

Sleeplessness is a desert
without vegetation or inhabitants.

-Jessamyn West

An Open Trial of CBT for Insomnia Results in Posttreatment Reductions in Suicidal Ideation



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Overview

I Background

- Sleep and suicide risk: methodological challenges
- Preliminary studies addressing these issues
- Rationale for testing disturbed sleep as a treatment target

II The Present Study

III Military Relevance

IV Current Projects



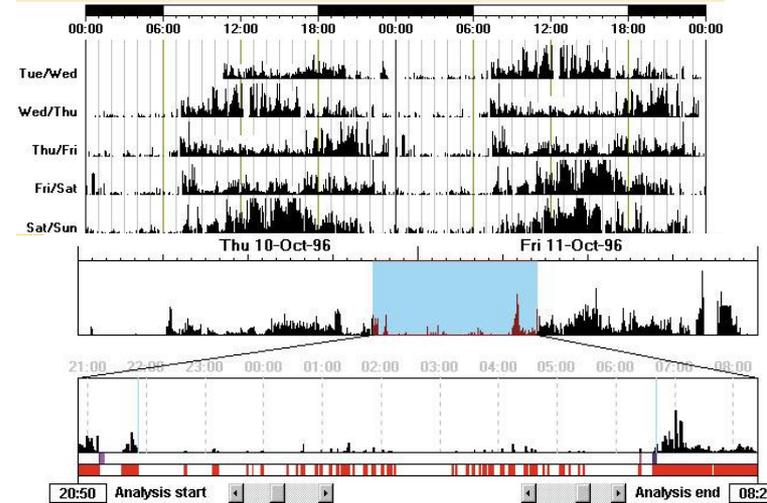
Sleep & Suicide Risk

- Despite increased study of sleep and suicide risk, this area is challenged by several methodological problems
 1. Retrospective analyses
 2. Single time point design
 3. Inadequate assessment
 4. Failure to account for the confounding presence of psychopathology
- Given that both sleep problems and SI are diagnostic features of MDD, is poor sleep a stand-alone risk factor for suicide?
- **Preliminary Studies** of disturbed sleep:
 - Study 1:** Using an objective measure of sleep and acute suicidal risk
 - Study 2:** Compared to other risk factors in a military sample

Study 1 Objectively-Assessed Sleep

Design

- Actively suicidal or high suicide risk
- Prospective: Baseline, 1, 3 weeks
- Materials: BDI, BSS
- Actigraphy (1 week), Sleep Diary
- SOL, TST, WASO, SE, Sleep Variability



Results

- N = 49, aged 18-23, 71% female
- Moderate to severe depressive and suicidal symptoms
- Delayed, restricted, and highly variable sleep patterns



Latency

Duration

WASO

Efficiency

Sleep Variability



T2 and T3 SI Symptom Increases

$$R^2 = .75, P < .001$$

$$R^2 = .57, P < .001$$

Study 2 Risk in Military Sample

Design

- Longitudinal and cross-sectional
- Military personnel referred for severe suicidality inpatient facilities affiliated with a US Army Medical Center
- Part of a larger suicide prevention trial
- Preatreatment measures (baseline, 1 mos later) SI, MCMI-Depression, Insomnia Symptom Index,



Results

- N = 311 AD service members (81% male), M = 22 years
- 40% MDD, 15% bipolar, 13% AD, 5% schizophrenia; 20% comorbid PTSD
- Controlling for baseline suicidal symptoms, analyses revealed insomnia outperformed depression and hopelessness in:
 - Cross-sectional prediction of SI ($p < .01$)
 - Longitudinal prediction of both SI and SA 1 mos later ($p < .01$)

Study 3 As an Intervention Tool

Scientific and Clinical Rationale

- These studies suggest that disturbed sleep confers risk independent of depressed mood
- Sleep problems are highly visible in the weeks preceding death¹, modifiable, and arguably less stigmatized compared to other risk factors

Our Primary Aim:

To evaluate the therapeutic impact of a sleep-focused intervention on suicidal ideation

Study 3 As an Intervention Tool

Methodology

- Open label trial: CBT for Insomnia (7 group session, 90 mins)
A brief, multi-component psychotherapy used to address maladaptive behaviors and cognitions that increase arousal, negatively impact sleep, and perpetuate insomnia
- Community outpatient sleep clinic sample
- Comorbid psychiatric, medical, sleep disorders not excluded

Measures

- Administered at baseline and posttreatment:
 - Demographic Overview
 - Insomnia Severity Index (ISI)
 - Beck Depression Inventory (BDI)

BDI Item 9

- 0 I don't have any thoughts of killing myself
- 1 I would like to kill myself
- 2 I have thoughts of killing myself, but I would not carry them out
- 3 I would kill myself if I had the chance

Study 3 As an Intervention Tool

Session 1

- **Psychoeducation** about the biological and psychological elements that regulate sleep and waking (*homeostatic/circadian drives*), and education about predisposing, precipitating, perpetuating factors in insomnia (ie, *how insomnia develops*)

Sessions 2-6

- **Stimulus Control Treatment** strengthens conditioning to bed as a cue for sleep versus insomnia (ie, bed only used for sleep)

- **Sleep Restriction** restricts the amount of TIB to what the individual is actually sleeping (no <5.5 h) to first consolidate sleep, before extending sleep TIB/duration

Session 3

Addresses the management of stress, cognitive, and somatic arousals

- **Cognitive Therapy** to modify thoughts that elicit hyperarousal and alertness, and to reduce sleep effort

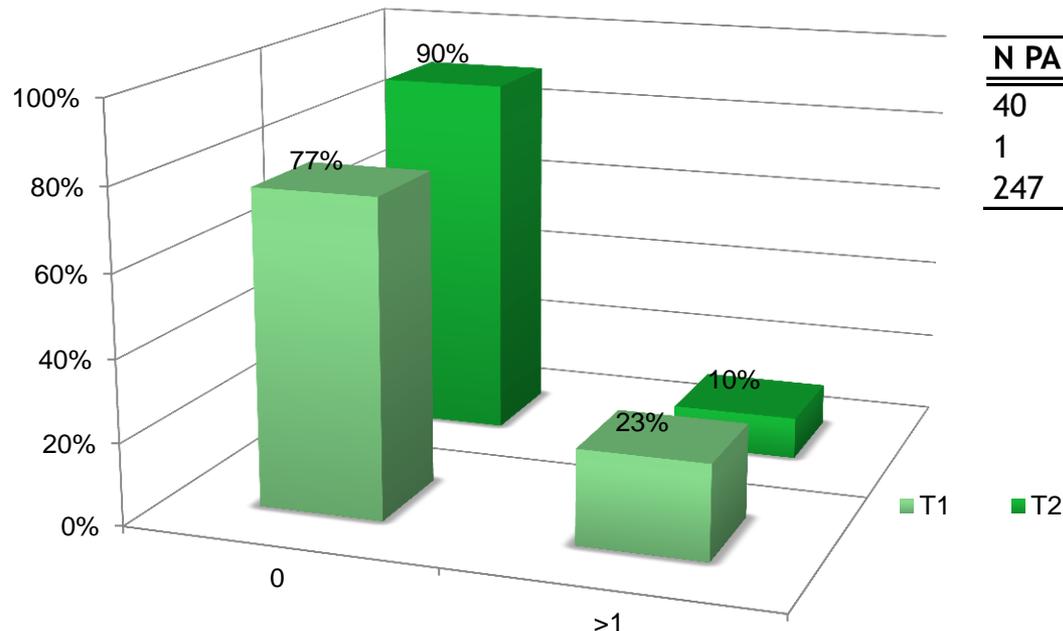
- **Relaxation Training** to quiet the mind and achieve calm (eg, *deep breathing, mindfulness, and guided imagery exercises*)

Session 7

Continued TIB adjustment, treatment progress assessed; relapse prevention

Study 3 As an Intervention Tool

- N = 303, aged 18-88 (M = 49), 57% female
- T-tests showed lower ISI and BDI scores posttreatment ($p < .001$)¹
- Among 65 patients endorsing a score >0 on BDI 9, CBTI produced posttreatment reductions in SI ($p < .001$)
- Wilcoxon Signed Ranks Test confirmed significant change in SI pre to posttreatment ($p < .001$)



N PAIRS	SYMPTOM CHANGE	SCORE RANGE
40	Higher Pretreatment	0-3
1	Lower Pretreatment	0-1
247	No Change	0-1

¹ Manber, Bernert, Siebern, Suh, & Ong (2011)

Study 3 As an Intervention Tool

- ES for suicidal symptom change was large [cohen's $d = 1.83$]
- Consistent with past trials, demonstrating a large ES for depressive symptoms following a sleep intervention¹⁻³
- First known study to show that a sleep-focused intervention has therapeutic impact on suicide risk specifically

Military Relevance

- ✓ In summary, poor sleep confers risk across diverse
 - Populations** (civilian, military)
 - Designs** (cross-sectional, longitudinal)
 - Measurement Techniques** (objective, subjective sleep)
 - Outcome measures** (ideation, attempts, suicide death)
- ✓ Modifying this risk factor therapeutically impacts risk

- Suicide rates have surged in recent years across service branches¹⁻²
- Stigma is well-documented in the military as a barrier to mental health care utilization, and attrition is high³⁻⁵
- By comparison, sleep problems (nonstigmatized) are **overrepresented** in military (70-100% of OEF/OIF),⁶⁻⁷ not explained by PTSD⁸, **resistant to treatment** for MDD and PTSD, **predict poor prognostic outcomes**⁹⁻¹⁰, yet distinctly **visible**¹¹ and **highly treatable**

¹ Martin et al 2009, ² CHPPM 2003-2009, ³⁻⁵ Hoge et al 2004, 2006, 2008, ⁶ Neylan et al 1998, ⁷ Pietrzak et al 2010, ⁸ Lewis et al 2009, ⁹ Carney et al 2011, ¹⁰ Belleville et al 2011, ¹¹ Goldstein et al 2008

Treatment Trials

- **NIH/NIMH 1K23MH093496-01 (Bernert PI)**

A Sleep-oriented intervention for suicidal Behaviors

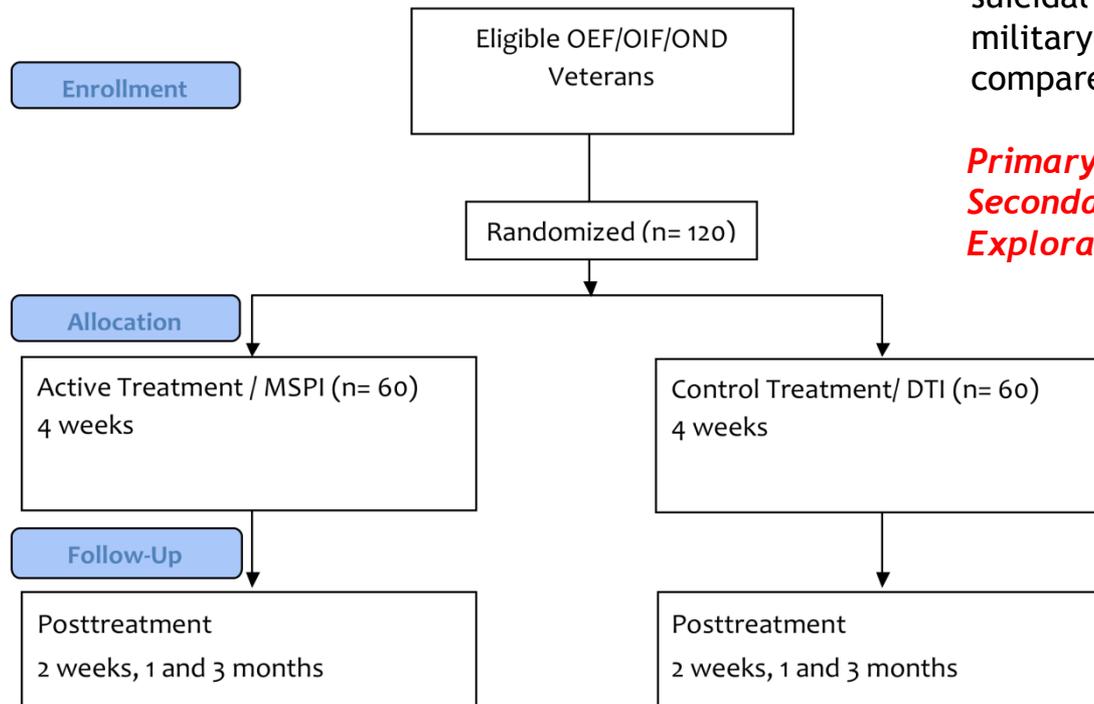
A treatment development suicide prevention study investigating the use and preliminary testing of a behavioral sleep intervention among adults at high risk for suicide

- **DOD/Military Operational Medicine Research Program (MOMRP)
Military Suicide Research Consortium Contract Award (Bernert PI)**

A brief behavioral sleep intervention for the prevention of suicidal behaviors among military veterans: A randomized controlled trial

A suicide prevention trial testing the preliminary efficacy of a sleep-targeted intervention among veterans of OEF/OIF/OND

- A behavioral sleep intervention for suicidal behaviors among military veterans: A randomized controlled trial



AIM: Test efficacy of a sleep intervention to prevent suicidal behaviors among OEF/OIF veterans using a military sleep-based preventive intervention (MSPI) compared to a control treatment (DTI)

Primary outcomes: suicide ideation, attempts

Secondary outcomes: sleep indices

Exploratory outcomes: mood and stress indices

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