

Medical Service Company **20th** Memorial Education Forum

### **Behavioral Treatments for Insomnia**

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# Prevalence, Impact & Co\$t of Insomnia

- 10% of adults have chronic insomnia<sup>1,2</sup>
- 15-20% of adults report short term insomnia <sup>1,2</sup>
- 40-60% of adolescents have insomnia symptoms<sup>3</sup>
- Insomnia and daytime effects contributory in 40% of collisions<sup>4</sup>
- Auto accidents increased in insomnia (HR=1.2, 95% CI=1.0-1.45)<sup>4</sup>
- 5 million visits to doctor generated by insomnia every year<sup>5</sup>
- \$63,607 additional cost of untreated insomnia per person per year<sup>6</sup>







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<sup>1.</sup> American Academy of Sleep Medicine. (2014). International Classification of Sleep Disorders. 3rd ed. Darien, IL: American Academy of Sleep Medicine

<sup>2.</sup>Bhaskar, S., Hemavathy, D., & Prasad, S. (2016). Prevalence of chronic insomnia in adult patients and its correlation with medical comorbidities. Journal of Family Medicine and Primary Care, 5(4), 780–784. doi:10.4103/2249-4863.201153.

<sup>3.</sup> Chung KF, Kan, KK, & Yeung WF. (2014). Insomnia in adolescents: prevalence, help-seeking behaviors, and types of interventions. Child and Adolescent Mental Health, 19, 57-63.

<sup>4..</sup> Charles M Morin, Ellemarije Altena, Hans Ivers, Chantal Mérette, Mélanie LeBlanc, Josée Savard, Pierre Philip, Insomnia, hypnotic use, and road collisions: a population-based, 5-year cohort study, Sleep, Volume 43, Issue 8, August 2020, zsaa032, https://doi.org/10.1093/sleep/zsaa032

<sup>5.</sup> Ford ES, Wheaton AG, Cunningham TJ, Giles WH, Chapman DP, Croft JB. Trends in outpatient visits for insomnia, sleep apnea, and prescriptions for sleep medications among US adults: findings from the National Ambulatory Medical Care Survey 1999-2010. SLEEP 2014;37(8):1283-1293.

<sup>6.</sup> Wickwire, E. M., Tom, S. E., Scharf, S., Vadlamani, I. A. & Bulatao, I. G. & Albrecht, J. S. (2019). Untreated insomnia increases all-cause health care utilization and costs among Medicare beneficiaries. Sleep, 42(4),

## Insomnia Treatment Clinical Practice Guidelines

Cognitive behavior therapy (CBT) is recommended as the first-line of treatment for insomnia by the

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- > AASM<sup>1</sup>
- American College of Physicians<sup>2</sup>
- European Sleep Research Society<sup>2</sup>

 Morgenthaler T; Kramer M; Alessi C et al. Practice parameters for the psychological and behavioral treatment of insomnia: an update. An American Academy of Sleep Medicine report. SLEEP 2006
 Qaseem A, Kansagara D, Forceia MA, Cooke M, Denberg, T. Ann Intern Med, 2016 Jul 19;165(2):125-33 6;29(11): 1415-14-19.

#### **CBT-I** Sessions









## Behavioral Therapy in Children



## Behavioral Intervention in Hospitalized Pediatrics



- Purpose: To examine the feasibility and acceptability of behavioral education and a breathing exercise intervention to increase sleep in hospitalized children
- Methods: RCT
  - Participants: N=48 hospitalized children (ages 4-10), 2 groups
    - Relax to Sleep (RTS) (n=24); an education session for parent and booklet on training the child in use of diaphragmatic breathing exercises.
    - Usual Care (UC) n=24 received no information on sleep or relaxation
  - Measures:
    - Actigraphy for 3 days and nights in children
    - Sleep diaries
    - Feasibility, acceptability and sleep outcomes



#### Pediatric Sleep Following RTS and in Controls





WASO at Follow-Up



Papaconstantinou EA, Hodnett E, Stremier R. A Behavioral-Educational Intervention to Promote Pediatric Sleep During Hospitalization: A Pilot Randomized Controlled Trial, Behav Sleep Med, 2018. 16, 4, 36-370

#### Behavioral Intervention in Hospitalized Pediatrics



- Results:
  - RTS children averaged 50 min more nighttime sleep than UC
  - RTS children had 40 min less WASO than UC group
  - Parents reported that children found diaphragmatic breathing easy to use and would use it in the future
  - Parents indicated that they enjoyed the sleep discussion and the information was helpful
- **Conclusion**: Diaphragmatic breathing is a useful intervention to improve sleep in hospitalized children

### Short- and Long-Term Effectiveness of CBT-I in Children

- **Purpose**: To evaluate short and long term effects of CBT-I in children and parents ٠
- Methods: ٠
  - Participants: 112 children (ages 5-10, 53%M) with chronic Insomnia (ICSD-2)
    - Sleep problems for mean of 4.9 yrs (.3-10 yr) and starting at age 3 + 3.4
  - **Design:** RCT, 2 groups divided in 4:1 order
    - CBT-I (n=86 initially) however 67% dropout so reduced to n=27 by 12 mo
    - Waitlist control (WL) (n=26) however data loss reduced to n=11 (57%)
  - Intervention for CBT-I:
    - 3 100-min sessions each for children & parents separately; therapy puppet used to strengthen RX

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- Wk 1: avoid naps, bedtime delayed until sleepy, sleep hygiene explained, deep breathing taught
- Wk 2: stimulus control, imagery metaphors, hypnotherapy (relax with sleep conducive image)
- Wk 3: recapitulation, consolidation & stabilization of content & strategies used
- Measures: baseline, post RX, 3, 6, 12 mos FU
  - Actigraphy 1 week (SOL, TST, # awakenings, SE)
  - Sleep diary for 2 weeks only 2<sup>nd</sup> week used
  - Children's Sleep Habit Questionnaire (CSHQ-DE)





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## Post RX Effectiveness of CBT-I in Children







- Results:
  - Post treatment
    - 59% (51/86) in CBT-I no longer met criteria for insomnia
    - 41% (35/86) in CBT-I still met criteria for insomnia compared to 100% of WL
    - SOL, SE, # awakenings significantly improved in CBT-I group but not in WL
    - TST did not improve in either group
    - Parent-rated sleep on CSHQ-DE significantly improved in both groups

Long Term Effectiveness (FU)

Schlarb AA, Bihlmaier I, Velten-Schurian K, Poets C, Hautzinger M. Short- and Long-Term Effects of CBT-I in Groups for School-Age Children Suffering From Chronic Insomnia: The KiSS-Program. Behavioral Sleep Med 2018, 16,4. 380-397.

#### Long-Term Effectiveness of CBT-I in Children





Schlarb AA, Bihlmaier I, Velten-Schurian K, Poets C, Hautzinger M. Short- and Long-Term Effects of CBT-I in Groups for School-Age Children Suffering From Chronic Insomnia: The KiSS-Program. Behavioral Sleep Med 2018, 16,4. 380-397.

#### Long Term Effectiveness of CBT-I in Children



#### % Children with Insomnia after



Schlarb AA, Bihlmaier I, Velten-Schurian K, Poets C, Hautzinger M. Short- and Long-Term Effects of CBT-I in Groups for School-Age Children Suffering From Chronic Insomnia: The KiSS-Program. Behavioral Sleep Med 2018, 16,4. 380-397.

## Long-Term Effectiveness of CBT-I in Children



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- Results:
  - CBT-I had greater improvement after
  - treatment compared to the WL on actigraphy and subjective measures
  - Improvements persisted over 3,6, and 12 months
- **Conclusion:** CBT-I shows short and long term effectiveness in school-age children with chronic insomnia.





## Behavioral Treatment of Insomnia in Adults



#### CBT for Older Adults with Insomnia and Depression



- **Purpose**: To determine if CBT-I is effective for older adults with comorbid insomnia and depression and also to compare CBT-I to CBT-I plus mood strategies (CBT-I+)
- Methods:
  - Participants: n=72 (56% F, age 75 <u>+</u>7) with comorbid insomnia & depression
  - Design: RCT, 3 groups
    - CBT-I
    - CBT-I+ mood strategies (eg. activity scheduling, cognitive reframing, thought diary)
    - Psychoeducation control
  - Procedure
    - 8-weeks with a 60-90 min group session in community mental health services
  - Measures: at pre, post & FU (weeks 0, 8, 20 respectively)
    - ISI
    - Geriatric Depression Scale

Paul Sadler, Suzanne McLaren, Britt Klein, Jack Harvey, Megan Jenkins; Cognitive behavior therapy for older adults with insomnia and depression: a randomized controlled trial in community mental health services, *Sleep*, Volume 41, Issue 8, 1 August 2018

# CBT-I in Insomnia & Depression





Paul Sadler, Suzanne McLaren, Britt Klein, Jack Harvey, Megan Jenkins; Cognitive behavior therapy for older adults with insomnia and depression: a randomized controlled trial in community mental health services, *Sleep*, Volume 41, Issue 8, 1 August 2018

#### **CBT-I** and Depression



- Results:
  - CBT-I and CBT-I+ both showed significantly greater reduction in insomnia and depression severity compared to PCG control
  - Large effects sizes, high retention and strong remission rates
  - Results were maintained at follow-up
- **Conclusion**: CBT-I, and CBTI+ were both effective in reducing insomnia and depression severity in older adults.

Paul Sadler, Suzanne McLaren, Britt Klein, Jack Harvey, Megan Jenkins; Cognitive behavior therapy for older adults with insomnia and depression: a randomized controlled trial in community mental health services, *Sleep*, Volume 41, Issue 8, 1 August 2018

#### CBT-I & CPAP Use



- **Purpose:** To determine if initial treatment with CBT-I compared to treatment as usual (TAU) improves insomnia and increases CPAP use
- Method: RCT
  - Participants: n=145, age 18-75 (mean=59) with insomnia and OSA (AHI <u>></u>15)
  - **Design**: 2 groups, CBT-I+CPAP or TAU+CPAP
  - Procedure: CBT-I had 4-weekly 45-min CBT-I session before CPAP that included
    - \*sleep restriction
    - \*sleep hygiene & sleep info

\*cognitive therapy

- \*review & relapse prevention
- Measures: baseline, 6 wk, 3m, 6m
  - Primary outcomes CPAP adherence & objective SE at 6 mo
  - PSG and diary measured SE, TST, SOL, WASO
  - ISI, CPAP acceptance/rejection

Alexander Sweetman, Leon Lack, Peter G Catcheside, Nick A Antic, Simon Smith, Ching Li Chai-Coetzer, James Douglas, Amanda O'Grady, Nicola Dunn, Jan Robinson, Denzil Paul, Paul Williamson, R Doug McEvoy, Cognitive and behavioral therapy for insomnia increases the use of continuous positive airway pressure therapy in obstructive sleep apnea participants with comorbid insomnia: a randomized clinical trial, *Sleep*, 42 (12), 2019, zsz178, <u>https://doi.org/10.1093/sleep/zsz178</u>







Alexander Sweetman, Leon Lack, Peter G Catcheside, Nick A Antic, Simon Smith, Ching Li Chai-Coetzer, James Douglas, Amanda O'Grady, Nicola Dunn, Jan Robinson, Denzil Paul, Paul Williamson, R Doug McEvoy, Cognitive and behavioral therapy for insomnia increases the use of continuous positive airway pressure therapy in obstructive sleep apnea participants with comorbid insomnia: a randomized clinical trial, *Sleep*, 42 (12), 2019, zsz178, <u>https://doi.org/10.1093/sleep/zsz178</u>

#### CBT-I & CPAP Use







Alexander Sweetman, Leon Lack, Peter G Catcheside, Nick A Antic, Simon Smith, Ching Li Chai-Coetzer, James Douglas, Amanda O'Grady, Nicola Dunn, Jan Robinson, Denzil Paul, Paul Williamson, R Doug McEvoy, Cognitive and behavioral therapy for insomnia increases the use of continuous positive airway pressure therapy in obstructive sleep apnea participants with comorbid insomnia: a randomized clinical trial, *Sleep*, 42 (12), 2019, zsz178, <u>https://doi.org/10.1093/sleep/zsz178</u>

#### **CBT-I** and **CPAP** use



- Results:
  - CBT-I group had 61 min more CPAP use than TAU at 6mo
  - CBT-I had greater improvement in ISI at 6 wks
  - CBT-I had higher initial CPAP acceptance (99%vs 89%)
  - No difference in daytime impairment, SOL, SE, WASO, TST between groups at 6 mos PSG
- **Conclusion:** CBT-I prior to initiating CPAP improves CPAP use and insomnia compared to CPAP only.



## **Digital Delivery of CBT-I**



#### Short Term Efficacy of **Unguided Internet Based CBT-I**

- Purpose: To evaluate the short-term efficacy of an unguided internet-based CBT-I program called SHUTi in Norwegians
- Methods:
  - Participants: n=181, mean age 45, (67% m) with insomnia
  - Design: RCT; 2 groups
    - SHUTi group (n=95) 6 cores accessed 1 wk apart
    - Web based Education condition (n=86)
  - Measures: (online)2 wk diary, 9 wk intervention, 2wk diary and 6m for SHUTi only
    - **ISI**
    - Bergen Insomnia Scale (BIS) 6 items 0-7 scale







## Results of Unguided Internet-Based CBT-I



30 25.8 25 \* 20 17.4 Score 14.9 baseline 15 \* post RX 8.7 10 5 0 BIS ISI

**BIS and ISI Scores for SHUTi Group** 

Hagatun S, Vedaa O, Nordgreen Tm Smith, O, Pallesen S, Havik O et al. The Short-Term Efficacy of an Unguided Internet-Based Cognitive-Behavioral Therapy for Insomnia: A Randomized Controlled Trial With a Six-Month Nonrandomized Follow-Up. Behav Sleep Med 2019, 17,2, 137-155

## Unguided Internet Based CBT-I

- Results:
  - SHUTi group had significant decrease in ISI and BIS at post assessment compared to baseline
  - SHUTi group had significant difference on ISI (d =-1.77) and BIS (d = -1.0) compared to control



- Dropout attrition was high
  - 19% at post RX (9wks) for SHUTi (77/95)
  - 24% at post test (9wks) for controls 65/86
  - 58% at 6 mo in SHUTi (n=40/95)
- **Conclusion:** Unguided Internet based CBT-I produced significant short-term improvements in insomnia patients and maintained at 6 mo.

A FU study showed all improvements maintained at 18 mo.<sup>1</sup>

Veda A, Hagatun S, Kallestad H, Pallesen S, Smith OR, Thorndike FP, Ritterband LM, Sivertsen B. Long-term effects of an unguided online cognitive behavioral therapy for chronic insomnia. *J Clin Sleep Med.* 2019;15(1):101–110.



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#### Effect of Digital CBT-I on Health, Well-being and Quality of Life

- **Purpose:** To determine if digital CBT-I improves health, psychological well-being and quality of life and if a reduction in insomnia symptoms was a mediating factor
- Methods: •
  - Participants- 1711 volunteers (78%F, age 48+13.8) with self-reported insomnia (DSM-5)
  - **Design:** RCT, 2 groups,
    - dCBT-I (n=853)- Sleepio program of 6 sessions, 20-min each with 12wk access + TAU
    - SHE- group (n=858) a web page and downloadable booklet in 1 session + TAU
  - **Measures**: online assessment at 0, 4, 8 (post RX) and 24 (FU) wk
    - Global Health Scale
    - Glasgow Sleep Impact Index
    - psychological well-being
    - Secondary outcomes: mood, fatigue, sleepiness, cognitive failure, work productivity

Espie CA, Emsley R, Kyle S et al. Effect of Digital Cognitive Behavioral Therapy for Insomnia on Health, Psychological Well-being, and Sleep-Related Quality of Life: A Randomized Clinical Trial. JAMA Psychiatry. 2019;76(1):21-30.



Medical





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- Quality of Life (QOL)
- Sleep Condition Indicator (SCI) of insomnia

#### Effect of Digital CBT-I on Health, Well-being and Quality of Life



- Results:
  - 81% dCBT logged for on at least 1 session and 48% completed 6 sessions.
  - 89% of SHE accessed website at least once
  - dCBT group had significant improvement in global health, mental well-being, and QOL at 4,8,24 wks compared to SHE
  - Depression, anxiety, sleepiness and cognitive failures showed significant improvement at 4,8 and 24 wks in the dCBT group compared to SHE
  - Sleep condition indicator (SCI) significantly improved in dCBT compared to SHE
  - A large improvement in insomnia mediated outcomes (range 45.5-84%)
- Conclusions:
  - dCBT is effective in improving health, psychological well-being, and QOL in people reporting insomnia symptoms
  - A reduction in insomnia symptoms mediated the improvements





## Comparative Studies of CBT-I and Other Interventions

#### Aerobic Exercise vs CBT-I in Cancer Patients with Insomnia

- **Objective**: Access the efficacy of 6-week home based aerobic exercise program (EX) compared to 6-week self-administered CBT-I
- Method:
  - Participants: 41 patients (78% F, mean age 57) with various types of Cancer and insomnia (ISI<u>>8)</u>

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- Design: randomized controlled trial, 2 groups
  - Exercise (EX) (n-20)
  - CBT (n=21)
- Measures: pre- and post-treatment, 3 and 6 mo FU
  - ISI
  - PSQI
  - sleep diaries (SOL, WASO, TWT and SE)
  - actigraphy



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Mercier J, Ivers H, Savard J. A non-inferiority randomized controlled trial comparing a home-based aerobic exercise program to a self administered CBT-I in cancer patients. <u>Sleep</u> 2018, Jul 25

## Exercise vs CBT-I in **Cancer Patients**

Insomnia Severity Index

Score 10

20

15

5

0

50

40

20

10

0

Pre

Post

Minutes 30



2

0

Pre

Post

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3 month FF 6 month FU

Mercier J, Ivers H, Savard J. A non-inferiority randomized controlled trial comparing a home-based aerobic exercise program to a self administered CBT-I in cancer patients. Sleep 2018, Jul 25

3-month FU 6-month FU

## Exercise vs CBT-I in Cancer Patients





Mercier J, Ivers H, Savard J. A non-inferiority randomized controlled trial comparing a home-based aerobic exercise program to a self administered CBT-I in cancer patients. <u>Sleep</u> 2018, Jul 25

## Exercise vs CBT-I in Cancer Patients



- Results
  - Exercise and CBT-I significantly improved ISI, PSQI and most sleep diary parameters at FU
  - Objective actigraphy data did not significantly differ between groups
  - General persistence of sleep difficulties in CBT-I and EX with remission rates of 30% and 35% respectively post treatment and at follow-up
- Conclusions:
  - Exercise and CBT-I significantly improved sleep in CA-related insomnia

- Medical Service Company **20th** Memorial Education Forum
- Purpose: To determine the comparative effectiveness of acupuncture (AP) and CBT-I for insomnia in cancer survivors
- Methods:
  - Participants: 160 cancer survivors, (mean age 62, 54%F) ISI>7
  - **Design:** RCT, 2 parallel groups
    - CBT-I (n=80)
    - Acupuncture (n=80)
  - Procedures: 8 weeks of acupuncture or CBT-I
  - Measures: at baseline, 8, 12, 16, 20 wks. Others measures at base, 8 and 20 wks
    - ISI Sleep Diary Fatigue Inventory Short Form
    - PSQI Brief Pain Inventory Hospital Anxiety and Depression Scale
    - Patient-Reported Outcomes Measurement Information System Global Health Scale

Garland SN1, Xie SX2, DuHamel K3, Bao T4, Li Q4, Barg FK5, Song S5, Kantoff P4, Gehrman P6, Mao JJ4. Acupuncture Versus Cognitive Behavioral Therapy for Insomnia in Cancer Survivors: A Randomized Clinical Trial. J Natl Cancer Inst. 2019 Apr 9. pii: djz050. doi: 10.1093/jnci/djz050.







Erika M.Roberg, Craig J.Bryan, Alan Peterson M. David Rudd. Variables associated with reductions in insomnia severity among acutely suicidal patients receiving brief cognitive behavioral therapy for suicide prevention. Journal of Affective Disorders. Volume 252, 1 June 2019, Pages 230-236.



**Change in WASO Increase in Total Decrease in Sleep Onset** 40 **Sleep Time Decrease in WASO in Minutes** Latency Increase in TST in Minutes 35 **Decrease in SOL Minutes** 70 30 30 60 25 25 50 20 CBT-I 40 20 15 Acupuncture 30 15 10 20 5 10 10 0 5 0 8 wks 20 wks 8 wks 20 wks 0 8 wks 20 wks

Erika M.Roberg, Craig J.Bryan, Alan Peterson M. David Rudd. Variables associated with reductions in insomnia severity among acutely suicidal patients receiving brief cognitive behavioral therapy for suicide prevention. Journal of Affective Disorders. Volume 252, 1 June 2019, Pages 230-236.



- Results:
  - CBT-I & AP had significant reduction in ISI, but greater with CBT-I
  - CBT-I and AP both reduced ISI by 8 points, clinically meaningful
  - CBT-I more effective than AP for improving PSQI, SOL, WASO
  - ISI improvement maintained at 20 weeks for both groups
  - Acupuncture was more effective in increasing TST
  - Both groups had similar improvement in fatigue, anxiety, depression and QOL
- **Conclusion**: Both acupuncture and CBT-I produced clinically meaningful reductions in insomnia, however CBT-I was more effective overall.

### Comparative Treatments for Insomnia with Hot Flashes



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- **Purpose:** Assess interventions for insomnia in women with vasomotor symptoms (VMS)
- Method:



- Design: Pooled data from 4 RCT, n=546 peri and postmenopausal F with ISI <u>>12</u>, <u>>14 VMS/week</u>
- Interventions:, yoga, aerobic exercise, 1.8g/d omega 3 fatty acids, 17-beta estradiol 0.5mg.d, venlafaxine XR 75mg.d, escitalopram 10-20 mg/d and CBT-I
- Measures: at baseline, 4 wk, 8 wk, some at 12 wk
  - ISI
  - PSQI

Katherine A Guthrie et al. *Sleep*, Volume 41, Issue 1, 1 January 2018, zsx190. Effects of Pharmacologic and Nonpharmacologic Interventions on Insomnia Symptoms and Self-reported Sleep Quality in Women With Hot Flashes: A Pooled Analysis of Individual Participant Data From Four MsFLASH Trials

#### Comparative Treatments for Insomnia with Hot Flashes







Guthrie KA, et al. *Sleep*, Volume 41, Issue 1, 1 January 2018, zsx190. Effects of Pharmacologic and Nonpharmacologic Interventions on Insomnia Symptoms and Self-reported Sleep Quality in Women With Hot Flashes: A Pooled Analysis of Individual Participant Data From Four MsFLASH Trials

#### Comparative Treatments for Insomnia with Hot Flashes



- Results:
  - CBT-I produced the greatest reduction in ISI from baseline compared to controls -5.2 points (95% CI -7.0 to -3.4)
  - Exercise and venlafaxine had similar effects on ISI (-2.1 and -2.3)
  - CBT-I produced the largest improvements in PSQI of -2.7 points (-3.9 to -1.5)
  - Yoga, exercise, estradiol, venlafaxine and escitalopram produced significant decrease of 1.2-1.6 points on PSQI compared to controls
  - Omega-3 supplements did not improve insomnia symptoms
- \* **Conclusion:** CBT-I is recommended as a first line treatment in healthy midlife women with insomnia symptoms and moderately bothersome VMS.

Katherine A Guthrie et al. *Sleep*, Volume 41, Issue 1, 1 January 2018, zsx190. Effects of Pharmacologic and Nonpharmacologic Interventions on Insomnia Symptoms and Self-reported Sleep Quality in Women With Hot Flashes: A Pooled Analysis of Individual Participant Data From Four MsFLASH Trials





## Unique Behavioral Interventions

## Effect of Passive Body Heating on Sleep





- **Purpose**: To determine if warm shower or bath before bedtime improves sleep
- Methods: Systematic review and meta-analysis
  - Databases: PubMed, CINCAHL, Cochran, Medline,
    PsycInfo, Web of Science
  - 13 studies with comparable quantitative data
  - Measures:
    - SOL, TST, SE
    - self-reported sleep quality

<u>ShahabHaghayeghaSepidehKhoshnevisaMichael H.SmolenskyabKenneth R.Dil</u>. Before –bedtime passive body heating by warm shower or bath to improve sleep: A systematic review and meta-analysis. Sleep Med Rev, 2019, <u>46</u> August, 124-135.

## Passive Body Heating Before Bedtime

- Results:
  - Passive body heating in 104-109° F water improved self-reported SE and sleep quality
  - When scheduled 1-2 h before bedtime for as
    little as 10 min, it significantly shortened sleep latency
    by 10 min
  - Optimal timing of bath was 90 min before bed time
- Conclusion:
  - Warm baths 1-2 hours before bed will increase the chance of falling asleep quickly and result in better quality sleep





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## Forehead Cooling in Hot Flashes



 Purpose: To explore efficacy of forehead cooling for sleep difficulties and hot flashes in menopause



- Method:
  - Participants: 20 women (19 post menopausal) with insomnia and <u>></u> 2 hot flashes per day
  - Procedure: sleep diaries + #hot flashes, baseline and during 4 wks with nightly use of forehead cooling (15-18°C) using Ebb CoolDrift Luxe device

Fiona C. Baker, Massimiliano de Zambotti, Laurel Chiappetta & Eric A. Nofzinger (2020) Effects of forehead cooling and supportive care on menopause-related sleep difficulties, hot flashes and menopausal symptoms: a pilot study., Behavioral Sleep Medicine, DOI: <u>10.1080/15402002.2020.1826484</u>

## Forehead Cooling in Hot Flashes





Fiona C. Baker, Massimiliano de Zambotti, Laurel Chiappetta & Eric A. Nofzinger (2020) Effects of forehead cooling and supportive care on menopause-related sleep difficulties, hot flashes and menopausal symptoms: a pilot study., Behavioral Sleep Medicine, DOI: <u>10.1080/15402002.2020.1826484</u>

## Forehead Cooling in Hot Flashes



- Results:
  - Forehead cooling significantly improved SOL &WASO
  - Forehead cooling significantly improved hot flash severity
- Conclusion: Nightly use of forehead cooling results in improved sleep and a reduction in insomnia, hot flashes and other menopausal

symptoms



## Weighted Blankets and Insomnia



- **Purpose:** To evaluate the effect of weighted chain blanket (WCB) on insomnia and daytime symptoms in psychiatric disorders
- Methods:
  - Participants: n= 120, with bipolar, depressive disorder, anxiety disorder or ADHD
  - Design: RCT, 2 groups,
    - weighted chain blanket (WCB)
    - light plastic chain blanket
  - Procedure: Used WCB or light chain blanket for 4 weeks, then all switched to WCB till 12 mo FU
  - Measures: at baseline, 1-4 wk treatment and 12 mo FU
    - ISI \* Fatigue Symptom Inventory
    - Sleep Diaries \* Hospital Anxiety and Depression scale

Ekholm B, Spulber S, Adler M. A randomized controlled study of weighted chain blankets for insomnia in psychiatric disorders. *J Clin Sleep Med*. 2020;16(9):1567–1577.

## Weighted Blankets and Insomnia





Ekholm B, Spulber S, Adler M. A randomized controlled study of weighted chain blankets for insomnia in psychiatric disorders. *J Clin Sleep Med*. 2020;16(9):1567–1577.

## Weighted Blankets and Insomnia

- Results:
  - Weighted Blanket produced a significant and large improvement on ISI
  - Effects maintained at 12 mo follow-up
  - Patients switching to weighted blanked had similar reduction in ISI at 12 mo
  - WCB also resulted in significantly reduced fatigue, depression and anxiety
- Conclusion: Weighted chain blankets are effective & safe for improving insomnia in patients with psychiatric disorders





## Effect of Tai Chi on Sleep Quality in Major Depressive Disorder

- **Purpose**: To evaluate the effects of Tai Chi training on sleep quality, depression & social functioning in patients with depression (MDD).
- Methods:
  - Participants: 16 depressed Chinese Americans (age 54+11, 10F)
  - Intervention: 1-hr Tai Chi training sessions twice per wk for 10 wk
  - Measures: testing at baseline and 10 wks
    - PSQI
    - Beck Depression Scale
    - Hamilton Rating Scale for Depression (HAM-D)
    - Short form Health Survey
    - 24 hr ECG recording for determining objective sleep from cardiopulmonary coupling analysis of ECG



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Ma Y, Yeung A, Yang A, Peng Ck, Clain A et al. The Effects of Tai Chi on Sleep Quality in Chinese American Patients With Major Depressive Disorder: A Pilot Study. 2018 Behavioral Sleep Med, 16,4 398-411.

#### Effects of Tai Chi on Depression and Insomnia





Ma Y, Yeung A, Yang A, Peng Ck, Clain A et al. The Effects of Tai Chi on Sleep Quality in Chinese American Patients With Major Depressive Disorder: A Pilot Study. 2018 Behavioral Sleep Med, 16,4 398-411.

## Tai Chi Effects on Sleep in Major Depression

- Results:
  - PSQI significantly improved
  - SOL significantly decreased
  - Significantly decreased Hamilton Depression Scale
  - Significantly decreased Beck Depression Scale
  - Significant correlations between changes in PSQI and HAM-D (r=.6) as well as PSQI and BDI (r=.62)
  - No correlations between objective sleep measures & depression
- **Conclusion:** Tai Chi training improved sleep quality and mood symptoms among depressed patients.







## Behavioral Sleep the Otter Way



