Occupational Therapy Treatment of Chronic Insomnia in Veterans with Service-Related Injuries in College Using Cognitive Behavioral Therapy for Insomnia (CBT-I)

Occupational Therapy Association of Colorado Annual Meeting
21 October, 2016 - Black Hawk, CO

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Relevance to the Profession of Occupational Therapy

Occupational Therapy Practice Framework: Domain and Practice:

Sleep Preparation: e.g., Establishing sleep patterns that support growth and health

Sleep Participation: e.g., sustaining a sleep state without disruption

AOTA, 2015
Relevance to the Occupational Therapy Practice Act in Colorado

§ 12-40.5-103. Definitions

As used in this article, unless the context otherwise requires: (1) “Activities of daily living” means activities that are oriented toward taking care of one's own body, such as bathing, showering, bowel and bladder management, dressing, eating, feeding, functional mobility, personal device care, personal hygiene and grooming, sexual activity, **sleep**, rest, and toilet hygiene.
Insomnia:
It takes just two questions...

- "do you experience difficulty sleeping?"
- "do you have difficulty falling or staying asleep?"
Insomnia Disorder (780.52)

• Predominant complaint of dissatisfaction with sleep quantity or quality associated with one or more:
  – Difficulty initiating sleep
  – Difficulty maintaining sleep
  – Early morning awakening
• Significant distress and/ or impairment in social functioning
• Sleep difficulty at least 3 nights/week and present for at least 3 months.

DSM-5, 2013
Differential Diagnoses

- Delayed sleep phase/ Circadian rhythm disorder
- Restless leg syndrome
- Breathing-related sleep disorder (e.g., obstructive sleep apnea)
- Narcolepsy
- Paradoxical insomnia
- Parasomnias (e.g., sleep walking)
- Substance-use induced sleep disorders

DSM-5, 2013
3P Model – So Why does Chronic Insomnia Happen?
Figure 2.1
Adaptation of Spielman’s 3P Model to Understand Post-Deployment Sleep Problems Among Servicemembers

Precipitating event: deployment
- Combat exposure
- Threat of injury/death to self or others
- Separation from loved ones
- Shift work/irregular schedules
- Jet lag

Acute sleep problems

Perpetuating factors
- Poor sleep hygiene (e.g., use of alcohol to facilitate sleep or stimulants to stay awake)
- Conditioned arousal/vigilance
- Re-integration challenges (e.g., family roles and responsibilities, home sleep environment)

Chronic sleep problems

Poor post-deployment health and readiness

Predisposing factors
- Demographic factors (age, sex, race)
- Pre-deployment training environments/work schedules
- Adverse childhood events

RAND RR739-2.1
Study Rationale

• Sleep disturbances are common in post 9/11 Veterans, especially with PTSD.
• Cognitive Behavioral Therapy for Insomnia (CBT-I) effectively treats chronic insomnia; even comorbid with PTSD, depression, and pain.
• Lack of professionals trained in CBT-I.
• Veterans with injuries in college have sleep disturbances effecting student role.
• Sleep is in the domain of OT practice.
Let's Talk About REST

REST (Restoring Effective Sleep Tranquility)
REST (Restoring Effective Sleep Tranquility)

TREATMENT COMPONENTS

• Sleep restriction
• Stimulus control
• Sleep hygiene
• Mindfulness
• Group and one-on-one treatment
Sleep Restriction (SR) Therapy*

- Restricting persons time in bed to their present sleep ability
  - e.g., can sleep 6.5 hours but is in bed for 9 hours
  - SR therapy restricts total time in bed to 6.5 hours.
  - Going to bed at same time each night, but this is adjusted during therapy

* AKA-Sleep Efficiency Training
Stimulus Control

• Wake up at the same time every day.
• Get out of bed within five minutes of alarm sounding.
• Stay active/engaged throughout the day.
• Limit or eliminate napping
• If in bed for more than 10-15 minutes not sleeping, get out of bed, go to another room and do something enjoyable.
• Only sleep and sex in bed.
Sleep Hygiene

- Keep room cool (62-68 degrees) & quiet
- Keep room dark (like a cave)
- Limit alcohol, caffeine, and nicotine
- No clock watching
- Exercise and eat healthy
- Keep daytime routine consistent
Relaxation Practice in Group

• Weekly relaxation skills assignments and review
• Relaxation Practice Schedule:
  – Calming Breath Practice – Weeks 1 & 2
  – Body Scan Practice – Weeks 3 & 4
  – Seated Yoga Practice – Weeks 5 & 6
  – Mindful Walking Practice – Week 7
• Closing each meeting with practice
Quality Sleep: Need – Opportunity – Ability

- **Sleep Need**: the minimum number of hours of quality sleep required for effective daytime functioning (7-9 hrs*).
- **Sleep Opportunity**: the availability of a sleep environment (time & place) that can support quality sleep.
- **Sleep Ability**: the number of hours of quality sleep each night that a person is presently getting.

[Diagram showing the interplay between sleep need, opportunity, and ability]

Quality Sleep: The Right Balance
TREATMENT

7 Weeks: 7 Group Sessions & 7 Individual Sessions

**Dyadadic Education:** Sleep architecture, Spielman model of insomnia (3P and 4P), sleep drive, circadian rhythm, stimulus control, sleep restriction (“sleep efficiency training” ala C&M), nightmare/ IR, sleep beliefs, mindfulness/ relaxation, constructive worrying & buffer zone before bed, sleep hygiene.

**Group Process:** Owl vs Lark, SOL/ NWAK/ EMA, SC/ SR, adhering to sleep prescription through activities/ routines, sleep beliefs change, constructive worrying, mindfulness/ relaxation, SE calculations, relapse prevention, meaningful activity/ daily active engagement.

**Mindfulness**

**Other:** Carney & Manber 2009 workbook, Perlis et al. 2008 readings; Fitbit (used as incentive); clinical trial funded by Wounded Warrior Project.
Daily Sleep Diary and Report

Summary of Time Variables for Date Range

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Summary of Constructed Variables for Date Range

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<th>NAPS</th>
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<td>408</td>
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<td>392</td>
<td>96</td>
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Plot 1: Sleep Onset Latency (SOL)

Plot 3: Wake After Sleep Onset (WASO)
#103 INITIAL PRESENTATION

Demographics:
- Age: 28, Male, White
- Army – deployed as medic
- Education: Sophomore FRCC – Medical field
- Relationship: single

Presenting Problems:
- Insomnia onset: Childhood (Tx for ADD) then 2007 during military service
- Per initial evaluation report:
  - SOL ~ 30 min
  - NWAK ~ 3/night total WASO ~ 60 min.
  - EMA ~ 60 – 120 min. was most distressful
  - Extended periods in bed “trying” to sleep.
#103 MEDICAL ISSUES

- Military Related Medical Issues
  - Pain 2º back injuries/ hip/ knee (DDD)
  - Posttraumatic stress
  - Depression
  - Nightmares
  - VA Disability Rating: 30-60%

- Uses marijuana concentrate
- Prior treatment for insomnia with medication
#103 INITIAL PRESENTATION CONTINUED

2 - WEEK BASELINE FROM ONLINE SLEEP DIARY DATA

- SOL 32 min.
- NWAK 2
- WASO 40 min.
- TIB 475 min.
- NAPS 0
- TST 399 min.
- SE 84%

Interests/ Meaningful Activities: Boxing (punching bag), Electric violin, Video games, 2 ferrets
# 103 TREATMENT

7 Weeks: 7 Group Sessions & 7 Individual Sessions

**Monitoring:** Intake process, Case conceptualizations, Treatment plans, Online sleep diary (Qualtrics); Sleep Diary report (R), Epworth.

**Stimulus Control:** Bedroom to be used only for sleep, nap as a bank, same daily rise time, out of bed if not sleeping, active/engaged in day.

**Sleep Restriction:** PTTB (~23:50)/PTOB (06:30) and titrated weekly based upon sleep efficiency (~90%), Epworth, and self-report.

**Sleep Hygiene:** Discussed exercise, bedroom environment (light, temperature, pets, sounds, safety), nicotine and caffeine.

**Cognitive Therapy:** Sleep beliefs (specifically safety behaviors), Spielman model of insomnia, motivational interviewing.

**Occupational Therapy:** Daily routines review/education related to sleep prescription, discussed scheduling, and daily activity engagement.
Wake after Sleep Onset

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<tr>
<th>Weeks</th>
<th>Minutes</th>
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<td>6</td>
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#103 PRE-POST COMPARISON

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<th>PRE-TREATMENT*</th>
<th>POST-TREATMENT*</th>
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<tr>
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<td>32 min.</td>
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<td>NWAK</td>
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<td>0</td>
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<tr>
<td>WASO</td>
<td>40 min.</td>
<td>2 min.</td>
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<tr>
<td>TIB</td>
<td>475 min.</td>
<td>415 min.</td>
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<tr>
<td>TST</td>
<td>399 min.</td>
<td>408 min.</td>
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<tr>
<td>SE</td>
<td>84% (*two week average)</td>
<td>98% (*one week average)</td>
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</table>
REST: A Pilot and Feasibility Study

Participant Demographics

- **7 individuals** completed the REST intervention
- **Average age:** 35.6 years
  - **Range:** 29-52 years
- **Time since separation of service:** 51.1 months
  - **Range:** 9-91 months
- **Average number of injuries per participant:** 3

<table>
<thead>
<tr>
<th>Injuries Reported</th>
<th>Frequency of Injury</th>
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<tbody>
<tr>
<td>PTSD</td>
<td>6</td>
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<tr>
<td>TBI</td>
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<tr>
<td>Orthopedic injury (e.g. knee, vertebrae)</td>
<td>4</td>
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<tr>
<td>Tinnitus</td>
<td>3</td>
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<tr>
<td>Shrapnel wound</td>
<td>2</td>
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<tr>
<td>Anxiety</td>
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<tr>
<td>Lymphoblastic leukemia</td>
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<tr>
<td>Hearing loss</td>
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REST: Baseline to Posttest (n = 7)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Baseline</th>
<th>Posttest</th>
<th>t (p)</th>
<th>Cohen’s d</th>
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<tbody>
<tr>
<td>MOS-Sleep</td>
<td>53.16 (10.34)</td>
<td>28.65 (19.68)</td>
<td>3.29 (0.02)*</td>
<td>1.58</td>
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<tr>
<td>PROMIS-SD</td>
<td>59.54 (3.70)</td>
<td>46.67 (9.35)</td>
<td>3.21 (0.02)*</td>
<td>1.82</td>
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<td>PSQI-A</td>
<td>7.36 (5.36)</td>
<td>4.14 (3.29)</td>
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<td>DBAS-10</td>
<td>6.24 (0.63)</td>
<td>2.67 (1.22)</td>
<td>3.63 (0.01)*</td>
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<tr>
<td>PROMIS–AP</td>
<td>42.44 (7.42)</td>
<td>47.09 (6.07)</td>
<td>-2.86 (0.03)*</td>
<td>0.69</td>
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<td>PROMIS– SP</td>
<td>41.20 (4.27)</td>
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<td>59.12 (9.0)</td>
<td>54.21 (12.59)</td>
<td>1.46 (0.19)</td>
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MOS-Sleep – Insomnia; PROMIS-SD – Insomnia; PSQI-A – Nightmares; DBAS-10 – Dysfunctional sleep beliefs; PROMIS-AP – Ability to participate in social roles; PROMIS-SP – Satisfaction with social roles; PROMIS-PI – Pain interference; Eakman et al. (under review) British Journal of OT; *p < .05.
OT Practice Addressed in CBT-I by Occupational Therapist

- **Habits**: Managing unconscious acts
- **Routines**: Creation and management
- **Scheduling**: A tool to establish routines
- **Balance**: Managing activities in the stream of time
- **Meaningful activity**: Engaging in life through activity
Insomnia:
It takes just two questions...

- "do you experience difficulty sleeping?"
- "do you have difficulty falling or staying asleep?"
Thanks Everyone...Visit
http://RESTweb.colostate.edu

Funded by WWP with support from New Start from Student Veterans Program
<table>
<thead>
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<th>Reference</th>
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<td>Carney, C. E., &amp; Manber, R. (2009).</td>
<td>Quiet your mind and get to sleep: Solutions to insomnia for those with depression, anxiety, or chronic pain.</td>
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