Sleep: The Restorative Occupation
Jean S. Koketsu, OTD, MS, OTR/L, San Jose State University, October 5, 2018

- “Big Four” according to Adolf Meyer (1922): Work, play, rest, sleep
- Sleep as an Occupation (Pierce, 2014): Sleep is an occupation (can’t be replaced, done by someone else, has own medical specialty & psychology specialty)
  - Personally constructed
  - Non-repeatable experience
  - Subjective event
  - Time
  - Space
  - Socio-cultural elements
  - Unique one-time occurrence
  - Shape
  - Pace

- Beginning and an ending, a shared or solitary aspect, a cultural meaning to the person
- Why OT? (Green, 2015, p. 29): “Occupational therapists are used to looking at the way people live their lives, at their routines and at their environment. It is a relatively small extension of practice to take account of sleep.”

- Sleep Medicine: “… sleep is a reversible behavioral state of perceptual disengagement from and unresponsiveness to the environment” (Carskadon & Dement, 2004, p. 13). Sleep also occurs naturally and periodically (Dement, 1999). Anesthesia, coma state and hibernation are not considered “sleep” under this definition. (Carskadon & Dement, 2004, p. 13)

- Sleep Medicine Definition (Epstein, & Mardon, 2007). Brain wave pictures were shown. Prior to this period, people used to think that the brain was “off” and inactive when people slept. The brain is not off when one sleeps.
  - Electrodes are attached to the brain and brain waves are measured. Electroencephalogram studies found that the brain was active during sleep and that throughout the night, the brain waves were different. Rapid Eye Movements (REM) were noted in the 1950s (discovered 1952) when subjects were observed and when eye movements were measured.

- 2 Major Stages of Sleep (Iber, Ancoli-Israel, Chesson & Quan, 2007)
  - NREM (“non-REM”) Sleep: N1, N2, N3
  - REM Sleep: Stage R (Dement & Pelayo, 2015)

- Sleep Architecture (Epstein, & Mardon, 2007). A picture of a “hypnogram” was shown.

- How does our body know when we need to sleep? (Turek, Dugovic & Laposky, 2004)
  - Homeostasis
  - Circadian rhythms: Approximately 24-hour cycles of behavior and physiology that are generated by biological clocks. Circadian means “about a day.” We have other rhythms (weekly, monthly, etc) too. We’re sleepiest between midnight and 6 a.m. and after lunch in the mid-afternoon (2-4:00): Bi-modal pattern

- Suprachiasmatic Nucleus (SCN): The “master clock” (like Yoda from Star Wars): sleepiness and wakefulness, temperature, BP and the release of hormones (e.g. melatonin, cortisol, etc) throughout the 24-hour day. Light is the most important “time cue” which can influence circadian rhythms.
One of the chief roles of SCN is in the daily variation of the synthesis of the hormone melatonin, which is produced by the pineal gland. The SCN is directly linked to the cells in the retina, which detects light.

How much sleep do people need? Enough to feel refreshed and to be able to do activities. **Great variation by individuals, by age!** Paterson (2012) “We simply need enough sleep to feel refreshed and to be able to perform our daily tasks satisfactorily. (p. 19). Others say sleep is enough if you can you get up in the morning, feel refreshed without an alarm.

- Newborn (0-3 month): ~14-17 hours, Newborns have the highest percentage of REM sleep (approximately 50%)
- Infant (4-12 months): ~12-16 hours
- Toddler (1-2 years): ~11-14 hours
- Pre-school (3-5 years old): ~10-13 hours
- 6-13 school-age “…Golden Age of sleep for most of us…” (Dement, p. 22): ~9-12 hours
- 14-17 years old (~8-10 hours)
- Adults (18-64 y/o): ~7-9 hours (Paruthi et al, 2016; Watson et al., 2015). See National Sleep Foundation website.

What happens as we age? (Ohayon, et al., 2004). Graph of what happens in aging: less deep sleep, more awakenings, less REM, less quality, more time in lighter sleep

Insomnia (Kryger & Roth, 2010): difficulty initiating & maintaining sleep, waking too early, daytime dysfunction

Common Medical Conditions Comorbid with Insomnia (Kryger & Roth, 2010, p. 102)
- Cardiovascular disease, pulmonary disease, gastrointestinal, endocrine, neurologic, pain from any source, urological, perimenopause and menopause, cancer

Psychiatric Conditions Comorbid with Insomnia (Kryger & Roth, 2010).
- Anxiety disorder (most common), depression, schizophrenia, alcohol and drug abuse

Obstructive Sleep Apnea (OSA) treated with Continuous Positive Airway Pressure (CPAP): Classic In-Lab Sleep Study by board-certified sleep doctors: Polysomnography. In-home sleep study: Wrist Actigraphy. “Apnea” is defined as cessation of breathing for at least 10 seconds. Can lead to HTN and cardiovascular disease. Affects ~25 millions adults in the U.S. (80% not diagnosed). OSA is twice as common in men than in women prior to age 50 with prevalence in the genders equalizing with age (Hayes & Phillip, 2010).

Sleep Hygiene: Activities involving lifestyle choices and environmental factors that can lead to healthy sleep.
- Regular sleep-wake cycle.
- Relaxing routine before bedtime.
- No caffeine prior to sleep. Caffeine has a half-life of 3.5-5 hours depending on age, activity, body chemistry (Dement 1999).
- Limit liquids at night.
- Avoid medicines that will keep you awake at night.
- If one can’t fall asleep in a reasonable amount of time (e.g. 15 minutes) while in bed, leave the bed, go to another room, perform another activity until one feels sleepy.
- Quiet environment for sleep or use of “white noise” to foster sleep.
- Avoid mentally stimulating or arousing activities before bedtime (Kannenberg, 2009).
- Only activities that should occur in bed is sleep or sex (avoid reading, watching TV, texting, tweeting, using other media/computer devices in bed)
- Keep a sleep diary.
• No alcohol to fall asleep. Alcohol can make snoring and OSA worse.
• Do not watch the clock.

> Environment
• Dark: Black-out shades, eye masks. Motion detector? Not blue-light night-lights.
• Quiet: TV off, earplugs; closed door
• Cool-mid to high 60s F: room temp, pajamas, blankets, type of bedding, type of mattress (foam can be hotter),
• Comfortable/Clean: Good mattress, clean sheets, clean pajamas, uncluttered
• Safe: Windows covered, Life Alert, phone next to bed, emergency cord to pull, doors lockable, photos of loved ones, etc.

> Assessment & Screening
• Occupational Profile of Sleep (Pierce & Summers, 2011; see sleepOT.org), Epworth Sleepiness Scale (Johns, 1994), STOP-BANG (Chung, et al., 2008)

> OT Interventions (Smallfield, & Lucas Molitor, 2018)
• Education on sleep in OT schools
• Knowledge of sleep cycles, sleep problems, health conditions related to poor sleep.
• Assess sleep using formal and informal measures
• Cognitive-behavioral interventions: cognitive restructuring, stress management, relaxation, problem solving, physical activity & exercise into routines.
• Sleep hygiene education, lead groups, multi-component interventions
• CBT-I Training (Eakman et al., 2017): Advanced training


References


Resources

American Academy of Sleep Medicine, National Healthy Sleep Awareness Project, National Sleep Foundation, sleepOT.org (great list of assessments)