

Making 3MDR More Accessible and Supplementing it with Music and Art Therapists: the CARE4PTSD and MATE- 3MDR Studies

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IRB approved at Uniformed Service University.

Disclaimers

- Michael J. Roy, MD has no commercial relationships to disclose.
- All members of the research team were trained in protection of human subjects.
- This study is funded by the Defense Health Agency, with support for the conduct of the research from the Military Traumatic Brain Injury Initiative (MTBI²) at Uniformed Services University. The authors have no conflicts of interest to disclose. The views expressed in this presentation are solely those of the presenter and do not necessarily represent those of the Uniformed Services University, Department of War, or the U.S. government and should not be construed as such. Mention of any commercial product does not connote endorsement.

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PTSD in Active Military & Veterans

- **Common: 15-22% after recent conflicts**
 - **Avoidance prominent**
 - lower treatment attendance (Tarrier et al., 2000)
 - higher drop-out rates (Hoge et al., 2014)
 - **Overall, treatment less successful than for non-combat PTSD**
(Bisson et al., 2007; Watts et al., 2013)
 - **2023 DoD VA CPG recommends Prolonged Exposure (PE), Cognitive Processing Therapy (CPT), and Eye Movement Desensitization & Reprocessing (EMDR)**
 - But, few trained in EMDR, and scant evidence in active military or veterans
 - High dropout rates: 55.8% for PE, 46.6% for CPT
 - Poor responses: 40.4% for PE, 28.2% for CPT
- (Schnurr et al, JAMA Netw Open. 2022 Jan 4)

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Motion-assisted

3

Multi-modular

M

Memory

D

Desensitization &

Reconsolidation

R

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3MDR Combines:

- Virtual reality
- Self-selected music
- Self-selected pictures
- Movement/Activity
- Dual tasks
 - Walk on treadmill
 - Describe reactions
 - Follow red ball



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Clinical Trial of 3MDR to Treat PTSD with Mild TBI, with and without Eye Movement

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IRB Approved at WRNMMC & USU;
[ClinicalTrials.gov Identifier: NCT03796936](https://clinicaltrials.gov/ct2/show/study/NCT03796936)
**Funded by USU Center for Rehabilitation Sciences
Research;**
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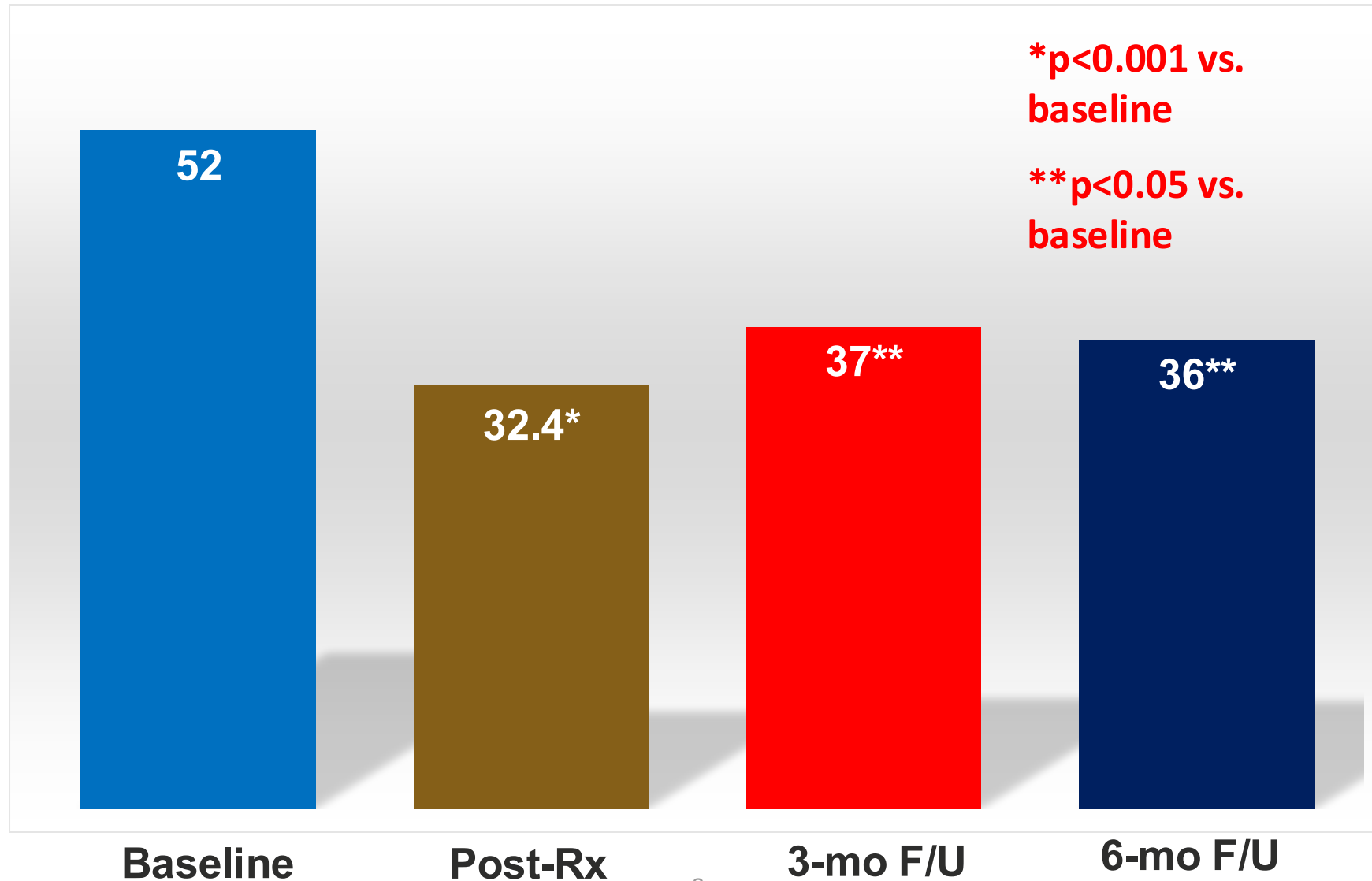
Novel in our initial 3MDR Study

- 20 **(10 men, 10 women)** participants with *both* PTSD & mTBI
- All receive 3MDR intervention:
 - **10 sessions: 3 prep, 6 treatment, 1 consolidation**
- First 3MDR trial to assess value of eye movement task, adapted from EMDR
 - **Randomized to with (EM+) or without eye movement (EM-) task**

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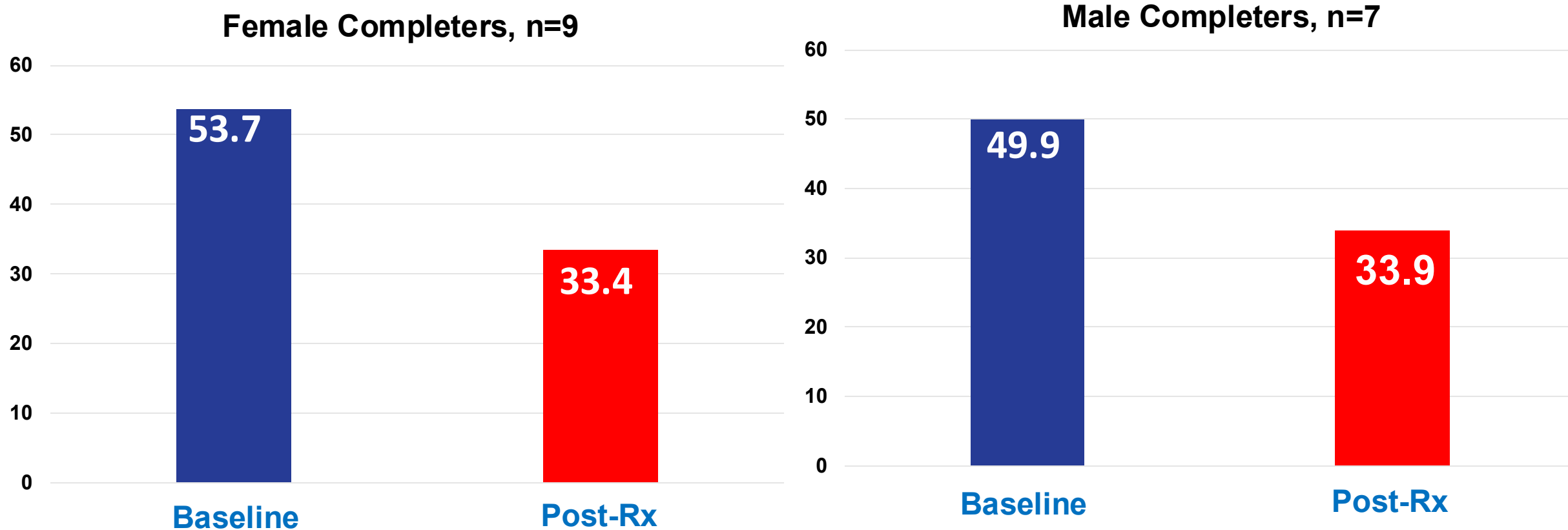
PCL-5 Scores, n=16 completers (of 20)



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PCL-5 Score - Role of Gender

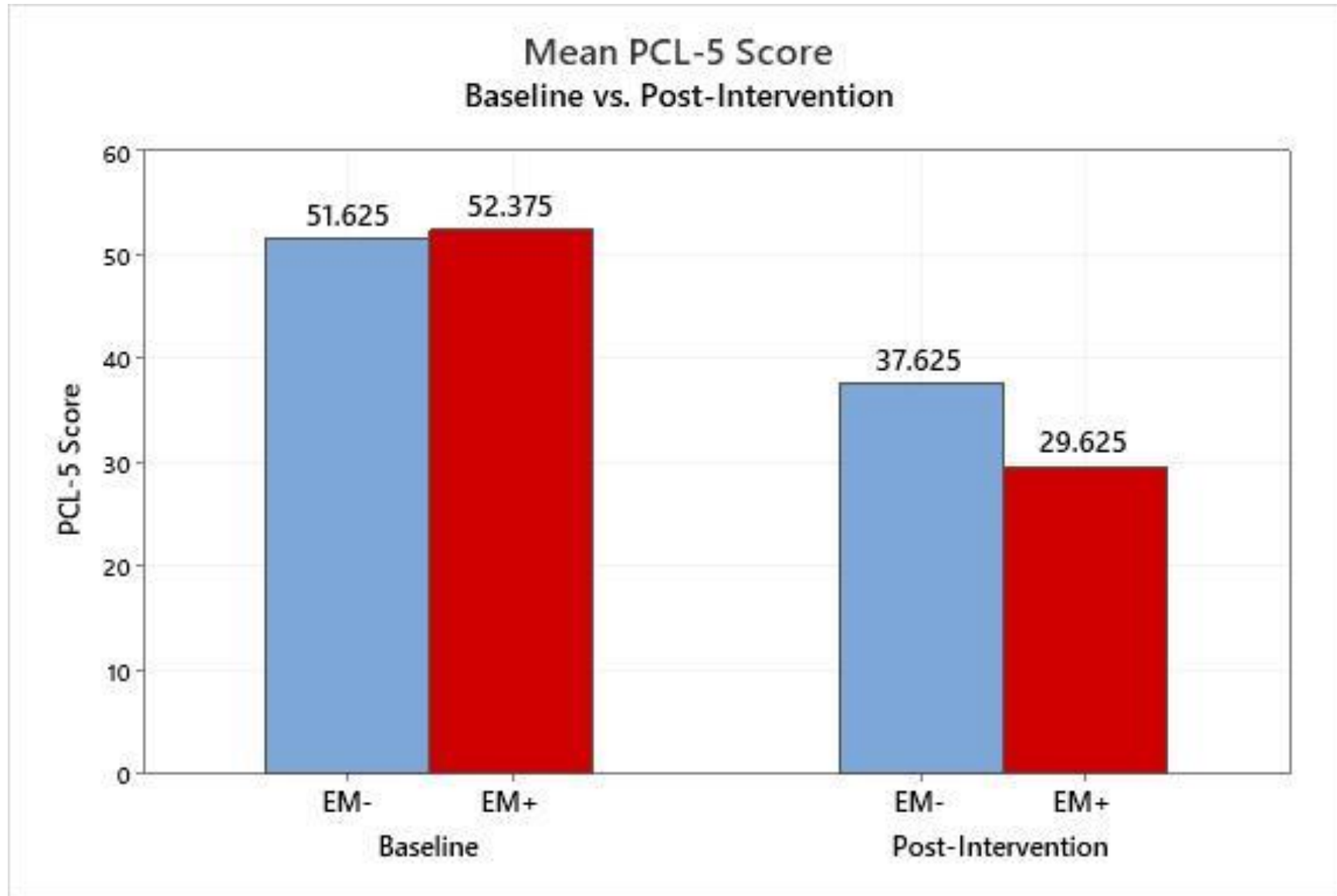


- More women completed the study than men (n=9 vs 7 for men)
- Women did at least as well, if not better, than men, indicating 3MDR is a viable therapy for women with PTSD

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PCL-5 Score - Role of Eye Movement



Conclusions

3MDR is a very promising therapy for PTSD:

- Engaging, well-tolerated What's updotal response quite positive from participants & therapists
- Drop-out rate modestly better—would have been even better without COVID
- Clinically & statistically significant symptom reduction
- Eye movement adds value
- Effective for women
- 10 sessions not enough for everyone, some open up but PTSD is too complex to fully treat without more sessions

Roy et al, Frontiers in Virtual Reality, 22 November 2022 <https://doi.org/10.3389/frvir.2022.1005774>

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Computer Monitor versus Augmented Reality, Expanding delivery of 3MDR Therapy for PTSD

(CARE4PTSD): A Randomized Controlled Trial

~~CAREN versus Augmented Reality: Expanding 3MDR Therapy for PTSD~~

- **Primary goal**: confirm efficacy of inexpensive delivery, to make 3MDR much more widely available—CARENs are too expensive to be widely used
- **Design**:
 - 48 participants with PTSD, all on a basic inexpensive treadmill, randomized to delivery via Augmented Reality Head Mounted Display (AR-HMD) vs. delivery via curved screen computer monitor
 - 3 prep sessions, 6-10 exposure sessions, 1 consolidation session

Funded by USU's Center for Rehabilitation Sciences Research

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Delivery Components

Treadmill used for both: \$800



Option A: \$3500



Option B: \$400



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First Participant to Finish

- Randomized to Hololens2 (AR-HMD)
- PCL-5 score dropped from 60 to 14
- PHQ-9 (depression) score dropped from 19 to 7
- Insomnia Severity score dropped from 24 to 15
- PTSD resolved on CAPS-5
- Patient expressed markedly improved outlook on life, future
- Later tried CAREN delivery in National Geographic photo session, preferred AR-HMD



Lee Raboy A, et al, Psychiatry Clin Psychopharmacol. 2025 Aug 11

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Music and Art Therapy to Expand 3MDR Treatment for PTSD (MATE-3MDR)

- Randomize 90 participants to “traditional” 3MDR vs MATE, which adds:
 - Meet with art therapist to create art to include in visual content
 - Meet w/music therapist to choose songs
 - Meet with both therapists again later in therapy to focus on post-traumatic growth in final session(s)
- Largest prospective, controlled trial to date of 3MDR
- Open to civilians as well as active duty military & veterans

Funded by USU's Center for Deployment Psychology Creative Arts Program

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PCL-5 Scores for CARE & MATE

	Pre- Intervention	Post- Intervention
CARE4PTSD (N=12)	52.4	35.4
MATE-3MDR (N=10)	48.8	22.9

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Preliminary Conclusions

CARE4PTSD

- Some participants like AR-HMD better than screen
- But, Microsoft not supporting Hololens, and no great alternative for AR-HMD currently
- AR-HMD far more likely to have technical difficulties

MATE:

- Too early to say whether music and art therapists add significant value

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Questions?

Study Team:

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