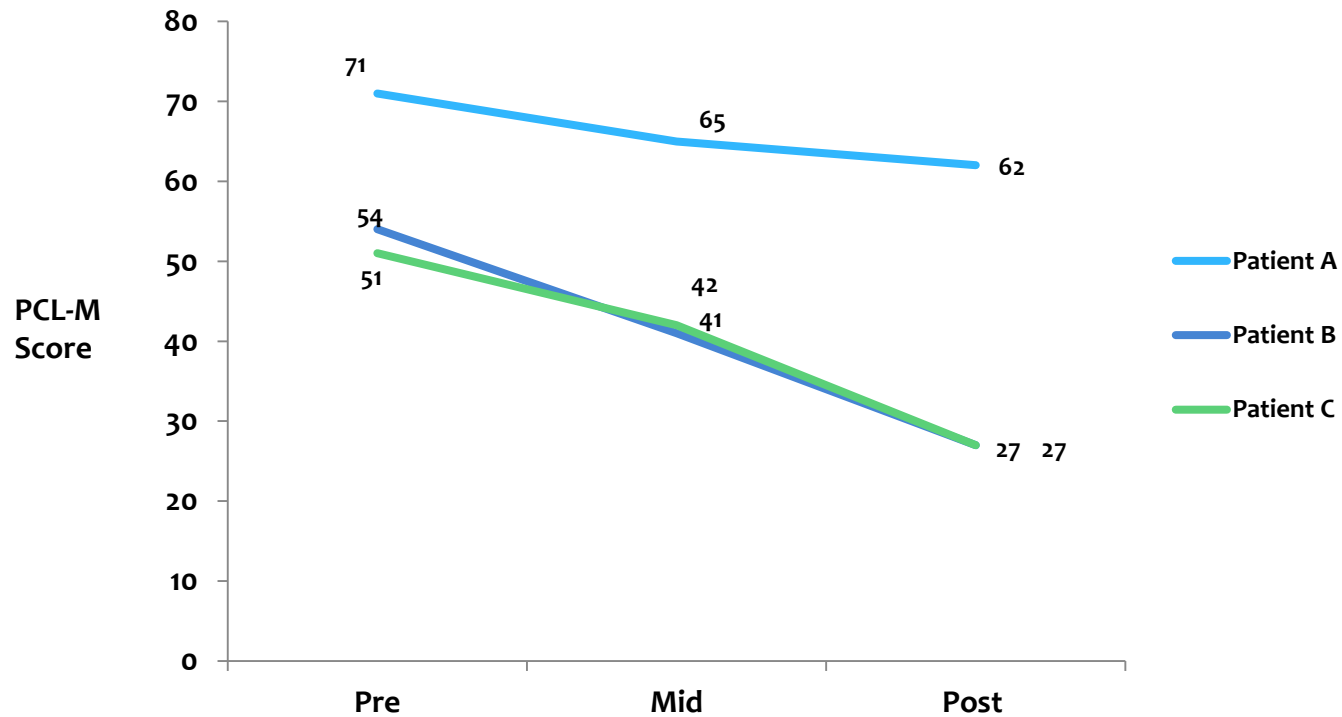
❖ **SESSION TWO:**

- ❖ Check in
- ❖ Review homework
- ❖ Introduce SUDS
- ❖ Present Rationale for VRET
- ❖ Present rationale for In-Vivo Exposure
- ❖ Construct In-Vivo hierarchy
- ❖ Assign homework

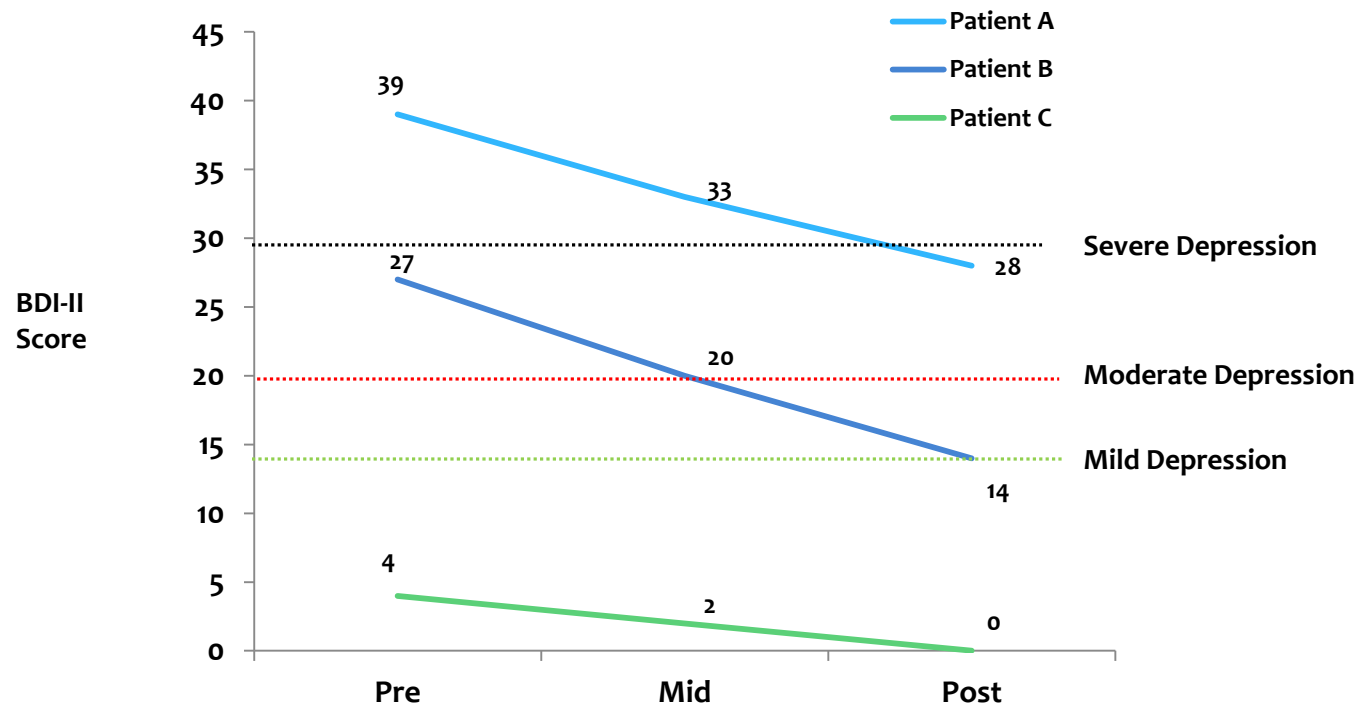
CASES: COMORBID CONDITIONS

- ❖ **ALL THREE HAD COMBAT PTSD FROM CURRENT WAR ERA**
- ❖ **Patient A:** Attention Deficit Disorder, hypothyroidism
- ❖ **Patient B:** Alcohol use disorder, Fetal Alcohol syndrome
- ❖ **Patient C:** Moderate Traumatic Brain Injury

PCL Scores during VR-E Treatment



BDI-II Scores during VR-E Treatment



CONCLUSIONS

- ❖ Three patients with combat PTSD and different comorbid conditions were treated with VR-E
- ❖ All three improved with respect to both PTSD symptoms and depression symptoms
- ❖ Two had cognitive limitations that led them to prefer non-verbal treatment for PTSD to CPT or traditional PE.
- ❖ None had difficulty completing the treatment
- ❖ The patient with substance use disorder did not relapse and sessions added to VR focusing cravings reportedly helped with sustaining abstinence.

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- ❖ The opinions and conclusions herein are strictly those of the author and do not represent those of the Department of Veterans Affairs, the Department of Defense, nor the United States Government.

