Nightmare Deconstruction and Reprocessing: Proof of Concept of a Novel Treatment for PTSD-Related Nightmares and Insomnia

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INTRODUCTION

Nightmares and insomnia are often refractory following evidence-based treatment for PTSD. Developing a psychotherapy that utilizes nightmare content to reactivate and reprocess trauma memories may facilitate memory reconsolidation. Heart rate variability (HRV) and electrodermal activity (EDA) from wearable devices are useful markers to monitor during trauma memory reactivation, along with actigraphy to classify sleep-wake cycles. The current pilot is testing Nightmare Deconstruction and Reprocessing (NDR), a novel treatment for trauma-related nightmares and insomnia. Our aims are to test NDR tolerability and potential efficacy and feasibility of biomarker data collection.

METHODS

Active duty service members and veterans with trauma-related nightmares and insomnia are being recruited at Walter Reed National Military Medical Center; current N=5. Potential efficacy of NDR is determined by pre-to- post- treatment changes in nightmares and insomnia, and HRV, EDA, and actigraphy via Empatica E4 wristband. An Operational Stress Index (OSI) was used to examine wristband date for evidence of nightmares during sleep periods.

Results: Signals of Treatment Response

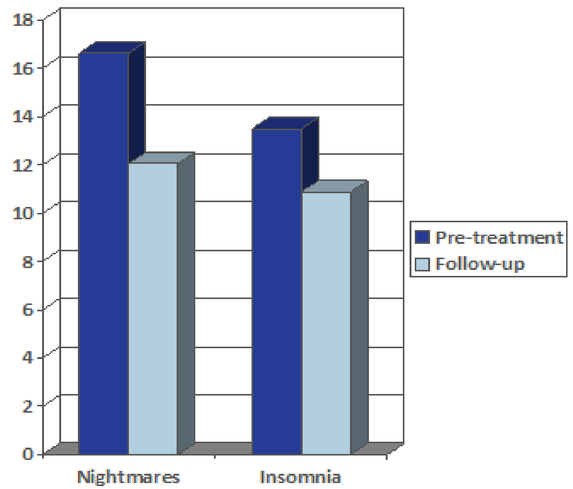
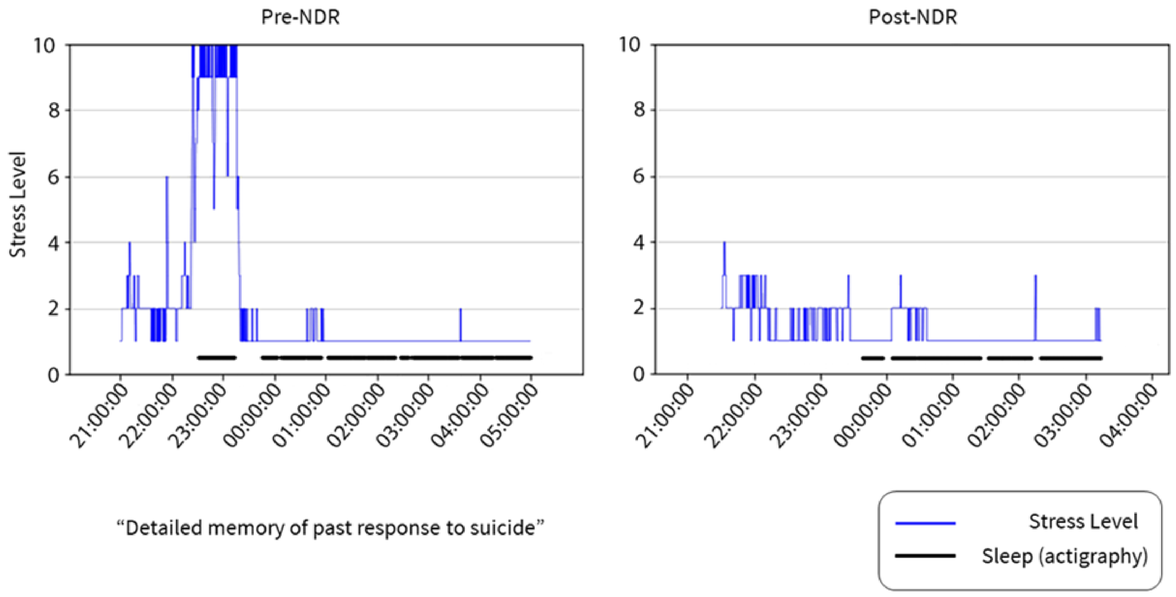


Figure 1: Changes in nightmare and insomnia severity from pre-treatment to follow-up (N=6).

Nightmares (DDNSI):
Pre tx: *M*=16.63 (SD=5.52)
Follow up: *M*=12.06 (SD=6.84)
Cohen's *d*=0.74

Insomnia (PSQI):
Pre tx: *M*=13.5 (SD=3.93)
Follow up: *M*=10.88 (SD=4.29)
Cohen's *d*=0.64



Figures 2 : Pre-NDR and Post-NDR physiologic data.

In early therapy, stress levels indicate that significant nightmare was more common in early therapy (left), and less common in post therapy (right).

DISCUSSION

Preliminary results provide a signal of NDR's efficacy and the feasibility of using E4 wristband data as evidence of change. There was a medium effect size for decrease in nightmares and insomnia from pre- to post-treatment. In addition, analysis of OSI revealed changes in nightmare occurrence from early in therapy to end of therapy. If final results are consistent with these findings, they will provide a rationale for conducting a large-scale randomized clinical trial of NDR.

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