

MENTAL HEALTH AND ITS IMPACT ON SLEEP

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DISCLOSURES:

- NONE

SLEEP AND MENTAL DISORDERS

- Sleeping problems are well correlated to mental disorders, like depression, ADHD and others.
- Symptoms of these disorders may be worsened by lack of sleep.
- Sleeping difficulties can further develop from the drugs used to control symptoms of mental disorders, or from changes in the brain regions and neurotransmitters that control sleep.

GENERAL SLEEP

- Sufficient sleep, especially REM sleep, facilitates the brain's processing of emotional information.
- During sleep, the brain works to evaluate and remember thoughts and memories.
 - Lack of sleep is especially harmful to the consolidation of positive emotional content.
- This can influence mood and emotional reactivity and is tied to mental health disorders and their severity, including the risk of suicidal ideas and behaviors.

Bernert, R. A., Kim, J. S., Iwata, N. G., & Perlis, M. L. (2015). Sleep disturbances as an evidence-based suicide risk factor. *Current psychiatry reports*, 17(3), 554. <https://doi.org/10.1007/s11920-015-0554-4>



RELATIONSHIPS BETWEEN SLEEP & MENTAL HEALTH

- Sleep and mental health are closely connected.
- Sleep deprivation affects your psychological state and mental health.
- Those with mental health problems are more likely to have insomnia or other sleep disorders.
- Chronic sleep problems affect 50% to 80% of patients in a typical psychiatric practice, compared with 10% to 18% of adults in the general U.S. population.



CAUSE & EFFECT

- Sleep problems are more likely to affect patients with psychiatric disorders than people in the general population.
- Sleep problems may increase risk for developing particular mental illnesses
- Treating the sleep disorder may help alleviate symptoms of the mental health problem.



RELATIONSHIPS BETWEEN SLEEP & MENTAL HEALTH

- Sleep problems are particularly common in patients with anxiety, depression, bipolar disorder, and attention deficit hyperactivity disorder (ADHD).
- Sleep problems may raise risk for, and even directly contribute to, the development of some psychiatric disorders.
- Treating a sleep disorder may also help alleviate symptoms of a co-occurring mental health problem.

SLEEP DEBT

- Neuroimaging and neurochemistry studies
 - Suggest a good night's sleep helps foster both mental and emotional resilience.
- Chronic sleep deprivation sets the stage for negative thinking and emotional vulnerability.



STRESS

- Stress is a response to events that occur in daily life.
- It can affect behavior and influence people physically and emotionally.
- It causes tense and anxious feelings which often lead to sleep problems.



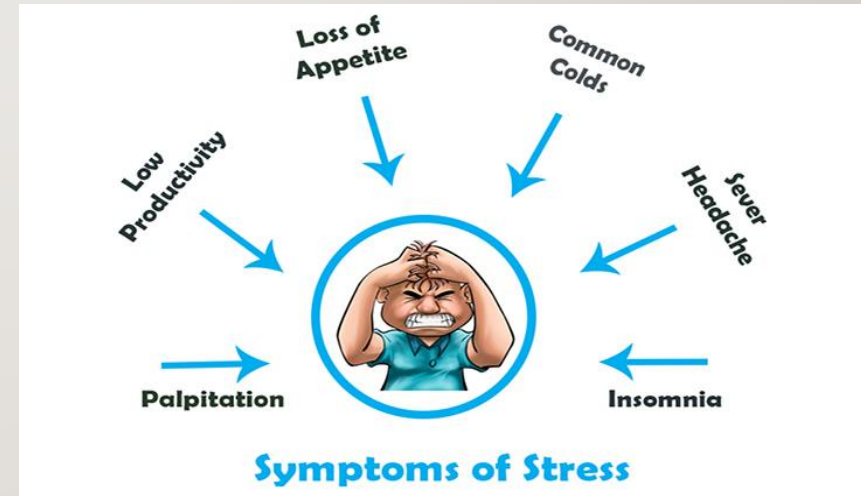
EFFECTS OF STRESS

- Depression
 - Anxiety
 - Errors at work or school
 - Poor concentration
 - Apathy
 - Sleep problems (trouble falling asleep and maintaining sleep).
- When stress is not well managed, health and the sense of well-being suffers.



SIGNS OF STRESS

- There are many physical and emotional responses to stress.
- The American Institute of Stress has identified 50 common signs and symptoms of stress.



STRESS AT WORK

- A study conducted at The Stress Research Institute in Stockholm Sweden investigated the effect of high work stress in a group of 28 teachers to identify individual differences in the response of sleep to stress.
- Upcoming stress levels that were likely to occur were estimated through weekly questionnaires.
- Sleep was recorded during one high stress and one low stress condition in their home.



STUDY RESULTS

- During the high stress condition, participants had:
 - decreased sleep efficiency
 - increased arousals
 - increased sleep stage changes
 - decreased REM sleep
 - indications of bedtime stress with low ratings on sufficient sleep and difficulty awakening on sleep diaries
 - lower cognitive function
 - preoccupation with work thoughts in the evening
 - increased sleepiness during periods of high stress
- Conclusion: Moderate daily stress creates a negative effect on sleep, sleep efficiency and increases sleep fragmentation.

COPING WITH STRESS

- Some people lose sleep during periods of stress, while others seem to "sleep like a baby"? This may be due to the way people cope with stress.
- A study at Tel Aviv University conducted on a group of students showed
 - Those "who tended to focus on their emotions and anxiety during a high-stress period (like final exams) were more likely to shorten their sleep, while those who tended to ignore emotions and focus on the task of studying for their test actually "extended their sleep and shut off the stress."

INSOMNIA AND STRESS

- The increased prevalence of insomnia in middle-age may be related to:
 - Increased sensitivity to stress hormones that cause arousals (Corticotropin-releasing hormone (CRH) and Cortisol).



LINK BETWEEN STRESS HORMONES AND SLEEP

- A research study at Pennsylvania State University College of Medicine found
 - Stress has an unusual affect on middle-aged men who are losing sleep due to increased stress.
- This study revealed that stress was not always related to what the men worried about, but was more related to an "increased vulnerability of their sleep to stress hormones".



LINK BETWEEN STRESS HORMONES AND SLEEP

- Other research shows that as men age, they become more sensitive to the stimulating effects of arousal-producing stress hormones.
- In a study where both young and middle-aged men were administered Corticotropin-releasing hormone (CRH), the older men stayed awake longer and slept less deeply.
 - People who do not get enough of this deep "slow-wave" sleep may be more prone to depression.



LINK BETWEEN STRESS HORMONES AND SLEEP

- In another study, researchers compared patients with insomnia to those with no sleep complaints.
- They found that "insomniacs with the highest degree of sleep disturbance secreted the highest amount of cortisol, especially in the evening and nighttime hours."
- This study suggests that chronic insomnia is a disorder of continuous hyperarousal of the body's stress response system.



INSOMNIA AND STRESS

- The main cause of insomnia in this group is worry.
- When a person has consistent problems with falling asleep and maintaining sleep, it can be caused by a number of other factors:
 - Certain medications
 - Sleep disorders (like sleep apnea, or periodic limb movement disorder)
 - Depression and anxiety disorders
 - Asthma
 - Arthritis, or other medical conditions that tend to be more troublesome at night.



EFFECTS OF SLEEPINESS AND STRESS ON WORK AND PERFORMANCE

- Late to work—14%
- Stay home from work—4%
- Fall asleep at work—7%
- Make errors—19%
- Get injured—2%



Source: NSF 2000 *Sleep In America* Poll

SLEEP LOSS, STRESS AND WORK-RELATED INJURIES

- Highly fatigued workers are 70% more likely to be involved in accidents.
- Workers with chronic insomnia have higher rates of accidents.
- Workers who have disturbed sleep are nearly twice as likely to die in a work –related accident.

Source: NSF 2000 *Sleep In America* Poll

MANAGING STRESS AND SLEEP



MANAGING STRESS

- Just as stress is different for each of us, there is no one stress reduction strategy that is a solution.
- The key to reducing stress is to prevent it.



STRESS RELIEVERS

- Many stress relievers work because of the power of the placebo effect--having faith in the procedure or the therapist.
- Other approaches can achieve the same results because they reduce feelings of helplessness and provide a sense of control over the problem.
 - Sufficient sleep
 - A proper diet
 - Avoiding excess caffeine and other stimulants
 - Taking time to relax



SUPPORT FOR STRESS

- **Seek Social Support:**

- Spending time with family and friends is an important buffer against stress.
- Share your problems with people who care about you.



EXERCISE AND RELAXATION

- Exercise can help blow off steam and reduce stress.
- Flexible and loose muscles are less likely to become tight and painful in response to stress.
- Relaxation Techniques



DELEGATE...DELEGATE...DELEGATE

- Delegate some of your responsibilities:
 - Having too many responsibilities can lead to stress.
 - Free up time and decrease stress by delegating responsibilities to others.



INSOMNIA



- Insomnia is an inability to get the amount of sleep needed to function efficiently during the daytime.
- Approximately 50% of insomnia cases are related to depression, anxiety or psychological stress.

INSOMNIA

- Early morning wakefulness can be a sign of depression, along with low energy, inability to concentrate, sadness and a change in appetite or weight.
- A sudden dramatic decrease in sleep which is accompanied by increase in energy, or the lack of need for sleep may be a sign of mania.



INSOMNIA TREATMENT

- The treatment recommended insomnia is the same for all patients, regardless of whether they also suffer from psychiatric disorders.
- The fundamentals are a combination of lifestyle changes, behavioral strategies, psychotherapy, and drugs if necessary.



https://www.health.harvard.edu/newsletter_article/sleep-and-mental-health

FOLLOW GOOD SLEEP HYGIENE

- Maintain a regular bed and wake time schedule including weekends.
- Establish a regular, relaxing bedtime routine.
- Create a dark, quiet, comfortable and cool sleep environment.
- Sleep on a comfortable mattress and pillow.
- Use your bedroom only for sleep and sex, not work or other stressful activities.



GOOD SLEEP HYGIENE (CONTINUED)

- Finish eating at least 2-3 hours before your regular bedtime.
- Exercise regularly. It is best to complete your workout at least a few hours before bedtime.
- Avoid caffeine, nicotine & alcohol close to bedtime. They can disrupt sleep later in the night.
- Avoid napping. It will disturb your sleep later that night.



CBT FOR INSOMNIA

- Stimulus Control
- Mental content control
- Sleep restriction therapy
- Relaxation Techniques
- Improvement of bed time routine



COGNITIVE BEHAVIORAL THERAPY - INSOMNIA

- Has a proven track record in reducing sleeping problems.
- A large clinical trial also showed that CBT-I could reduce symptoms of many mental health conditions⁴¹, improving emotional well-being and decreasing psychotic episodes.

Freeman, D., Sheaves, B., Goodwin, G. M., Yu, L. M., Nickless, A., Harrison, P. J., Emsley, R., Luik, A. I., Foster, R. G., Wadekar, V., Hinds, C., Gumley, A., Jones, R., Lightman, S., Jones, S., Bentall, R., Kinderman, P., Rowse, G., Brugha, T., Blagrove, M., ... Espie, C. A. (2017). The effects of improving sleep on mental health (OASIS): a randomised controlled trial with mediation analysis. *The lancet. Psychiatry*, 4(10), 749–758. [https://doi.org/10.1016/S2215-0366\(17\)30328-0](https://doi.org/10.1016/S2215-0366(17)30328-0)

RELAXATION THERAPY

Goal: Reduce physiological, emotional and cognitive arousal at bedtime

- Techniques:
 - Biofeedback based techniques:
 - Progressive muscle relaxation
 - EEG based
 - Self hypnosis based techniques:
 - Visual guided imagery
 - Meditation/relaxation techniques
 - Breathing exercises
 - Mindful meditation
 - Music



STIMULUS CONTROL THERAPY

Step 1: lie down intending to go to sleep only when you are sleepy.

Step 2: If you are unable to fall asleep within 20 minutes, get up and go to another room.

Return to step 1 and repeat as many times as necessary.

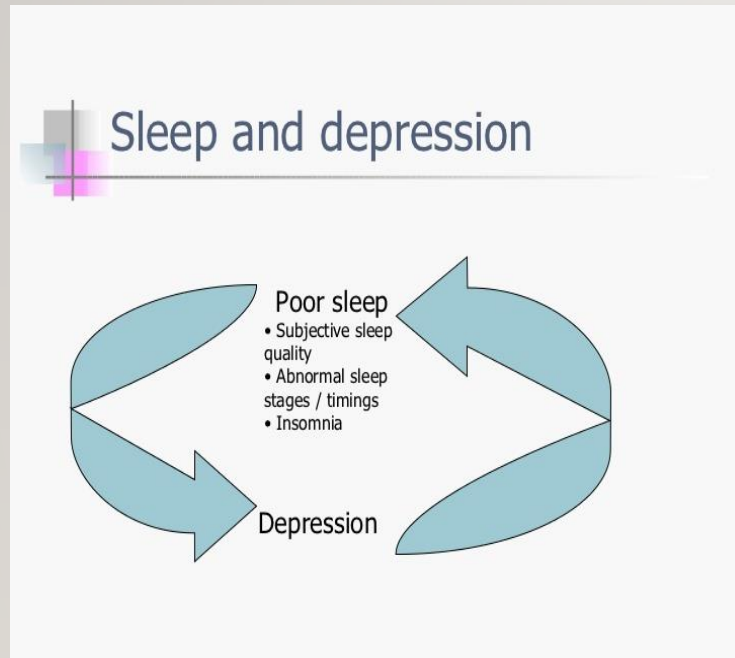
Maintain a regular morning wakeup time.

Do not nap during the daytime!

- Benca RM (2005), Psychiatr Serv 56(3):332 -343; Bootzin RR, Perlis



DEPRESSION AND SLEEP



- The relationship between sleep and depression is complex:
 - Depression may cause sleep problems and sleep problems may cause or contribute to depressive disorders.
- Symptoms of depression occur before the onset of sleep problems in some people, but in contrast, sleep problems may appear first in others.
- Sleep problems and depression may also share the same risk factors and biological features and the two conditions may respond to some of the same treatments.
- Sleep problems are also associated with more severe depression.

DEPRESSION AND SLEEP

- Insomnia is very common in depressed patients.
- People with insomnia are 10 times more likely to develop depression when compared with those who sleep well.
- Depressed individuals may suffer from several symptoms of insomnia
 - Difficulty falling asleep (sleep onset insomnia)
 - Difficulty staying asleep (sleep maintenance insomnia)
 - Unrefreshing sleep, and daytime sleepiness.
- It is believed that the risk of developing depression is higher among people with both sleep onset and sleep maintenance insomnia.



DEPRESSION

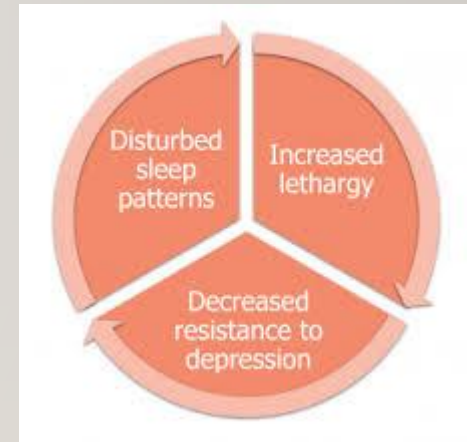
- Estimated over 300 million people worldwide have depression
- 75% of depressed people have insomnia and many people with depression also suffer from excessive daytime sleepiness and hypersomnia.
- Bidirectional relationship in which sleep problems and depressive symptoms are mutually reinforcing.

Nutt, D., Wilson, S., & Paterson, L. (2008). Sleep disorders as core symptoms of depression. *Dialogues in clinical neuroscience*, 10(3), 329–336. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3181883/>



DEPRESSION

- Create a negative feedback loop — poor sleep worsens depression that then further interrupts sleep.
- A focus on improving sleep may have a corollary benefit of reducing the symptoms of depression.



Bishop, T. M., Simons, K. V., King, D. A., & Pigeon, W. R. (2016). Sleep and Suicide in Older Adults: An Opportunity for Intervention. *Clinical therapeutics*, 38(11), 2332–2339. <https://doi.org/10.1016/j.clinthera.2016.09.015>

DEPRESSION

- Studies using different methods and populations estimate
 - 65% to 90% of adult patients with major depression, and about 90% of children with this disorder, experience some kind of sleep problem.
- Most patients with depression have insomnia, but about one in five suffer from obstructive sleep apnea.
- Insomnia and other sleep problems increase the risk of developing depression.



DEPRESSION



- A longitudinal study of about 1,000 adults Ages 21 to 30 enrolled in a Michigan health maintenance organization
 - Compared with normal sleepers, those who reported a history of insomnia during an interview in 1989 were four times as likely to develop major depression by the time of a second interview three years later
- Two longitudinal studies in young people
 - One with 300 pairs of young twins
 - Another with 1,014 teenagers
 - Found that sleep problems developed before major depression did.

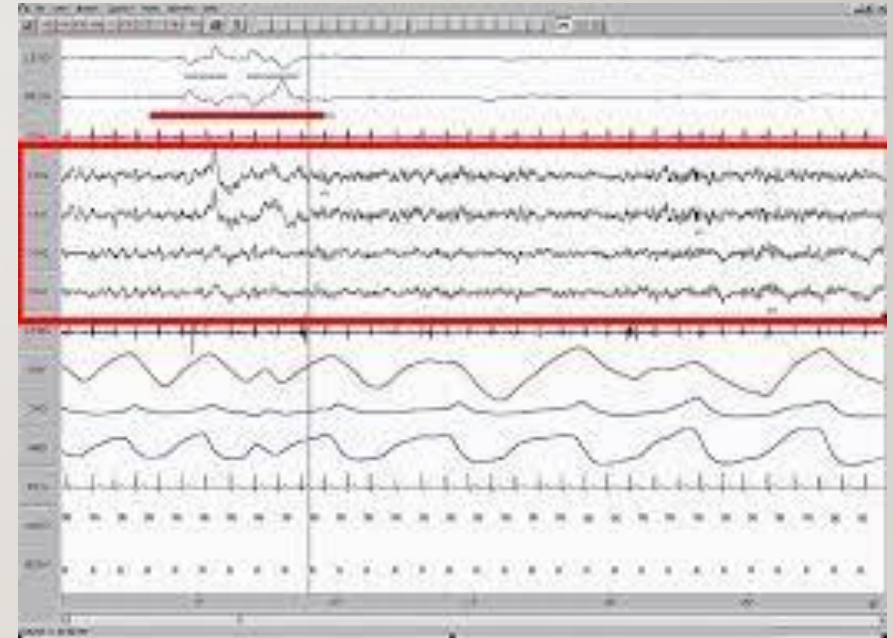
DEPRESSION

- Studies report that depressed patients who continue to experience insomnia are less likely to respond to treatment than those without sleep problems.
- Even patients with insomnia whose mood improves with antidepressant therapy are more at risk for a relapse of depression later on.
- Depressed patients who experience insomnia or other sleep disturbances are more likely to think about suicide and die by suicide than depressed patients who are able to sleep normally.



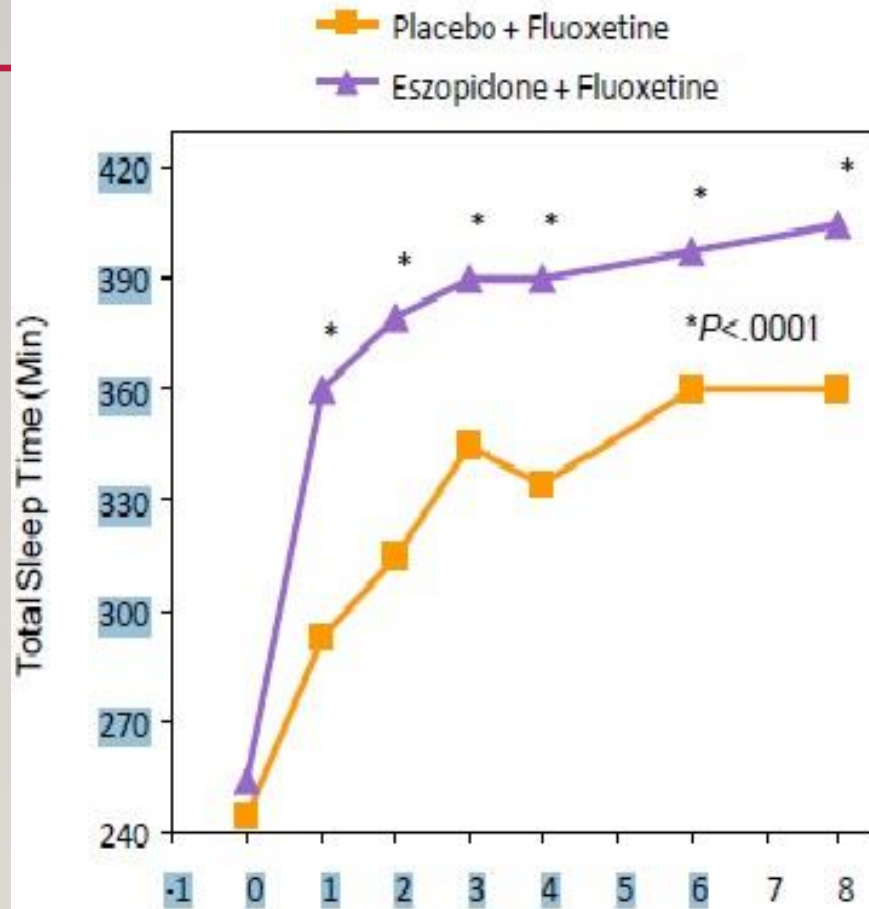
SLEEP AND MAJOR DEPRESSION

- Changes in sleep architecture include:
 - Shortened REM sleep latency
 - Increased REM density
 - Reversal of REM cycle
 - Decreased slow wave sleep
 - Early AM awakenings
 - Reduced total sleep time
 - Increased awakenings



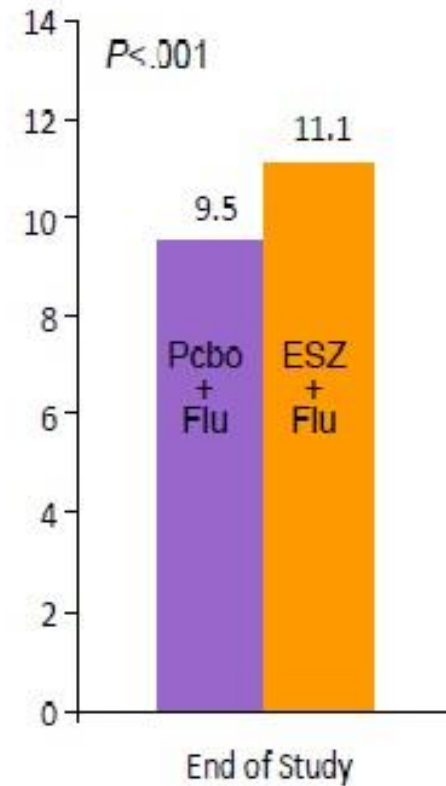
Fluoxetine + Eszopiclone vs Fluoxetine + Placebo N=545

Insomnia Efficacy

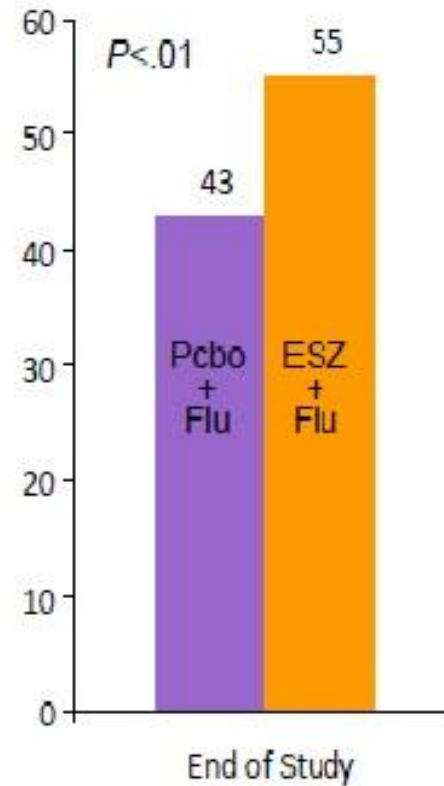


Significant Effect on Depression Response

Improvement in HAM-D17 Excluding Insomnia Items



% Remitters (HAM-D17≤7)



SEASONAL AFFECTIVE DISORDER

- Seasonal affective disorder is a subtype of depression that most often affects people during times of the year with reduced daylight hours.
- This condition is closely tied to the disruption of a person's circadian rhythm that helps control multiple bodily processes, including sleep.
- People with seasonal affective disorder tend to sleep too much or too little or experience changes to their sleep cycles.

Sandman, N., Merikanto, I., Määtänen, H., Valli, K., Kronholm, E., Laatikainen, T., Partonen, T., & Paunio, T. (2016). Winter is coming: nightmares and sleep problems during seasonal affective disorder. *Journal of sleep research*, 25(5), 612–619. <https://doi.org/10.1111/jsr.12416>

DELAYED SLEEP-PHASE SYNDROME (DSPS)

- Schizoid, avoidant personality features and depression are associated with this disorder.
- The sleep period is delayed usually until the early morning hours—typically 2:00-6:00 AM.





DELAYED SLEEP-PHASE SYNDROME (DSPS)

- Problems occur when the person attempts to go to a conventional (earlier) sleep-wake schedule.
- The biological clock is misaligned in DSPD.
 - If the person attempts to sleep at conventional times, they have complaints of sleep onset insomnia.
- Excessive daytime sleepiness occurs due to sleep deprivation and the sleepiness is more prevalent in the morning hours.

DELAYED SLEEP PHASE SYNDROME TREATMENT

- Need to treat depression or the delayed sleep phase will not resolve.
- After treatment of depression, behavioral treatments to shift the sleep phase.
 - Melatonin and light therapy may be helpful.



BIPOLAR

- During manic periods, usually feel less need to sleep.
- During depressed periods, may sleep excessively.
- Sleep disruptions often continue when a person is between episodes.



Kaplan, K. A., & Harvey, A. G. (2013). Behavioral treatment of insomnia in bipolar disorder. *The American journal of psychiatry*, 170(7), 716–720. <https://doi.org/10.1176/appi.ajp.2013.12050708>

BIPOLAR

- Many people with bipolar disorder experience changes in their sleep patterns before the onset of an episode.
- Evidence that sleeping problems induce or worsen manic and depressive periods.
- Treatment for insomnia can reduce the impact of bipolar disorder.

1. Harvey, A. G., Kaplan, K. A., & Soehner, A. M. (2015). Interventions for Sleep Disturbance in Bipolar Disorder. *Sleep medicine clinics*, 10(1), 101–105. <https://doi.org/10.1016/j.jsmc.2014.11.005>

2.23. Harvey, A. G., Soehner, A. M., Kaplan, K. A., Hein, K., Lee, J., Kanady, J., Li, D., Rabe-Hesketh, S., Ketter, T. A., Neylan, T. C., & Buysse, D. J. (2015). Treating insomnia improves mood state, sleep, and functioning in bipolar disorder: a pilot randomized controlled trial. *Journal of consulting and clinical psychology*, 83(3), 564–577. <https://doi.org/10.1037/a0038655>

BIPOLAR



- Studies in different populations report that 69% to 99% of patients experience insomnia or report less need for sleep during a manic episode of bipolar disorder.
- 23% to 78% of patients sleep excessively while others may experience insomnia or restless sleep.
- Longitudinal studies suggest that insomnia and other sleep problems worsen before an episode of mania or bipolar depression, and lack of sleep can trigger mania.
- Sleep problems also adversely affect mood and contribute to relapse.

ANXIETY

- Anxiety disorders in America affect an estimated 20% of adults and 25% of teenagers
- Types of anxiety disorders include general anxiety disorder, social anxiety disorder, panic disorder, specific phobias, obsessive-compulsive disorder (OCD), and post-traumatic stress disorder (PTSD).



ANXIETY

- Anxiety disorders have a strong association with sleeping problems.
- Worry and fear contribute to a state of hyperarousal in which the mind is racing, and hyperarousal is considered to be a central contributor to insomnia.
- Sleep problems may become an added source of worry
 - Increased rumination, creating anticipatory anxiety at bedtime that makes it harder to fall asleep.

1. Kalmbach, D. A., Cuamatzi-Castelan, A. S., Tonnu, C. V., Tran, K. M., Anderson, J. R., Roth, T., & Drake, C. L. (2018). Hyperarousal and sleep reactivity in insomnia: current insights. *Nature and science of sleep*, 10, 193–201.<https://doi.org/10.2147/NSS.S138823>

2.16. Grupe, D. W., & Nitschke, J. B. (2013). Uncertainty and anticipation in anxiety: an integrated neurobiological and psychological perspective. *Nature reviews. Neuroscience*, 14(7), 488–501.<https://doi.org/10.1038/nrn3524>

ANXIETY

- Sleep problems affect
 - More than 50% of adult patients with generalized anxiety disorder
 - Common in those with post-traumatic stress disorder (PTSD)
 - May occur in panic disorder, obsessive-compulsive disorder, and phobias.
- Insomnia may also be a risk factor for developing an anxiety disorder.



ANXIETY



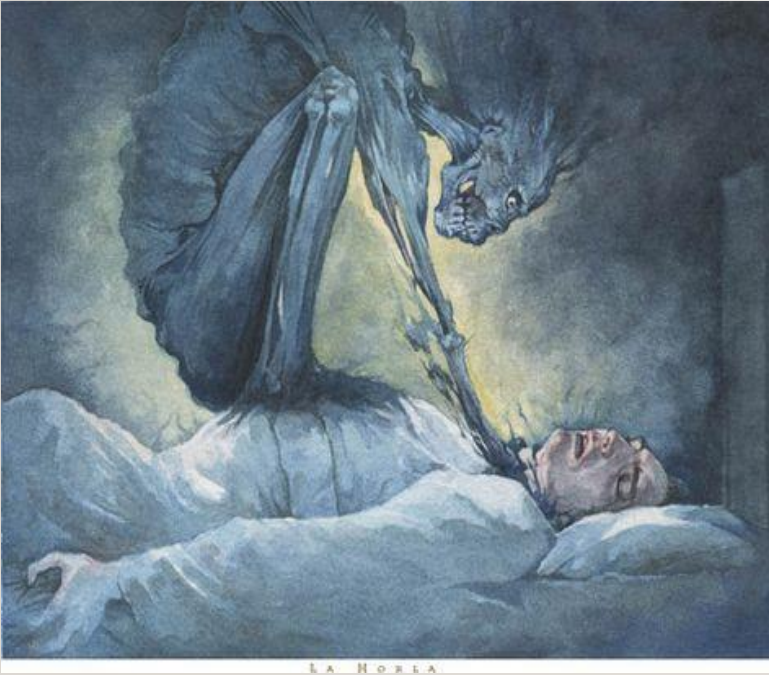
- One sleep laboratory study found that youngsters with an anxiety disorder
 - Took longer to fall asleep
 - Slept less deeply, when compared with a control group of healthy children.

ANXIETY

- Longitudinal study of teenagers
 - Sleep problems preceded anxiety disorders 27% of the time, while they preceded depression 69% of the time.
 - Insomnia can worsen the symptoms of anxiety disorders or prevent recovery.
- Sleep disruptions in PTSD may contribute to a retention of negative emotional memories and prevent patients from benefiting from fear-extinguishing therapies.



NIGHTMARES



- Unpleasant and frightening dreams that occur during REM sleep, usually in the last half of the night.
- Dream content relates to physical danger.
- Patients can recall the content of the nightmare when they wake up, and there is little if any confusion.
- Event can be brought on by sleep deprivation, illness, traumatic experiences, acute alcohol ingestion and certain medications.
- Occasional nightmares in children are normal.
- Recurring nightmares in adults can cause insomnia, sleep avoidance due to fear, EDS and anxiety.

ADHD AND SLEEP



- Attention deficit/hyperactivity disorder (ADHD) is a term used to describe hyperactivity, inattentiveness, and/or impulsivity.
- It is a common condition that begins in childhood and may persist into adulthood.
- Children with ADHD typically have trouble sitting still, staying focused, and/or controlling their behavior and emotions, which can lead to lower social skills, isolation, dependence, and poor performance in school.

ADHD

- Various sleep problems affect 25-50% of children with ADHD.
- Typical problems include difficulty falling asleep, shorter sleep duration, and restless sleep.
- One study demonstrated sleep-disordered breathing affects up to 25% of children with ADHD, and restless legs syndrome or periodic limb movement disorder, which disrupt sleep, combined affect up to 36%.



1. Shur-Fen Gau S. (2006). Prevalence of sleep problems and their association with inattention/hyperactivity among children aged 6-15 in Taiwan. *Journal of sleep research*, 15(4), 403-414. <https://doi.org/10.1111/j.1365-2869.2006.00552.x>
- 2.29. Spruyt, K., & Gozal, D. (2011). Sleep disturbances in children with attention-deficit/hyperactivity disorder. *Expert review of neurotherapeutics*, 11(4), 565-577. <https://doi.org/10.1586/ern.11.7>
- 3.30. Bjorvatn, B., Brevik, E. J., Lundervold, A. J., Halmøy, A., Posserud, M. B., Instanes, J. T., & Haavik, J. (2017).

ADHD AND SLEEP



- Another study demonstrated ADHD found that 50% of children with ADHD had signs of sleep disordered breathing, compared to only 22% of children without ADHD.

ADHD SYMPTOMS



- Children with sleep disorders may become hyperactive, inattentive, and emotionally unstable even when they do not meet the diagnostic criteria for ADHD.

PTSD

- People with PTSD frequently have sleep interference from
 - Replaying negative events in their mind
 - Suffering from nightmares
 - Experiencing a state of being on alert
- PTSD affects many veterans, and at least 90% of U.S. veterans with combat-related PTSD from recent wars have insomnia symptoms.



Gehrman, P. (2020, March 26). Sleep Problems in Veterans with PTSD. Retrieved September 9, 2020, https://www.ptsd.va.gov/professional/treat/cooccurring/sleep_problems_vets.asp

NIGHTMARES IN PTSD

- Psychotherapy
- Medicinal treatment with Prazosin.
 - Improved overall PTSD scores (SMD = -0.31; 95% confidence intervals [CI]: -0.62, -0.01)
 - Improved nightmares (SMD = -0.75; 95% CI: -1.24, -0.27)
 - Improved sleep quality (SMD = -0.57; 95% CI: -1.02, -0.13).



SCHIZOPHRENIA

- Mental health disorder characterized by a difficulty in differentiating between what is and is not real.
- More likely to experience insomnia and circadian rhythm disorders.
- Sleeping problems may be exacerbated by medications that are used to treat schizophrenia.
 - Medications frequently cause sleepiness.
- Poor sleep and symptoms of schizophrenia may be mutually reinforcing
 - Potential benefits to stabilizing and normalizing sleep patterns.

1. Khurshid K. A. (2018). Comorbid Insomnia and Psychiatric Disorders: An Update. *Innovations in clinical neuroscience*, 15(3-4), 28-32. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5906087/>

2.26. Benson K. L. (2006). Sleep in schizophrenia: impairments, correlates, and treatment. *The Psychiatric clinics of North America*, 29(4), 1033-x. <https://doi.org/10.1016/j.psc.2006.08.002>

OTHER PSYCHIATRIC DISORDERS

- Obsessive-compulsive disorder (OCD) is frequently associated with poor sleep.
- Panic attacks during sleep may suggest a panic disorder.



DRUGS

- Substance use disorders can also cause problems with sleep.
- Alcohol intoxication
 - Nocturnal awakenings disrupting sleep
- Illicit drugs such as LSD and Ecstasy
 - Associated with interruptions in sleep.
- Some sedative medications may cause sleepiness during intoxication
 - Can disturb sleep and cause serious problems sleeping in people who are misusing or withdrawing from these medications.



SLEEP AND ALCOHOL ABUSE

- Acute effects:
 - Shortens sleep latency.
 - Disturbed sleep continuity as metabolizes.
 - Reduced REM sleep and delta sleep.
- Chronic use:
 - Severe sleep continuity disturbances.
- Acute withdrawal:
 - Severe insomnia with onset and continuity problems.
- Post-acute withdrawal:
 - Sleep problems can persist for several years.



OSA AND MENTAL DISORDERS

- Obstructive sleep apnea (OSA) is another aspect of sleep that has been linked to mental health.
 - OSA is a disorder that involves pauses in breathing during sleep and a reduction in the body's oxygen levels, creating fragmented and disturbed sleep.
 - OSA occurs more frequently in people with psychiatric conditions and may detract from their physical health and heighten their risk of serious mental distress.
 - Weight gain from psychiatric medication may be a factor.

Knechtle, B., Economou, N. T., Nikolaidis, P. T., Velentza, L., Kallianos, A., Steiropoulos, P., Koutsompolis, D., Rosemann, T., & Trakada, G. (2019). Clinical Characteristics of Obstructive Sleep Apnea in Psychiatric Disease. *Journal of clinical medicine*, 8(4), 534.<https://doi.org/10.3390/jcm8040534>

Kaufmann, C. N., Susukida, R., & Depp, C. A. (2017). Sleep apnea, psychopathology, and mental health care. *Sleep health*, 3(4), 244–249.<https://doi.org/10.1016/j.sleh.2017.04.003>

DEPRESSION AND OSA



- Obstructive sleep apnea (OSA) is also linked with depression.
- A study that included 18,980 people in Europe
 - People with depression were five times more likely to suffer from sleep-disordered breathing (OSA).
 - Treating OSA with continuous positive airway pressure (CPAP) also seemed to improve depression.
- Another study found that OSA patients who used CPAP for one year also showed significant and lasting improvements in symptoms of depression.

ADDITIONAL RESOURCES:

- <https://utswmed.org/medblog/sleep-disorders-mental-illness/>
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3493205/>
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3674021/>
- <https://www.mind.org.uk/information-support/types-of-mental-health-problems/sleep-problems/about-sleep-and-mental-health/>
- <https://www.webmd.com/sleep-disorders/guide/psychiatric-disorders>

QUESTIONS?

