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MENTAL HEALTH AND SLEEP:

THE IMPLICATIONS FOR OSA AND INSOMNIA

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LEARNING OBJECTIVES

- Review the association of psychiatric disorders and sleep issues
- Examine possible mechanisms of psychiatric disorders and sleep disorders
- Identify treatment options, of psychiatric disorders and sleep disorders

ASSOCIATIONS OF FATIGUE AND SLEEP DISTURBANCE WITH 9 COMMON MENTAL DISORDERS

- Community sample of 3620 Australians adults
- Patient-Reported Outcomes Measurement Information System (PROMIS) sleep disturbance instrument
 - 56% had at least one disorder
- For sleep disturbance most disorders had independent associations
 - 1-Generalized Anxiety disorder
 - 2- Major Depressive Disorder
 - 3- Post Traumatic depressive Disorder (PTSD)

• McCallum J Psychosomatic Med 2019

OUTLINE

SELECTED MENTAL DISORDERS

Anxiety Disorders
Depressive Disorder
PTSD

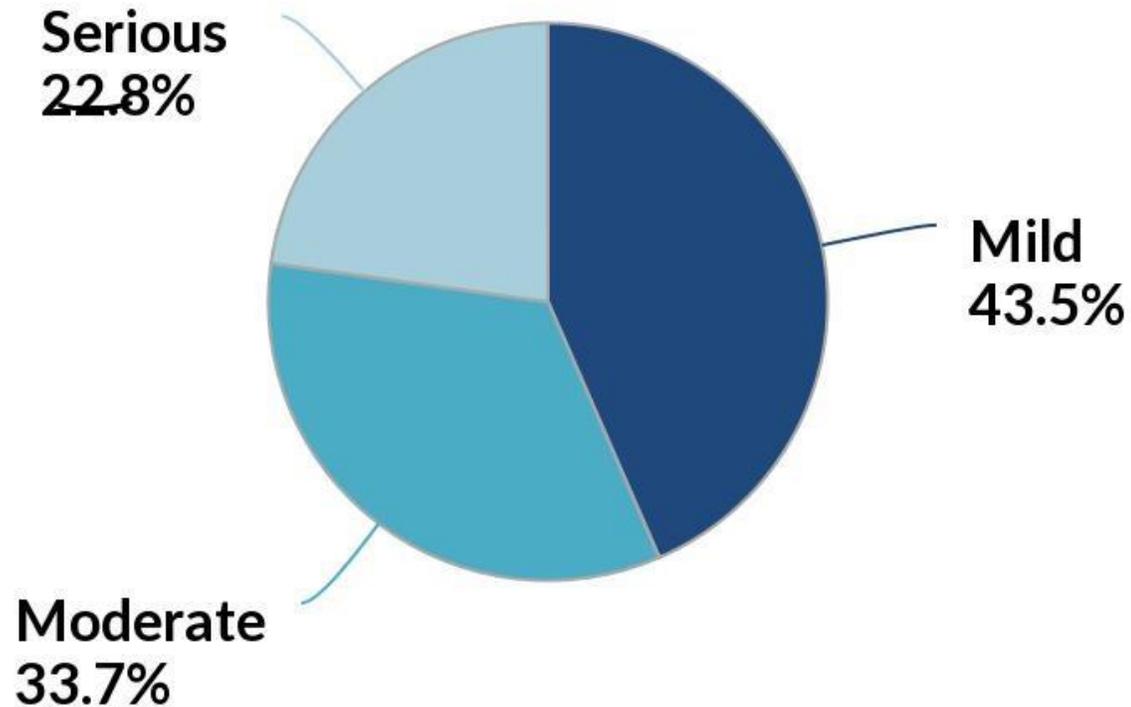
ANXIETY DISORDERS

- Subjective sense of unease, tension or negative anticipation (dread)
- Anxiety can represent a disorder or be a symptom of another disorder, most typically a depressive disorder
- Anxiety disorders are the most common psychiatric disorder
 - 19% of U.S. adults had any anxiety disorder in the past year.
 - Past year prevalence of any anxiety disorder F (23.4%) > M (14.3%).
 - 31% of U.S. adults experience any anxiety disorder at some time in their lives.
- Anxiety interferes with the transition into the relaxed state that is a prerequisite for sleep

Harvard Medical School, 2007. National Comorbidity Survey (NCS). Retrieved from <https://www.hcp.med.harvard.edu/ncs/index.php>

Past Year Severity of Any Anxiety Disorder Among U.S. Adults (2001–2003)

Data from National Comorbidity Survey Replication (NCS-R)



Kessler RC et al *Arch Gen Psychiatry*. 2005 Jun;62(6):617-27.

TYPES OF ANXIETY DISORDERS IN DSM 5

- *Specific phobia
- *Generalized anxiety disorder
- *Panic disorder
 - Substance/medication-induced anxiety disorder
 - Separation anxiety
 - Social Anxiety Disorder, Agoraphobia

SPECIFIC PHOBIA

- 5 categories
 - Natural environment type (tornadoes, fire...)
 - Animal type (scorpions, dogs)
 - Situational type (enclosed spaces, claustrophobia)
 - Blood injection type
 - Other
- General treatment approach-
 - Flooding/desensitization
 - Avoidance

APA DSM 5 2013

CLAUSTROPHOBIA AND POSITIVE AIRWAY PRESSURE

- PAP mask phobia-
 - fear of restriction and/or suffocation
 - 97 subjects with moderate or severe OSA undergoing titration PSG
 - CPAP-Adapted Fear and Avoidance Scale
 - 63% had claustrophobic tendencies
 - F>M, ↑ BMI
 - Not related to mask type or AHI
 - Positive correlation with non-adherence at week 1 and month 1
- Treatments
 - Patient education- PAP is designed to push air in
 - Desensitization-wearing the mask while awake, progress
 - Select a minimal contact mask-nasal pillows

GENERALIZED ANXIETY DISORDER (GAD)

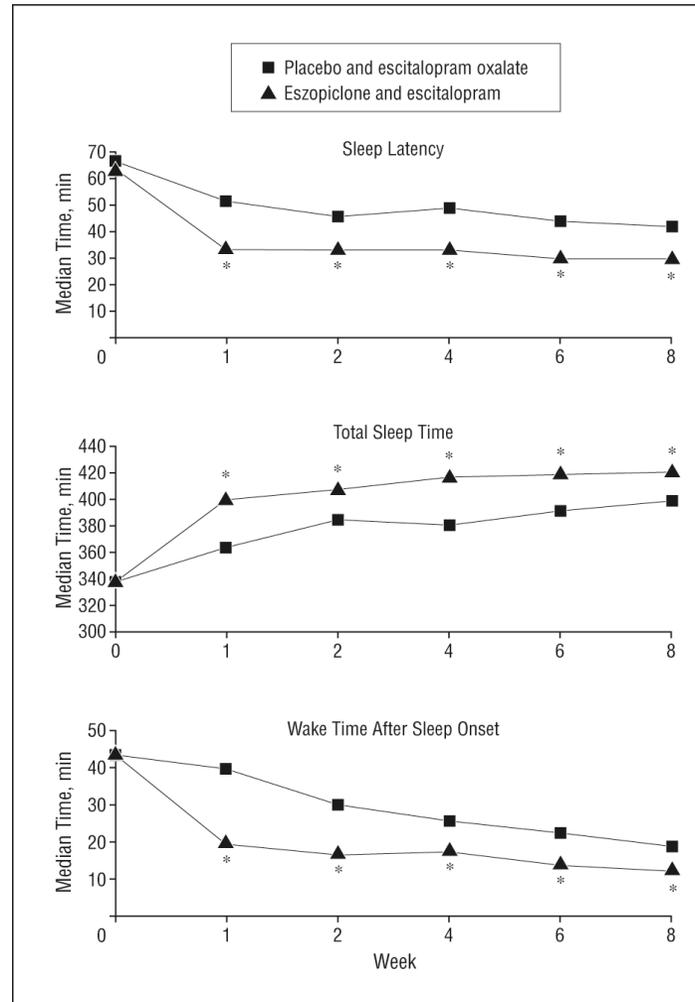
- Persistent worry about everyday challenges out of proportion to the perceived threat
- Typical is excessive fear that lasts months to years
- Can interfere with concentration
 - Needs to be discerned from ADHD

APA DSM 5 2013

GAD COEXISTING WITH INSOMNIA

- Older study
- Efficacy of eszopiclone combined with escitalopram in treating insomnia comorbid with GAD
- Multicenter 10 week study of adults
- Measures sleep, daytime functioning, psychiatric symptoms and adverse events
- Significant improvements in sleep and daytime functioning
 - Pollack Arch Gen Psychiatry 2008

INSOMNIA SYMPTOMS WARRANT ATTENTION



Pollack Arch Gen Psych 2008

INSOMNIA SYMPTOMS NEED ATTENTION

- Meta-analysis
- Insomnia plays a critical role in the onset and maintenance of depression and anxiety
- Many behavioral and pharmacological treatments for MDD, GAD, and PTSD do not substantially target or improve insomnia symptoms
- Treating insomnia with CBT-I may improve global outcomes for patients with MDD, GAD, and PTSD
 - Mirchandaney Current Psychiatry Reports 2022

ASSESSMENT OF SLEEP QUALITY IN PANIC VS GAD IN REMISSION: CASE CONTROL STUDY

- Panic Disorder 42 patients and GAD 40 patients **in remission**
- Pittsburgh Sleep quality Index (PSQI)
- PSQI - 77% GAD patients in remission had poor sleep quality vs 48 % PD
- GAD is a chronic and recurrent disorder
- GAD patients seek health care for sleep issues even when in remission

• Hacimusalar Arch Gen Psych 2020

Two Subtypes of Insomnia

First phenotype: sleep duration ≤ 6 h with biologic vulnerability (genetic predisposition), physiologic hyperarousal, and impaired neurocognitive functioning, usually coinciding with significant medical comorbidities.

Second phenotype: sleep duration ≥ 6 h with cortical arousal, associated with sleep misperception, 'anxious-ruminative traits,' and poor coping resources

Differences in etiology, pathophysiology, biological severity, natural course, psychological characteristics, and treatment needs

Vgontas AN et al (2013) Sleep Medicine Review

Treatment Implications of Vgontas' Insomnia Subtypes

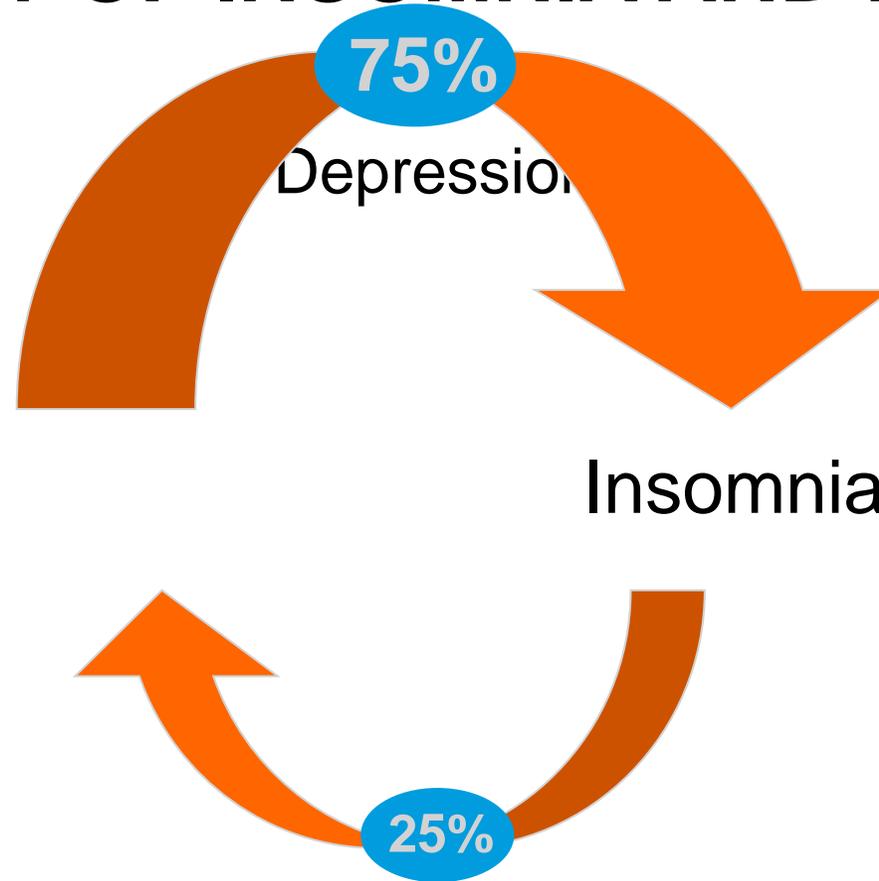
- Subtype with longer sleep time
 - more responsive to CBTi
 - Hypnotic medications play a less significant role in treatment plans
- Hassenger et al (2020) Expect Opinion in Pharmacotherapy

FACTORS AFFECTING USE OF UPPER AIRWAY STIMULATION TREATMENT

- Alternative treatment for OSA
 - 12 high user > 4 h/night
 - 12 lower users < 4 h/night
- Semi-structured interviews with 24 patients with the Insomnia Severity Score and GAD score
- Low users had higher levels of insomnia
 - Insomnia with or without anxiety
 - Focused on the negative, stimulation-related discomfort and associated sleep disturbance
- High users had a better experience with improvement in symptoms and convenience

Luyster et al JCSM 2022

COMORBIDITY OF INSOMNIA AND DEPRESSION



THE ROLE OF SLEEP IN DEPRESSION

- 2–5% of the US population suffers from severe depression and up to 20% suffer from milder forms
- more than 90% of patients with [major depression](#) have been found to suffer from sleep problems
- 20% of patients with initial insomnia, sleep maintenance difficulties, non-refreshing sleep and early morning awakenings also show symptoms of depression

• Pandi-Perumol Psych Research 2020

THE ROLE OF SLEEP IN DEPRESSION

- link between sleep and depression is complex, elusive, and bidirectional
- mechanisms involved in the regulation of the sleep-wake cycle overlap with those of depression
 - circadian rhythm alterations
 - melatonin
 - neuroinflammatory dysregulation

- Pandi-Perumol Psych Research 2020

TREATMENT OF INSOMNIA IN THE CONTEXT OF DEPRESSION AND/OR ANXIETY

- Psychotherapy
 - Cognitive therapy: address distorted perceptions
 - In person CBT
 - Relaxation training
 - Online CBTi programs (Somryst)
- Medications
 - Many different types of antidepressants
 - Specific value of a sedating antidepressant ?
 - Benzodiazepines/BZRAs for short-term use: caution re daytime sedation, tolerance, cognitive impairment, falls, dependency

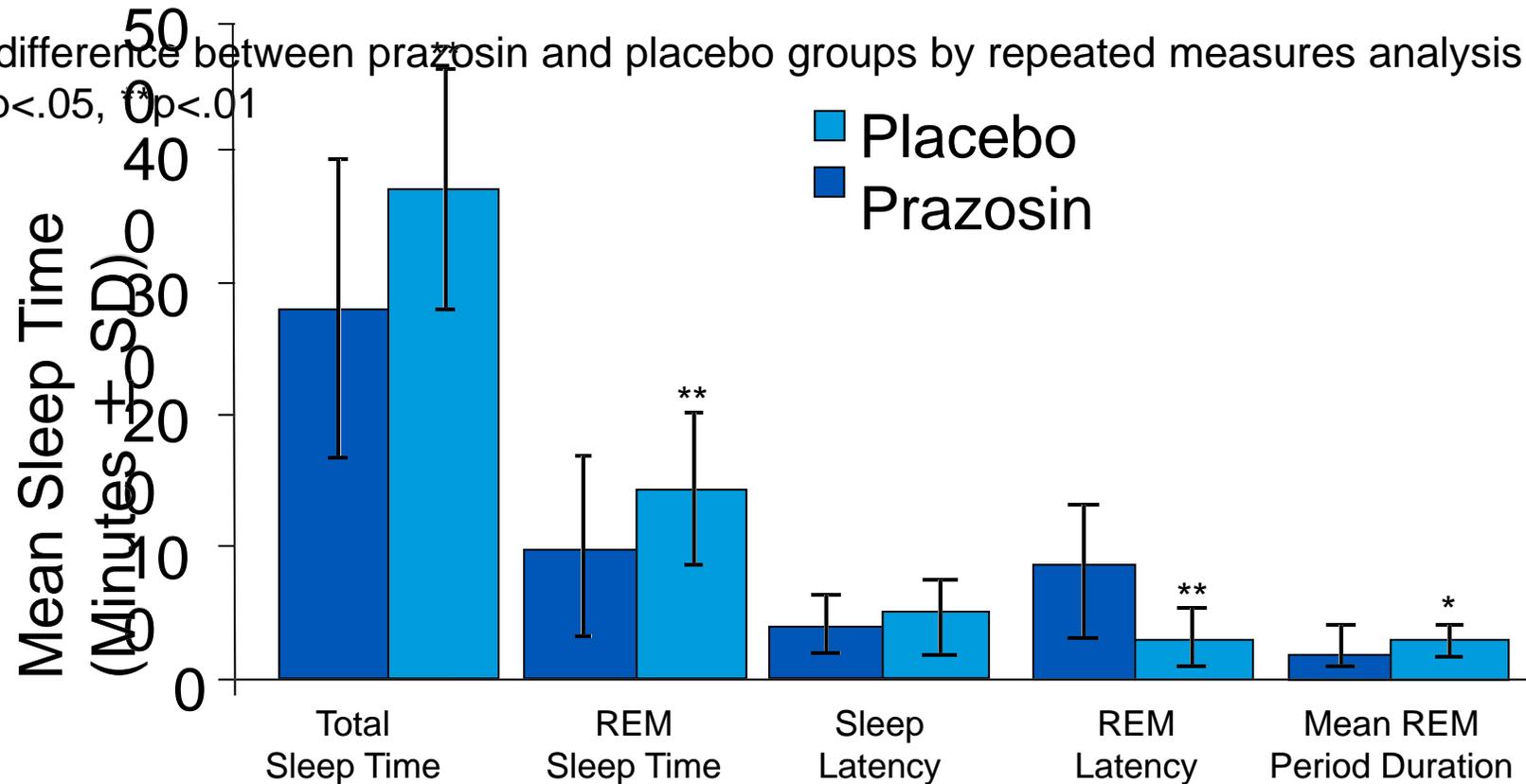
TRAUMA AND STRESSOR RELATED DISORDERS- PTSD

- Sleep duration, continuity, and REM and N3 are associated with
 - cognitive and emotional processing of memories
 - extinction of cued fear conditioning
 - hypothesized mechanisms of action of PTSD
- High prevalence of sleep disorders in patients with PTSD

• Taylor Sleep 2020

EFFECTS OF PRAZOSIN VS PLACEBO ON SLEEP MEASURES IN PTSD SUBJECTS (N=10)

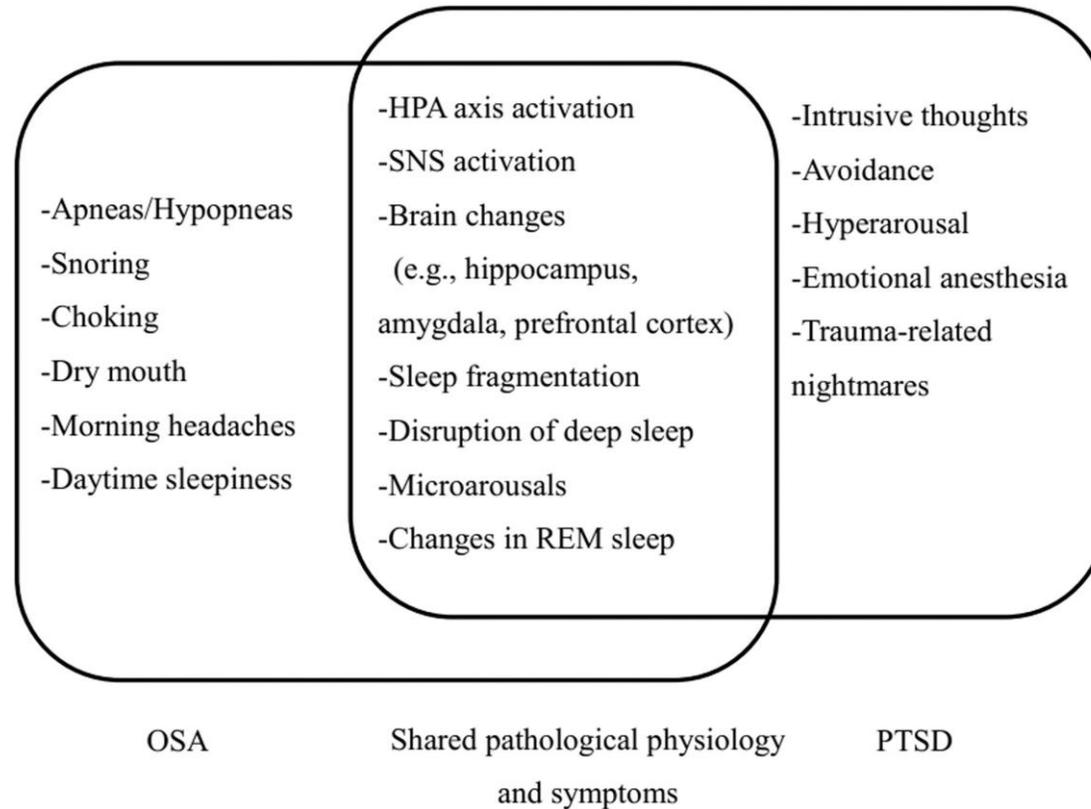
Significant difference between prazosin and placebo groups by repeated measures analysis of variance; *p<.05, **p<.01



PTSD AND OSA: A NARRATIVE REVIEW

- 70% of the population are exposed to trauma, 3% develop PTSD
- Two conditions often coexist
 - PTSD patients have a higher rate of OSA
 - Disturbed sleep may propel the pathophysiology of PTSD
 - Nightmares, fear of sleep, night terrors, insomnia, dream enactment
 - OSA may compromise REM
 - Hyperarousal and hypervigilance may worsen sleep
- PAP treatment can improve night and daytime symptoms of PTSD
 - McCall and Watson J Clin Med 2022

OVERLAP OF PTSD AND OSA



PTSD AND SLEEP

- Sleep problems in active duty military personnel seeking treatment for posttraumatic stress disorder
- 128 participants in a clinical trial of prolonged exposure vs an alternative therapy
- Multiple survey measures
- Baseline, average < 5 h per night on weekdays/workdays and < 6 h per night on weekends/off days
 - 80% insomnia,
 - 75% clinically significant nightmares
 - 77% sleep apnea
 - 55% reported EDS at baseline

- Taylor Sleep 2020

PTSD AND SLEEP

- Sleep disorders persisted
- Behavioral treatments for PTSD did not reduce sleep disorders
- Sleep disorders were related to worse PTSD treatment outcomes

- Taylor Sleep 2020

EFFECT OF TREATING OSA WITH CPAP ON PTSD: SYSTEMATIC REVIEW AND META-ANALYSIS

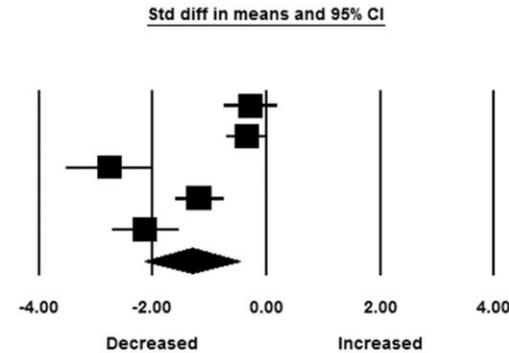
- 6 studies
- CPAP improved nightmares and overall PTSD symptoms for patients with OSA
- Improvements were associated with adherence and longer duration of usage
- PTSD patients should be evaluated for and treated for OSA if applicable

Zhang Neuroscience and Biobehavioral Reviews 2019

IMPROVEMENT IN NIGHTMARES AND PTSD OVERALL

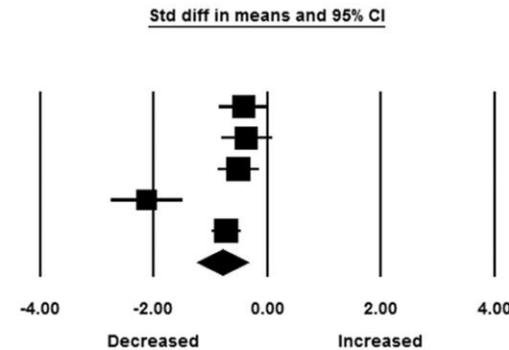
A) Overall PTSD symptoms

Study name	Statistics for each study				
	Std diff in means	Standard error	Variance	Lower limit	Upper limit
El-Solh et al., 2017a	-0.270	0.240	0.058	-0.741	0.201
Ullah et al., 2017	-0.340	0.185	0.034	-0.703	0.023
Orr et al., 2017	-2.759	0.388	0.150	-3.518	-1.999
El-Solh et al., 2018 (with insomnia)	-1.184	0.217	0.047	-1.610	-0.758
El-Solh et al., 2018 (without insomnia)	-2.132	0.302	0.091	-2.723	-1.541
	-1.298	0.424	0.179	-2.128	-0.468



B) Nightmare

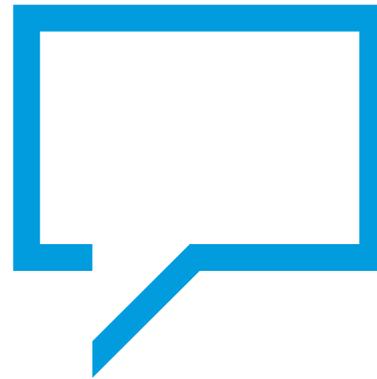
Study name	Statistics for each study				
	Std diff in means	Standard error	Variance	Lower limit	Upper limit
El-Solh et al., 2017b (Nightmare distress)	-0.410	0.226	0.051	-0.853	0.033
El-Solh et al., 2017b (Nightmare frequency)	-0.360	0.225	0.051	-0.802	0.082
Ullah et al., 2017	-0.510	0.187	0.035	-0.877	-0.143
Orr et al., 2017	-2.126	0.319	0.102	-2.752	-1.501
Tamanna et al., 2014	-0.725	0.135	0.018	-0.990	-0.459
	-0.778	0.230	0.053	-1.228	-0.327



CONCLUSIONS

- In OSA treated with CPAP consider the role of a specific phobia
- In nightmares and disturbed sleep consider a sleep study to assess for OSA
- In insomnia consider a coexisting anxiety or mood disorder

QUESTIONS & DISCUSSION



Case 1 - 35 y/o F is seen for poor sleep. She has been diagnosed with and treated for generalized anxiety disorder (GAD). She reports that she is less anxious during the day and better able to focus. Sleep is still very disrupted. According to Vgontas' subtyping of insomnia which of the following could be considered?

1. Temazepam
2. Doxepin
3. Sleep hygiene education
- ✓ 4. Online cognitive behavioral therapy

Rationale

The patient may have the subtype of insomnia associated with anxious/ruminative thinking that responds better to behavioral therapies than sedative/hypnotic medications. Even once the GAD is treated, the sleep issues may persist and require targeted treatment.

References

Sleep Medicine Review: Vgontas 2013

Current Psychiatry Reports Mirchandaney 2022

Arch Gen Psych: Hacimusalar 2020

Case 2 - 55 y/o M is seen by his PCP. He has longstanding excessive daytime sleepiness . He is a veteran of the first Iraq war and in the past he has participated in PTSD clinical trials. He continues to experienced disturbed sleep and nightmares. He is divorced and does not have a bed partner so no additional information is available. Which of the following is the next best step?

1. Prazosin
2. Cognitive behavioral therapy
3. Modafinil
-  4. Diagnostic sleep study

Rationale

This patient has previously qualified for clinical trials for PTSD but continues to be symptomatic. Rather than continue to focus on addressing his PTSD the next step at this point would be to consider the possibility of coexisting OSA and refer for appropriate testing. Using modafinil for his EDS without a sleep study would be premature.

References

Sleep Taylor 2020

Neuroscience and Biobehavioral Reviews Zhang 2019



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