

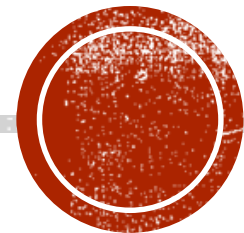
A DEVELOPMENTAL PERSPECTIVE ON SLEEP IN EMERGING ADULTS: INTERVENTIONS FOR COLLEGE COUNSELING PRACTICE

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AGENDA

1. Sleep discussion
2. Literature review/ key articles
3. Important sleep knowledge from a neuroscientist's perspective that applies to clinical practice
4. New adjunctive therapeutic modalities
5. Sleep myths
6. Summary and questions



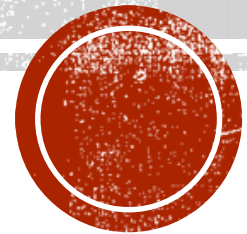
LET'S TALK ABOUT SLEEP !

What is your sleep like?

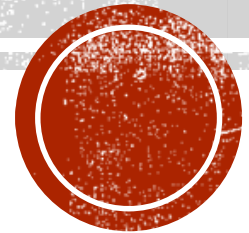
If you have a significant other what is your partner's sleep like?

What about your parents? Your siblings? Your roommates?

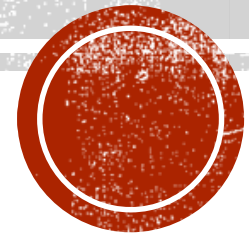
How has your sleep changed over time as an adult?



**WHAT ARE THE BARRIERS OR
CHALLENGES TO YOUR COLLEGE
STUDENT'S SLEEP (UNDERGRAD
OR GRAD)?**



**WHAT DO YOU KNOW ABOUT
SLEEP / SLEEP HYGIENE?**



PREVALENCE OF SLEEP ISSUES

Population studies show that sleep deprivation and disorders affect many more people worldwide than had been previously thought. A recent study found 20% of 25–45 year-olds slept “90 minutes less than they needed to be in good shape”.

Insomnia is the most common specific sleep disorder, with ‘some insomnia problems over the past year’ reported by approximately 30% of adults and chronic insomnia by approximately 10%.

(Ferrie et al., 2011)



MOST COMMON TYPES OF SLEEP ISSUES

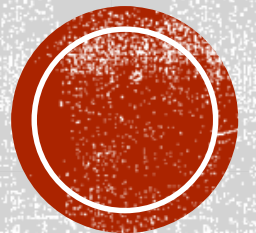
- **Insomnia (10% of population)**
- **Sleep Apnea**
- **Restless Leg Syndrome (10% adults & 2% children)**
- **Narcolepsy (1 in 2000)**
- **REM Sleep Behavior Disorder**

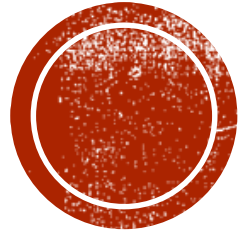
(Alaska Sleep Clinic Website)



**BUSTLE.COM ARTICLE:
THERE ARE 5 DIFFERENT KINDS OF
INSOMNIA, A NEW STUDY SHOWS, &
EACH TYPE MAY BE TREATED
DIFFERENTLY**

<https://www.bustle.com/p/there-are-5-different-kinds-of-insomnia-a-new-study-shows-each-type-may-be-treated-differently-15729064>





SLEEP RESEARCH



WHAT WE KNOW: LITERATURE REVIEW

20 million students attend institutions of higher education in the US. (Schwartz, 2017).

Depression, anxiety, and substance use factors impacts sleep (Haile et al., 2017).

College students report:

Poor sleep- quality (Gilbert and Weaver, 2010)

Not enough sleep-quantity (Baroni et al., 2017)

ALSO...

Lack of sleep impacts academic performance (Anjum et al., 2014).

ARTICLE #1: EFFECTS OF SLEEP ISSUES ON SI IN A MILITARY SAMPLE: THE MEDIATING ROLE OF MENTAL HEALTH

The goal of this study was to examine the relationship between sleep issues, mental health, and suicidal ideation in a sample of military service members (n=891) using mediation analysis. Sleep issues were related to SI, stress, PTSD, and depressive symptoms. PTSD, perceived stress, and depressive symptoms mediated the relationship between sleep issues and SI; after accounting for mental health symptoms, sleep no longer had a direct affect on SI.

The findings suggest that sleep issues may operate as a risk factor for mental health issues and SI.

(Morgan et al., 2017)

KEY ARTICLE #2: RISK OF DEMENTIA IN PATIENTS WITH PRIMARY INSOMNIA: A NATIONWIDE POPULATION-BASED CASE-CONTROL STUDY

Background: To investigate the association between primary insomnia and dementia using a Taiwanese population based database.

Methods: This case-control study involved a subset of Taiwan's National Health Insurance Research Database of reimbursement claims. We included 51,734 patients who were diagnosed with primary insomnia from 2002 to 2004 as the test group and 258,715 non-primary insomnia participants aged 20 years or older as the reference group. We excluded patients under 20 and those with depression, post-traumatic stress disorder, and/or sleep disorders caused by organic lesion(s), drugs, or alcohol.

Results: The primary insomnia cohort had a higher prevalence of diabetes, dyslipidemia, hypertension, coronary heart disease, chronic liver disease, and chronic kidney disease at baseline. After adjusting for select comorbidities, primary insomnia remained a significant predisposing factor for developing dementia, and was associated with a 2.14-fold (95% confidence interval, 2.01–2.29) increase in dementia risk. We also found a higher risk of dementia in younger patients.

Conclusions: Taiwanese patients with primary insomnia, especially those under 40, had a higher risk of developing dementia than those without primary insomnia.

(Hung et al., 2018)

SLEEP AND MEMORY

- Our minds are constantly processing events from our past. This also true during sleep. Deep sleep is important in creating brain networks necessary for memory consolidation and retention.

(Walker & Robertson, 2016)

- Sleep deprivation impairs the formation of new memories.

(Saletin et al., 2016)

SLEEP AND RELATIONSHIPS

- Sleep deprivation significantly compromises a humans' ability to accurately interpret social cues, understand social threats, and discriminate between complex social emotions.
- This means when one has had sleep loss that individual is more likely to have a misunderstanding or misinterpretation of a friend, family, or partner's behaviors, words or actions.
- An individual needs sufficient REM Sleep to recalibrates Their brain for accurate perceptions of social interactions.

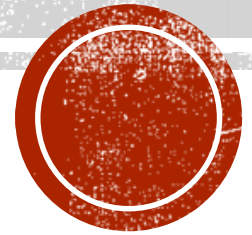
(Goldstein-Piekarski, 2015)

SLEEP AND PERFORMANCE

- College students because of university culture are at a higher risk for developing sleeping disorders.
- Students who develop issues with their sleep or disordered sleep are also at a higher risk for academic failure

(Gaultney, 2010)

PSYCHOEDUCATION OF SLEEP



SLEEP OVER THE COURSE OF LIFE

- Sleep has the most dramatic physiological change over the course of a lifetime.
- In utero you spend 90 -100 percent of your day in sleep.
- Dream sleep is a neuro fertilizer so one sleeps a lot when you are in your first year of life.
- Adolescence deep non-REM sleep increases in its amount. Sculpting down connections making your brain lean and efficient. Taking synapses away!

SLEEP OVER THE COURSE OF LIFE

- Then begins the great sleep depression. One can measure the decline in deep sleep in your 30's.
- By 50 you have lost almost 50 percent of your deep sleep from when you were a teen and by 70 you have lost almost 90 percent of your deep sleep as a teenager.
- At 80 scientists cannot measure those deep sleep brain waves any longer.

SLEEP OVER THE COURSE OF LIFE

- Older Adults need just as much sleep as they did in their 40's and 50's and this may be why there is such a strong association between cognitive decline and Alzheimer's disease and sleep.
- The brain simply cannot produce the sleep that an individual in their 80s or 90s need.

SLEEP OVER THE COURSE OF LIFE

- Unlike other aspects of aging this is something that can be treated with things like electrical stimulation technology. To increase amplitude in brave waives needed for sleep. This will then restore healthy quality of deep sleep and salvage aspects of learning and memory function.

HOW MUCH SLEEP?

- The average human needs ____ hours of sleep.
- Biology dependent
- Variable need
- Once you get below 7 hours of sleep you can measure objective impairments in the lab for almost everyone.
- Zero percent of the population can go on less than six hours of sleep without impairment

STIGMA ABOUT SLEEP

What do you think are stigmas around sleep?

IS IT OK TO NAP?

- Napping is a double edged sword
- If you are struggling with sleep at night or struggling to stay asleep at night = No Nap
- Sleep pressure builds up the longer you are awake. **Adenosine**
- When you sleep you dissipate that pressure. Naps do this! With a long nap you do not have the heavy weight of sleep pressure to keep you asleep. Falling asleep is harder and staying asleep.
- Unless you are a habitual napper.
- Some companies Google and Nike have (nap pods). Sleep enhances creativity

CAN YOU SPLIT UP YOUR SLEEP?

- Split sleep?
- In medieval times they did this for protection.
- Is this biological? 6 hours then 2?
- Monophasic sleep is best? One episode!
- However we are designed to take a nap. We aim to sleep 7-9 hours, then we have a genetically preprogrammed dip in alertness in the afternoon.
- What does Midnight mean? Tribes went to bed earlier 9 or 10 in the evening.

NIGHT OWLS AND EARLY BIRDS-THE GENETICS

- Chronotype- Know the genes that dictate whether you are a morning person or evening person.
- Society chastises the night owls and who else?
- 30 percent of the population is “owl” like (goes to bed late and wakes late) and 30 are “larks” (wake up early go to bed early)
- From an evolutionary perspective why is this?
- Rest of society sits in the middle of the bell curve.
- Heavy bias in first world in that we structure our work lives and status around who?

OTHER HELPFUL SLEEP HYGIENE IDEAS

Biological:

- **Sleep Pressure**-16 hours of wakefulness to create enough sleep pressure (**Adenosine**) to fall asleep. Caffeine blocks Adenosine!
- **Thermal**- your brain and your body need to drop between two to three degrees to initiate sleep. Easier to fall asleep in cool room than hot. 67-68 degree is optimal.
- **Light or absence of light**-We are a dark deprived society. The light bulb impact. Melatonin has to rise in your body! It helps you time the initiation of sleep. The placebo effect is POWERFUL! How does this apply? Darkness releases the brakes that are usually there to prevent release of melatonin. Darkness allows the timing of sleep to occur.
- **Tip:** Light is bad! Screens are particularly damaging. Encourage the use of blue light screens! Light tells our body to wake up and produce cortisol.
- **Tip:** Decrease all of the light in your house the two hours before you sleep. Studies have shown significant delays in sleep when reading on a iPad or similar before bed verses a paper book. You also do not feel as refreshed by your sleep!

WHAT ELSE HAS TO HAPPEN TO SLEEP HEALTHILY

Psychological aspect of Sleep:

- The psychological aspects of sleep are harder to treat. Evidence suggests that sleep issues, and especially insomnia are driven by anxiety and rolodex state of mind (Monkey Mind).
- Evidence also suggests that there are three primary drivers of nighttime anxiety: finances, professional lives, and relationships.
- Use meditation around anxiety related insomnia/talk therapy?
- Does medication have a role?
- Bi-Directional Relationship sleep and anxiety has been found .

ALCOHOL AND DRUGS AND SLEEP

- Alcohol- is a class of drugs that is sedatives. Blocks your dream sleep. Dream sleep is super important.
- Marijuana also has sedative qualities and blocks deeper dream sleep.
- Remember Sedation is not sleep!
- The Role of ADHD Medication and Sleep.

MEDICATION

Sleeping pills should not be the go to choice for treatment. Over 60 RCTs have shown that these pills have minimal effect over placebo. They also come with dangers.

- They are the class of drugs considered the sedative hypnotics. Sedation is not sleep. An individual does not get into the same natural sleeping architecture as natural sleep when on these meds.
- Sleeping pills are associated with a significantly higher rate of death.
- They have been associated with a significant higher risk of cancer.
- When you get off the medication you have rebound insomnia and you have even worse sleep than before you were on the medication.

WHAT IS A DREAM?

- **Dream: definition-Any report of mental activity upon awakening.**
- **More specific definition is that a dream must possess a narrative and has to be hallucinogenic. It also has to be emotional, motoric, kinesthetic, and entail some aspect of memory. According to this definition we only tend to dream during REM sleep.**
- **Sleep is apparent at all biological levels. Birds, worms, and even cells dream. Sleep is seen at all stages of the evolution pathway. It is seen at the smallest biological level.**

WHY WE SLEEP?

- It is not about saving calories. One does not look for food or a mate when we sleep and one is vulnerable to predators. Sleep should be strongly protected against via evolution. Sleep seems unnecessary?
- We sleep to cure sleepiness. Is there anything within the body that is invulnerable to sleep? The answer is no! Even down to genetic code!

SLEEP AND THE IMMUNE SYSTEM

- A recent study found that 700 genes were distorted when participants were given 6 hours of sleep or less a week. Particularly genes that decreased in activity were associated with your immune system.
- In a study the genes that increased in activity with lack of sleep were related to tumors in cancer, stress, cardiovascular disease, and those related to chronic inflammation in the body.
- It takes very little sleep loss to create a marked deficit in your biology.

SLEEP AND DISEASE

- **Every Major Disease that is killing us in the western world has a significant causal link to a lack of sleep!**
- Everything from cardiovascular disease to Alzheimer's disease to diabetes, obesity, cancer. It does not take much sleep loss!
- If you prevented someone from sleeping for a couple of weeks their blood sugar would be significantly impacted. The person would be classified as pre-diabetic

DAYLIGHT SAVING TIME

1.6 billion people each year participate in the daylight saving time experiment by gaining or losing an hour of sleep.


In Spring there is a 24 percent increase in heart attacks the subsequent day after DLST. When we gain an hour in the fall there is a 21 percent decrease in heart attacks. We are more fragile than you think!

SLEEPING IN A NEW PLACE

If you sleep in a novel location like a hotel or such, one half of your brain does not go into as deep of sleep as the other. This improves as you stay longer at a hotel and is why you may feel like you did not get a good night sleep or shallower, lighter sleep.



**THE GLOBAL SLEEP
LOSS EPIDEMIC IS
THE GREATEST
PUBLIC HEALTHCARE
CHALLENGE OF THE
21ST CENTURY!**



Sleep is the
greatest curable
disease that we
are not talking
about and trying
to change!

BRAIN SCIENCE AND INSOMNIA

- Insomnia patients seem to have abnormally high sympathetic nervous system activation (SNS is cranked in the “on” position). Insomnia is a hyper arousal disorder where the individuals have an abnormally high fight or flight or sympathetic nervous system activation.
- This activation keeps your heart rate too high, body temperature too high, and keeps the mental wheels of the mind turning.
- This is why meditation is helpful as it appears to dampen the sympathetic nervous system and bring on the parasympathetic nervous system, which is responsible for calm.

TREATMENTS FOR SLEEP

- Cognitive Behavioral Therapy for insomnia (CBTI) is just as efficacious as pill in the short term and more efficacious in the long term.
- Other therapies have been shown to be effective in treating anxiety and therefor sleep. (Transtheoretical approach and common factors)
- Meditation
- Exercise
- Diet
- Hypnosis

TREATMENTS FOR SLEEP CONTINUED...

(ISSUE IS ACCESS)

Biofeedback

Neurofeedback

Audio-Visual Entrainment

Heart Math

ART/Brain Spotting/EMDR

Light Therapy

Weighted Blankets

Vitamin Therapy

TMS

BODY RELATED INTERVENTIONS

- **Yoga**
- **Massage**
- **Acupuncture**
- **Chiropractic Care**

EFFICACY OF REPETITIVE TRANSCRANIAL MAGNETIC STIMULATION IN THE TREATMENT OF PATIENTS WITH CHRONIC PRIMARY INSOMNIA

- **Study Design:** This study assessed the efficacy of repetitive transcranial magnetic stimulation (rTMS) in the treatment of patients with chronic primary insomnia. Hundred and twenty patients with chronic primary insomnia were randomly assigned to three study groups ($n = 40$ per group): rTMS, medication, or psychotherapy treatment (both latter as controls).
- **Conclusion:** In conclusion, rTMS treatment is more advantageous than both medication and psychotherapy treatments in improving the sleep architecture. Further, rTMS significantly decreases the body awakening level and provides a better long-term treatment effect.

(Jiang et al., 2013)

NATURAL INTERVENTIONS / MYTHS

- Warm glass of milk
- chamomile tea
- **Placebo benefit! If it works keep doing it!**
- There is not good science behind any of these above mentioned interventions.

LARGE SLEEP MYTH-SLEEP DEBT

- You cannot regain sleep you lost during the week on the weekend. Social Jetlag. You may sleep more, but it does not make up for the sleep lost.
- Not like the bank. You cannot pay off your debt on the weekend!
- **We are the only species that deprives ourselves of sleep for no good reason.**
- Constant increases in ambient temperature and light on earth also has an impact on our sleep. May be damaging!

ADULT STAGES OF DEVELOPMENT/THEORISTS

- **Keagan** (5 stages of development-Evolving Self/meaning making)
- **Piaget** (Sociological Stages of development. Four stages)
- **Kohlberg** (Stages of Moral Development. Three Levels)
- **Loevinger** (Theory of Personality)
- **Maslow** (Hierarchy of Needs/Self actualization)
- **McClelland/Murray** (Need Theory/Expectancy Value Theory of Motivation/Personology)
- **Erickson** (Life-stage virtue, eight stages)

THE IMPORTANCE OF SLEEP

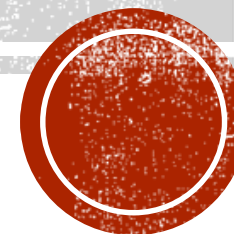
DR. MATHEW WALKER



KEY TAKEAWAYS

- Follow sleep researchers like Dr. Mathew Walker to inform your practice with clients who are moving through the Adult Developmental stages
- Read Sleep related publications and articles!
- Do sleep assessments consistently!
- Provide important psycho-education on sleep to your clients!
- Understand the bi-directional relationship of mental health and sleep.
- Use evidenced based practices like CBTI, ACT, etc.
- Understand the developmental tasks in emerging adulthood and how sleep may impact healthy development. Important to teach Sleep Hygiene as a life skill in college counseling.

**QUESTIONS?
COMMENTS?**



REFERENCES

- Gaultney, J. F. (2010). The prevalence of sleep disorders in college students: impact on academic performance. *Journal of American College Health*, 59(2), 91-97.
- Goldstein-Piekarski, A. N., Greer, S. M., Saletin, J. M., & Walker, M. P. (2015). Sleep deprivation impairs the human central and peripheral nervous system discrimination of social threat. *Journal of Neuroscience*, 35(28), 10135-10145.
- Hung, C. M., Li, Y. C., Chen, H. J., Lu, K., Liang, C. L., Liliang, P. C., ... & Wang, K. W. (2018). Risk of dementia in patients with primary insomnia: a nationwide population-based case-control study. *BMC psychiatry*, 18(1), 38.
- Jiang, C. G., Zhang, T., Yue, F. G., Yi, M. L., & Gao, D. (2013). Efficacy of repetitive transcranial magnetic stimulation in the treatment of patients with chronic primary insomnia. *Cell biochemistry and biophysics*, 67(1), 169-173.
- Mander, B. A., Rao, V., Lu, B., Saletin, J. M., Ancoli-Israel, S., Jagust, W. J., & Walker, M. P. (2013). Impaired prefrontal sleep spindle regulation of hippocampal-dependent learning in older adults. *Cerebral Cortex*, 24(12), 3301-3309.
- Morgan, J. K., Hourani, L., Tueller, S., Strange, L., Lane, M. E., & Lewis, G. F. (2017). Effects of Sleep Issues on Suicidal Ideation in a Military Sample: The Mediating Role of Mental Health. *Military Behavioral Health*, 1-9.
- Podcast from the California Institute of Integrated Studies Public Broadcast. Interview with Dr. Mathew Walker Neuroscientist (2017)
- Saletin, J. M., Goldstein-Piekarski, A. N., Greer, S. M., Stark, S., Stark, C. E., & Walker, M. P. (2016). Human hippocampal structure: a novel biomarker predicting mnemonic vulnerability to, and recovery from, sleep deprivation. *Journal of Neuroscience*, 36(8), 2355-2363.
- Suzuki, K., Miyamoto, M., & Hirata, K. (2017). Sleep disorders in the elderly: Diagnosis and management. *Journal of General and Family Medicine*.
- Walker, M. P., & Robertson, E. M. (2016). Memory processing: ripples in the resting brain. *Current Biology*, 26(6), R239-R241.

