

Sleep and Dementia

Northwest Geriatric Education Center
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Purpose of Training

- Increase understanding of the causes of sleep disturbances in dementia
- Present the evidence for use of non-pharmacological treatments to improve sleep in AD
- Discuss how you can strategize what intervention will work best for your clients in their unique circumstances.

Points to Remember #1

Sleep problems in dementia are highly complex.

They take many different forms, impact caregivers in variable ways, and have multiple etiologies.

Sample Real Life Examples

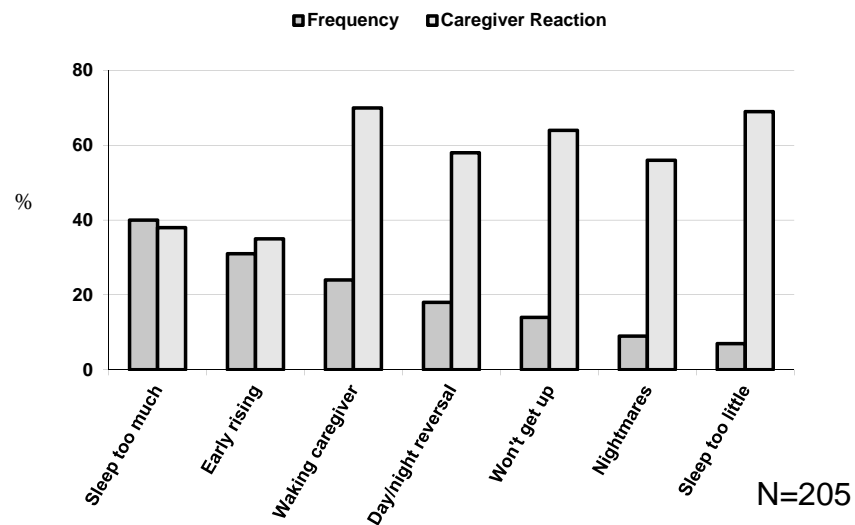
“What is the most troubling nighttime behavior your family member had during the past month?”

- Cleaning room, especially makeup accessories
- Wanting to fly to France in the middle of the night
- Thinking the building is on fire
- Taking off diaper and putting feces on wall
- Slapping self and saying she wants to die
- Falling out of bed
- Looking for deceased spouse
- Wanting to “go home” and becoming agitated trying to leave
- Getting up and wandering from room to room
- Eating in bedroom when she is diabetic
- Thinking she is being held captive by caregiver
- Bad dreams and hallucinating visitors
- Looking for her kids who left home a long time ago

Sleep Problems in Dementia

- Four broad categories (Boeve et al. 2002)
 - Insomnia
 - Hypersomnia (particularly during the day)
 - Excessive motor activity at night
 - Hallucinations and behavioral problems
- “Sundowning” behaviors
 - Increasingly seen as a circadian disturbance

Impact of Sleep Problems on Caregivers



McCurry S, et al. 1999. *J Geriatr Psychiatry Neurol*, 12, 53-59.

Causes of Sleep Disturbance in Dementia

- Age-related change in sleep mechanisms
 - Changes in homeostatic sleep drive and circadian rhythm for wakefulness (accelerated by dementia)
- Primary sleep disorders
 - Obstructive sleep apnea, restless legs syndrome, REM behavior disorder
- Other co-morbid medical and psychiatric illnesses
 - Pain, depression, medications/polypharmacy
- Environmental and behavioral factors
- Any combination of the above



Bloom et al. *J Am Geriatr Soc.* 2009; 57(5): 761-789; McCurry et al. *Sleep Med Rev.* 2000; 4:603-608.

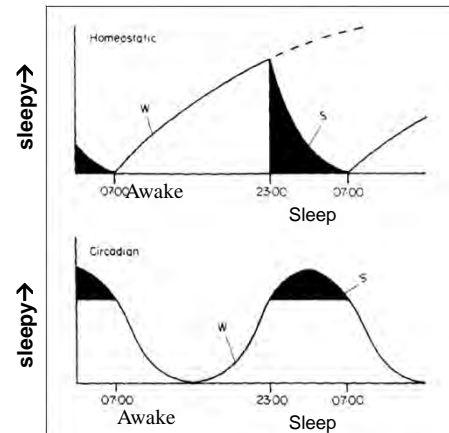
What is Sleep Anyway????



What Regulates Sleep?

1. Homeostatic Process
Sleep need (“drive”) increases the longer you are awake.

2. The Circadian Process
(Biological Clock)
The propensity to sleep varies as a function of the time of day/night over 24 hours.

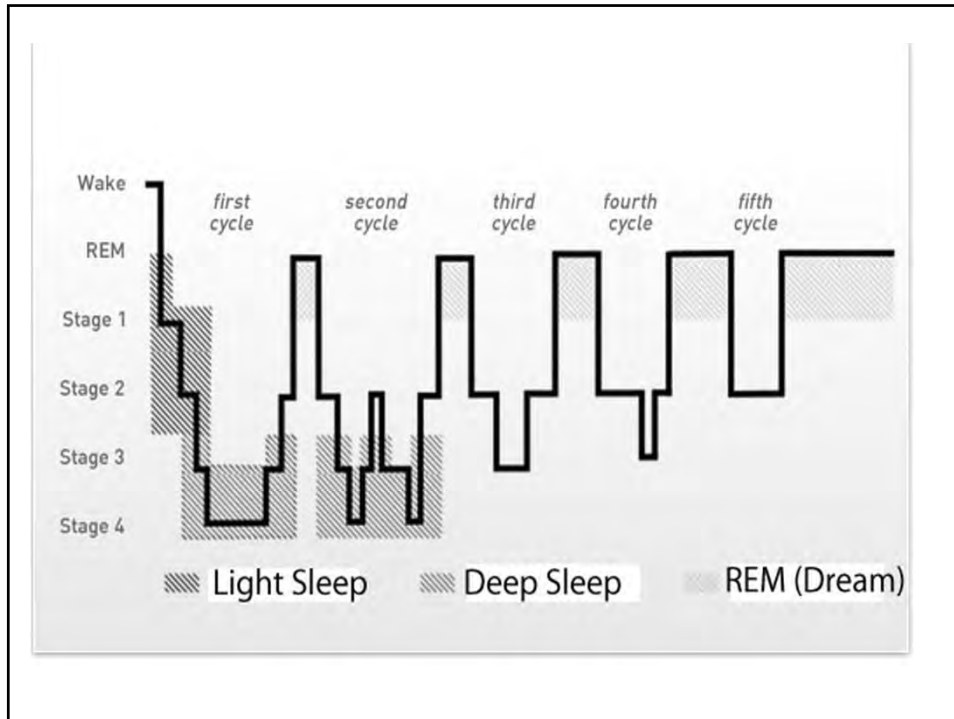


Germain A, Buysse DJ. Brief behavioral treatment of insomnia. In: Perlis M, et al. (eds.). *Behavioral treatments for sleep disorders*, pp. 143-150. Elsevier, 2011.

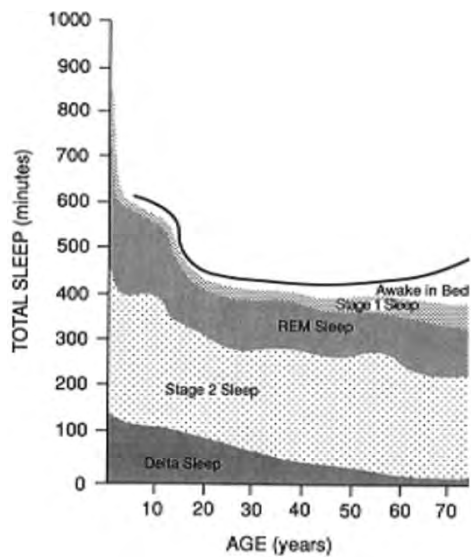
Stages of Sleep

- There are 5 stages of sleep
- We cycle through all of them, several times a night
 - Stage 1 = transition from wake to sleep
 - Stages 2 – 4 = increasingly deep sleep
 - REM = Rapid Eye Movement (dream) sleep





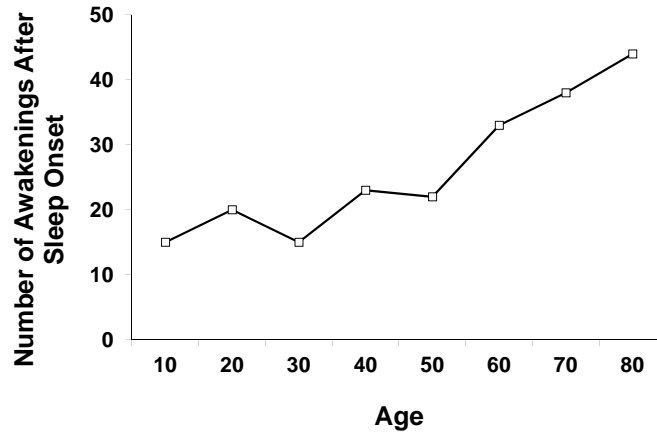
Sleep Changes As We Age



Courtesy of Charles Morin, PhD

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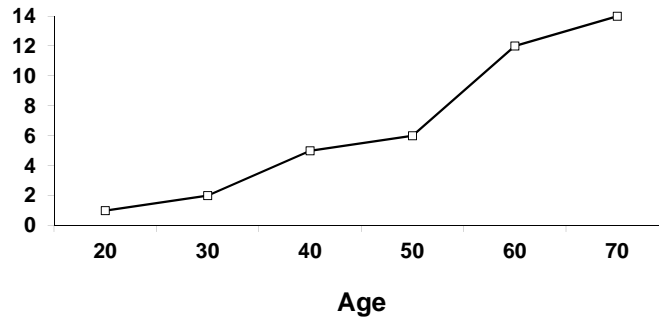
Changes with Age: Awakenings



Williams, et al. 1974. [Electroencephalography \(EEG\) of human sleep: Clinical applications](#). John Wiley & Sons

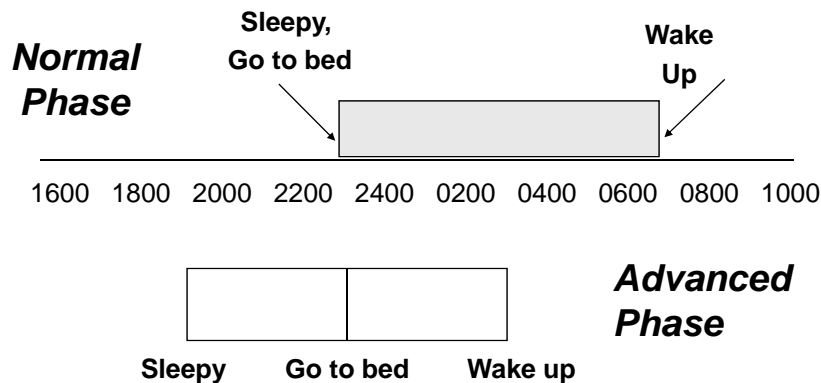
Changes with Age: Mid-Day Naps

Mean Number of Mid-Day Naps Over 8-Week Period



Williams, et al. 1974. [Electroencephalography \(EEG\) of human sleep: Clinical applications](#). John Wiley & Sons

Circadian Rhythm Changes: Advanced Sleep Phase



Ancoli-Israel, S. 1996. *All I want is a good night's sleep*. Mosby.

Sleep and Alzheimer's Disease

- **Sleep changes resemble an acceleration of age-related changes**
- **Loss of neurons that regulate sleep-wake cycles**
 - SCN: the body's internal circadian "clock"
 - Thermoregulatory processes
 - Disruptions in hormonal and brain neurotransmitter systems
- **Changes more prominent in persons with more advanced dementia**

Wu YH, Swaab DF. 2007. *Sleep Med.* 8:623-636.

Sundowning

- Temporal pattern of increased agitation, confusion, perceptual disturbances, mood changes at certain time of day (*not necessarily late afternoon/early evening*)
- Evidence caused by circadian disturbances, particularly phase delay of body temperature
- Fatigue, insufficient light exposure, season of year, sleep medication use, partial arousal from REM sleep may also contribute
 - In nursing homes, **staff fatigue and disruptive shift changes can be environmental triggers**

Bachman D, Rabins P. 2006. *Annu Rev Med*, 57:499-511 Mosby; Volicer, et al. 2001. *Am J Psychiatry*, 158:704-711

Sleep and Parkinsonian Diseases

- **Parkinson's disease**
 - Up to 88% of PD patients have sleep problems
 - Sleep fragmentation from tremors, muscle contractions, increased muscle tone, limb jerks, painful leg cramps, nocturia, AND cognitive/psychiatric symptoms
 - Increased nightmares, hallucinations, daytime sleepiness, "sleep attacks" when taking L-dopa
- **Synucleinopathies** (PD, Lewy body dementia, multiple system atrophy)
 - Associated with REM sleep behavior disorder

Gunn et al. 2010. *J Geriatr Psychiatry Neurol*, 23:131-137; Schulte EC, Winkelmann J. 2011 *J. Neurol*, 258(Suppl 2):S328-335.

Primary Sleep Disorders

- **Obstructive sleep apnea (OSA)**
 - Prevalent in dementia and associated with agitation
 - Overlapping risk factors for stroke (HTN, diabetes, atrial fibrillation, cardiac and carotid disease)
- **Periodic leg movement syndrome (PLMS)**
- **Restless legs syndrome**
 - Linked to low iron levels
 - More strongly associated with nocturnal agitation than OSA and PLMS
- **REM sleep behavior disorder (RBD)**
 - Most common in older men
 - Increased in persons with PD

Philips B, et al. 2000. *Arch Intern Med*, 160: 2137-2141
Gehrman PR, et al. 2003. *J Am Geriatr Psychiatry*, 11: 426-433
Young T, et al. 2004. *JAMA*, 291:2013-2016.
Rose KM, et al. 2011. *Sleep*, 34:779-786

Sleep Apnea and Dementia

- **Continuous positive airway pressure (CPAP)**
 - AD patients (mild-to-moderate severity) can use CPAP
 - Improves self-reported patient and caregiver nighttime sleep
 - May slow cognitive decline
 - Reduces daytime sleepiness, improves mood
 - More depression symptoms associated with worse compliance
 - Need reliable live-in caregiver

Ayalon L, et al. 2006. *Am J Geriatr Psychiatry*, 14:176-180.
Ancoli-Israel S, et al. 2008. *J Am Geriatr Soc*, 56: 2076-2081

Other Medical Causes of Insomnia

➤ Pain

- Arthritis, malignancy, dental, constipation

➤ Organ-system failures

- Congestive heart failure, angina
- COPD, Asthma
- Benign prostatic hyperplasia, incontinence, UTIs
- GI upset (heartburn, reflux)
- Hypothyroidism

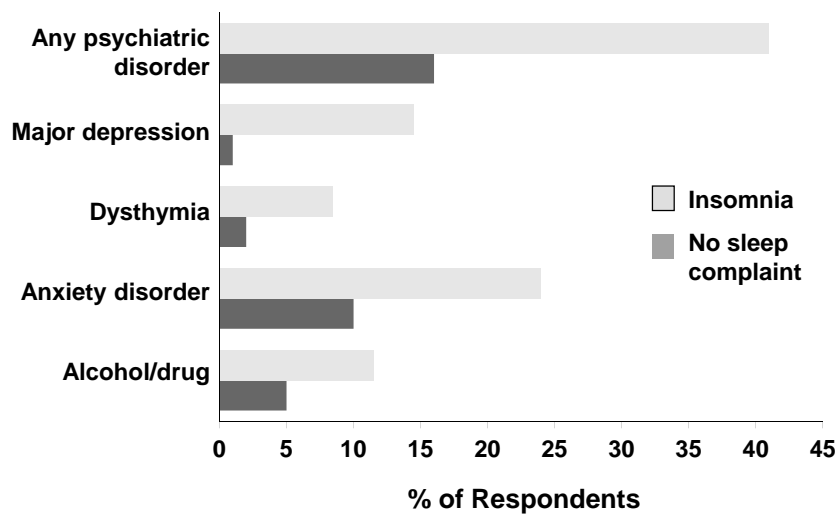


➤ Hormonal changes

- Menopause, pregnancy

Roszkowska J, Geraci SA. 2010 *Am J Med.* 123:1087-1090.

Insomnia and Psychopathology



Insomnia – A Risk Factor for Falls in Older Adults

- The relationship between insomnia, hypnotic use, falls, and hip fractures was examined in long term care
- 34,163 nursing home residents (76% women), aged 65 and older and with 150-210 days follow-up
- Insomnia, but not hypnotic use, was associated with a greater risk of subsequent falls



Avidan et al. 2006. *J Am Geriatr Soc*, 53(6): 955-962.

Drugs that Can Worsen Sleep

- Alcohol
- CNS stimulants (e.g., caffeine, theophylline, nicotine)
- Beta-blockers, calcium channel blockers
- Bronchodilators
- Corticosteroids
- Decongestants
- Diuretics
- Stimulating antidepressants, cognitive enhancers
- Thyroid hormones



Environmental & Behavioral Causes

- Noise
- Light
- Temperature
- Season of year
- Bedding
- Television
- Dietary practices
- Exercise routines
- Pets
- Roommate or caregiver behaviors



Sleep Environment and Habits in a Community AD Sample (N=128)

<i>Sleep/dietary behavior</i>	<i>%</i>	<i>Environment / Health factor</i>	<i>%</i>
Naps during day	86.7	Lights in sleeping area at night	51.6
Inconsistent bed/rising times	39.1	Temperature	45.3
Snacks at night	50.8	Watches TV in bed	32.0
Drinks caffeinated beverages	57.0	Ambient noise	18.0
Drinks ETOH	27.3	Pets in bedroom	14.8
Smokes	3.1	Roommate activity	18.0
		Awakened by pain	32.0
		Incontinence	31.3

LaFazia D, et al. 2008. *Gerontologist*, 48 (Special Issue I).

Points to Remember #2

*Before implementing any
pharmacological intervention for
sleep in dementia –*

*Rule out and treat possible physical
and environmental causes.*

Evidence-Based Treatment Options

- Light therapy
- Lifestyle/exercise
- CBT-I strategies



Light Therapy in Dementia

- Light is the main synchronizer of circadian systems, including sleep and activity
- Many older adults have limited exposure to bright light
- Principles of light therapy:
 - increase daytime light exposure
 - decrease evening and nighttime light
 - maintain a consistent light/dark cycle
- Bright light therapy may improve sleep, reduce napping, and decrease depression and agitation in persons with dementia



Alternative Light Sources

- Compliance with light therapy is the biggest obstacle to its use
- Alternatives:
 - Ceiling-mounted high-intensity lights in hallways, multipurpose rooms (van Someren et al, 1997)
 - Dawn/dusk simulators (Fontana Gasio, et al. 2002)
 - Visors (Colenda, et al., 1997)
 - Increased ambient light inside home



Real Life Lessons: Light Therapy

- Some people with dementia really hate having a bright light source nearby, so the light may increase agitation instead of decrease it
- Light has an energizing effect at night, so don't use immediately before bedtime
- Sleep benefits of bright light decay swiftly when you stop using it
- A big light box takes up a lot of room; smaller sources make it more difficult to maintain a correct angle/dose to be effective

Sleep and Activity



- Chronic inactivity and bed rest negatively impact sleep and circadian rhythmicity
- Low-intensity daily physical activity and structured social activities can improve sleep
- Other potential benefits: reduced fall risk, agitation
- Outdoor exercise can increase ambient light exposure
- Increased light, exercise, and pleasant activity all related to improved mood

“Our findings suggest that the most important predictors of whether an elder with dementia will maintain a circadian sleep-wake rhythm are psychosocial activity and physical activity.”

SC Sullivan & KC Richards
Aging & Mental Health, 8(2): 143-152 (2004)

Challenges of Exercise Activity for Persons with Dementia

- Reluctance to try new activities
- Difficulty learning & remembering to do exercises
- Inability to exercise independently due to safety concerns
- Family caregivers lack knowledge about exercise, already burdened by daily tasks, may be physically frail
- Exercise can *increase* agitation in some individuals



LTC Obstacles to Activity Planning

- “It’s not my job” to get them to activities
- They are grownups who have the right to stay in bed all day if that’s what they want
- He just gets mad when I try to get him to do something (and that makes me mad, too)
- The resident is too sick/demented to get anything out of it
- S/he needs the extra sleep in the afternoon
- The activities don’t make any difference anyway

Flick et al. 2010. *J Health Psychol*, 15(5): 755-764.

Promoting Exercise for Individuals with Dementia

- What “exercise” did the person enjoy in the past?
- Provide support, assistance, lots of repetition for group programs
- Monitor for safety; simplify, avoid or closely supervise use of unfamiliar equipment
- Encourage family caregivers to incorporate a daily walk to the routine, and gradually increase the time, distance, and speed of walking
- Make physical activity a pleasant event



Logsdon RG et al. (2005). *Care Manage J*, 6: 90-97

Real Life Lessons: Walking

- Try to walk every day
 - For maximal sleep effects, afternoon/evening is best
- Safety is a top priority
 - Shoes, weather, neighborhood walkability, physical frailty, stability, gait and speed
- Caregivers are not always able to help
 - “Exercise buddies”: family, friends, neighbors
- Not everyone likes to walk or exercise
 - Including caregivers!

CBT-Insomnia Components

Technique	Aim
Sleep hygiene*	Promote habits that help sleep; provide rationale for subsequent instructions
Stimulus control*	Strengthen bed and bedroom as sleep stimuli
Sleep restriction*	Restrict time in bed to improve sleep depth and consolidation
Relaxation training	Reduce arousal and decrease anxiety
Cognitive therapy	Address thoughts and beliefs that interfere with sleep
Circadian rhythm entrainment*	Reset or reinforce biological rhythm

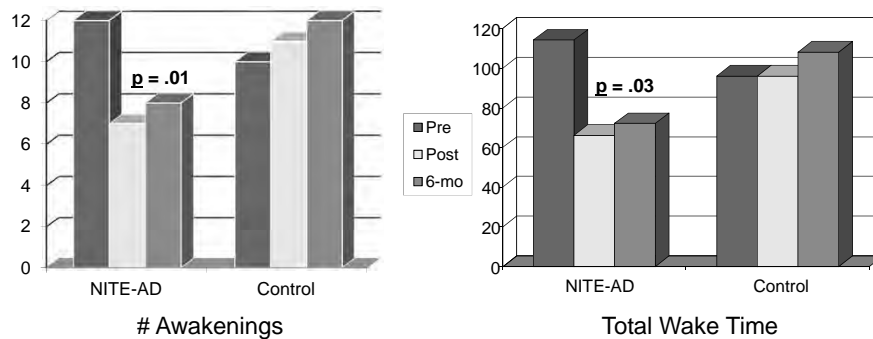
*CBT-I strategies that can be environmentally implemented by a caregiver are most useful with cognitively impaired individuals.

Sleep Hygiene Recommendations

- Maintain a consistent bed and rise time
- Limit napping to one consistent period earlier in the day
- Exercise every day
- Encourage daytime light exposure, and keep sleep areas as dark as possible
- Reduce alcohol and caffeine use (including chocolate)
- Keep bedroom a comfortable temperature
- Eliminate environmental factors that interrupt sleep
- No TV or talk radio in bed at night
- Empty bladder before bed and schedule nighttime bathroom trips if needed

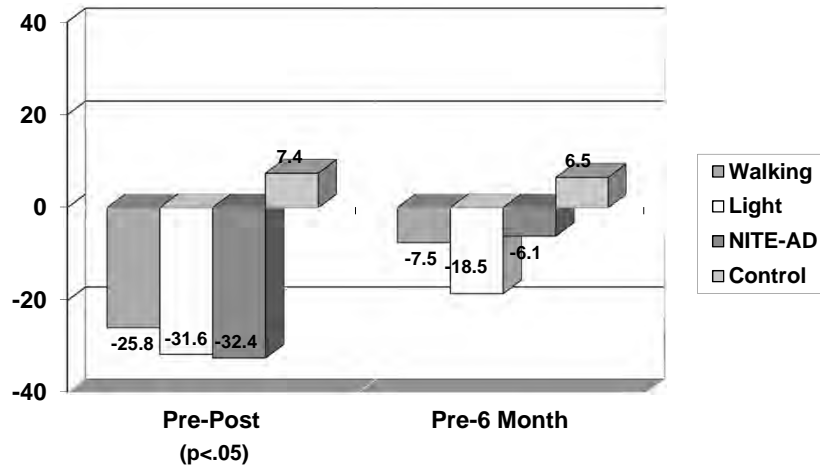
McCurry S, Ancoli-Israel S. 2003. *Curr Treat Options Neurol*, 5, 261-272.

NITE-AD Study: Sleep Changes in Persons with Dementia (n=36)



McCurry, et al. 2005. *J Am Geriatr Soc*, 53, 793-802.

Changes in Participant Total Wake Time at Night (mins), 2011 (n=132)



McCurry, et al. 2011. *J Am Geriatr Soc*. 59, 1393-1402.

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Caregiver Issues to Consider



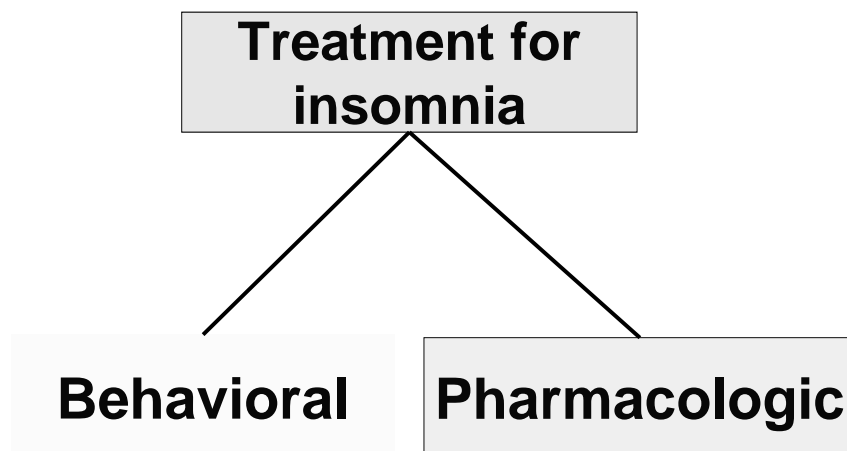
- Implementing non-pharmacological sleep interventions requires caregiver oversight
- Changing patient sleep/wake routines can be very burdensome for caregivers
- Caregiver sleep disturbances often exist independent of patient sleep problems and require targeted intervention
- Caregiver illness, depression, anger, fatigue, or burnout can sabotage behavioral interventions

Points to Remember #3

*Non-pharmacological interventions
can improve sleep in persons with
dementia.*

*They also can increase patient
agitation or add to caregiver stress
and strain.*

What About Sedating Medications?



Pharmacological Approaches

- Hypnotics – Benzodiazepines
- Hypnotics – Benzodiazepines Receptor Agonists (*BZRAs*)
 - Zaleplon (*Sonata*)
 - Zolpidem (*Ambien, Ambien-CR**)
 - Eszopiclone (*Lunesta**)
- Melatonin agonists
 - Ramelteon (*Rozerem**)
- Antidepressants
 - Doxepin (*Silenor**)
- Others agents currently available or in development:
 - OTC - Melatonin, valerian, anti-histamines, etc.
 - Prescription - Anti-depressants (e.g., trazodone), anti-psychotics, HTN meds (prazosin; PTSD nightmares)
 - In development –5HT, GABA and Hypocretin/Orexin

Sedating Medications and Aging

- Don't always help or they stop working
- Can cause unwanted side effects (poor balance, confusion, paradoxical reactions)
- Primarily tested in younger adults with different pharmacokinetics
- Polypharmacy is always a concern
- Not preferred by many older adults
- Few randomized efficacy trials with specialty populations, e.g., persons with dementia

Why Behavioral Treatment?

- Can be individualized to each person
- Empower caregivers
- Help you see the “big picture”
- Recommended as first line of treatment

Behavioral strategies improve the environment and the care persons with dementia receive even if we can't cure the disease.

Seattle Protocols

Depression (1988, 2002)	Agitation (1993)	Physical activity (1993, 1998, 2012)	STAR (1999, 2004)	Sleep (1993, 1998, 2005)
	Early-stage memory loss (2006, 2011)	RALLI/MCI (2006)	STAR-C (1999)	AFH Sleep (2006)
			STAR Effectiveness (2009)	AFH Staff Training (2009)
			STAR-C Effectiveness (2009, 2011)	

Teri, et al. 2005. [Research and practice in Alzheimer's disease and cognitive decline](#), Vol. 10, p.153-158. New York: Springer.

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Creating Individualized Sleep Plans

- Realistic expectations
- All behavior has meaning and purpose
- Look for activators of nocturnal awakenings
- Strategies to make interventions enjoyable and compatible with other household routines
- The value of keeping a sleep log
- Don't be afraid to ask for help

All Behavior Has Meaning

- “Behavior” is *anything* a person does
- We focus on behaviors that you can see
- Behaviors do not “come out of the blue”
- To understand behavior, you need to look at the context in which it occurs

The ABCs of Behavior Change



Activator:

What happened before the behavior?



Behavior:

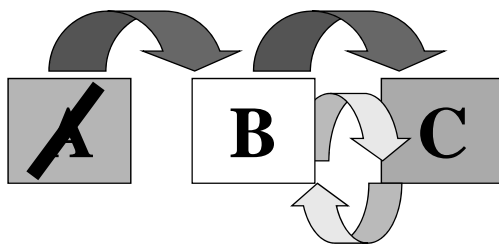
What was the person with dementia doing? With whom, where, when?



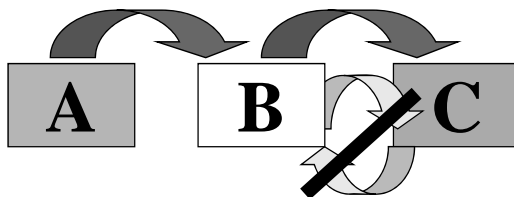
Consequence:

What happened after the behavior?

Goals of the A • B • Cs



Identifying and changing activators can prevent a behavior from happening



Changing your response to behaviors can reduce their duration, severity, and probability of occurring in the future

Behaviors Are Complex

- Multiple problem behaviors can happen at one time, or one right after another
- Problem behaviors can have multiple causes and effects
- If you try to fix everything at once, it will seem overwhelming
- Pick a place to start: What one behavior do you want to work on first???

A Case Example

“Mom doesn’t sleep at night.”



You Need to Get the Full Story

Mrs. Alioto frequently gets up at night (3-4 am) and gets dressed. She then engages in some inappropriate activity, such as leaving the house or hiding her dirty undergarments in the toilet or fish tank. When her daughter tells her to go back to bed, Mrs. A gets angry and they argue.

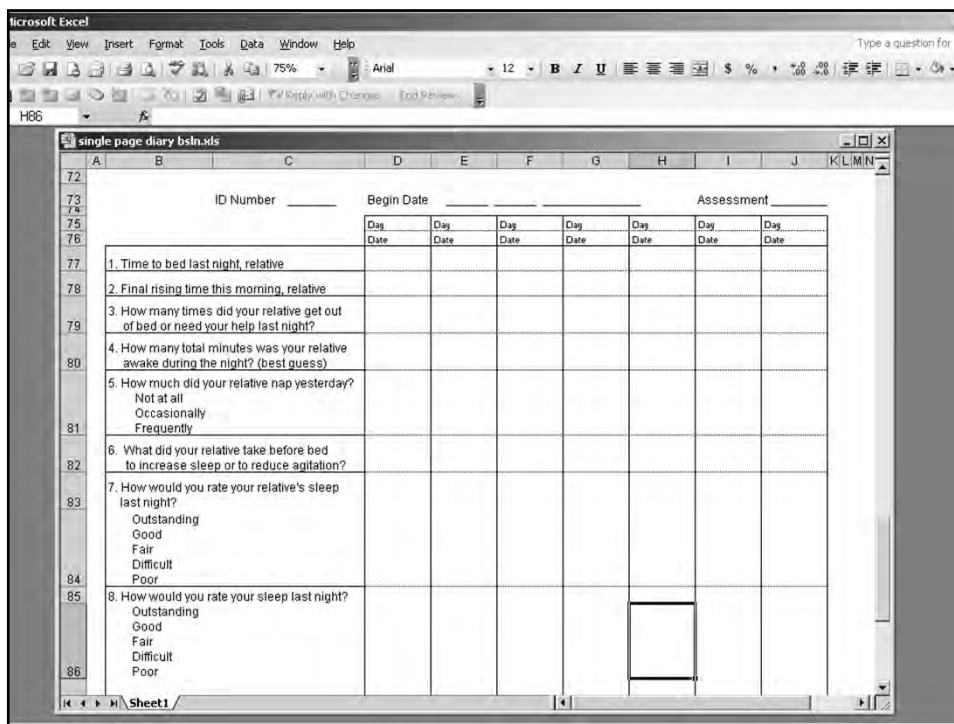
What else do you want to know?

Observing the Four “W”s

What, Who, Where, and When

- What exactly is the client doing?
- Who is around?
- Where is the target behavior happening?
- When (and how often) is it happening?





Observation is How We Find Patterns

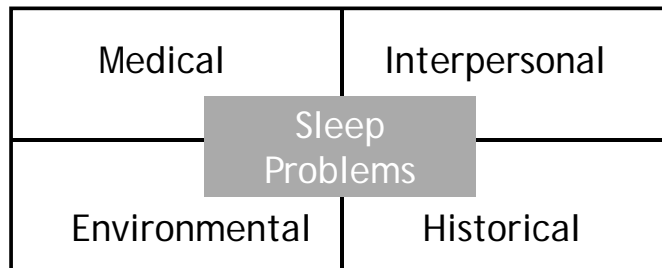


- Are there days that the behavior does *not* occur?
- Does it only happen around certain people?
- Does it have a cyclic pattern?
- Is it more likely under certain conditions?

Keep a sleep log for 1-2 weeks to help you see what is going on.

Applying the ABCs to Sleep Problems

What are possible activators for sleep problems in dementia?



Medical Causes

- Brain changes from aging or dementia
- Daytime napping
- Primary sleep disorders
- Medications
- Chronic pain
- Medical illness
- Hunger, thirst
- Incontinence
- Depression or anxiety
- Lack of daytime exercise

Interpersonal

- Roommate sleep habits
- Boredom or loneliness
- Caregiver habits

Historical

- Poor sleep habits
- Diet
- Preferred routines
- Past work schedules

Environmental

- Bedroom light exposure
- Noise
- Pets
- Temperature
- Uncomfortable bedding
- Season of year
- Visual exit cues
- Unfamiliar surroundings
- Sensory deprivation or overstimulation

Consider The Larger Context

Activators



Past *and* present
"triggers" for behavior

Get to know me!

- Lifelong sleep quality
- "Owl" or "lark"
- Prior occupation (shift or seasonal)
- Co-sleeping preferences
- Past alcohol or drug use
- Traumatic events

Behavior



Gather history

- Is this a new behavior, or has it happened before?
- Is it a sudden onset or gradual change?

Consequences



What happens after the
problem behavior occurs

What helps?

- What does the behavior accomplish?
- How has the caregiver been responding?
- What people, things or activities help the resident feel calm or happy?

McCurry S, Drossel D. (2011). Treating dementia in context: A step-by-step guide. APA Press.

Communication/Interpersonal Style

- Communication can make or break any relationship
- As cognitive decline progresses, nonverbal communication is more important; is your body sending the message you intend?
- Rapport building trumps information gathering or accuracy of facts
- Whenever there is a problem, check to see if there is a communication breakdown



The specific memory may be gone, but the emotional tone remains

**“I've learned that people will forget what you said, people will forget what you did, but people will never forget how you made them feel.”
Maya Angelou**



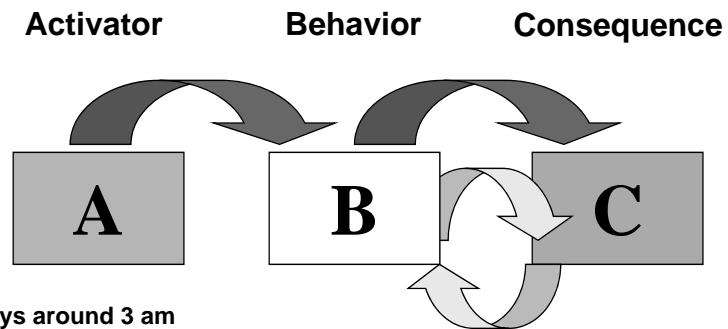
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Watch Nonverbal Cues: Be Polite!

Patience	Don't be in a hurry. Say/do one thing at a time. Focus on the relationship more than content.
Organization	Use prompts and reminders as needed. Don't keep people waiting. Make sure prosthetics are handy.
Laughter	Smile! Try to be pleasant and engaging. Don't be afraid of friendly humor. Sincere praise is a gift.
Ignore what you can	“Pick your battles.” Don't correct or admonish unless the person is doing something unsafe or unhealthy. Watch for ageist stereotyping.
Tone of Voice	Cultivate a warm and respectful style. Try not to sound “bossy” or patronizing. Would you want to be talked to this way???
Eye Contact	Look directly at the person. Stand or sit at eye level. Smile/nod to acknowledge you heard what was said.

McCurry S. 2006. When a family member has dementia. Praeger: Westport: CT .

Mrs. Alioto's A-B-C's



Always around 3 am
Almost every night
When Mrs. A's alone in
her room
Bedtime 745-1015 pm
Napping during dinner
prep

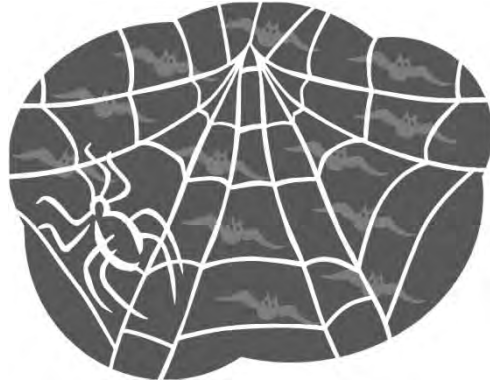
Gets up at night
Inappropriate
activities once up
Upset with daughter

Daughter scolds,
argues with
Mrs. A

Brainstorming Ideas

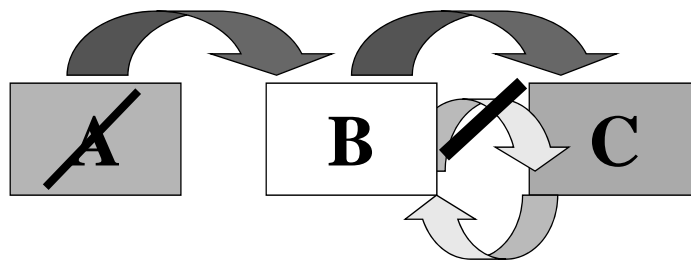
- Check with physician to see if any of Mrs. A's medications or medical problems are waking her up at night.
- Install alarm system on outside doors.
- Eliminate late afternoon and evening napping.
- Move fish tank out of the hallway near the bathroom.
- Give Mrs. A a snack before bed so make sure she's not hungry during the night.
- Switch to adult incontinence undergarments.
- Establish consistent bed, rising times.
- Increase daytime physical and social activity.
- Have Mrs. A spend one weekend a month in a nearby respite center to give daughter a break.

Every Problem Can Be Approached From Many Directions



There is no single "right" target behavior, activator, or consequence to choose.

Get Active! Plan



- | | | |
|---|---|--|
| <input type="checkbox"/> Set consistent 10 pm bed time | <input type="checkbox"/> Gets up at night less often | <input type="checkbox"/> Daughter gets up Mrs. A when she goes into bathroom |
| <input type="checkbox"/> Moved fish tank | | |
| <input type="checkbox"/> Started in adult day several days/week | <input type="checkbox"/> Sleep improvements:
Pre - 6.6 hrs sleep/night, 8 awakenings | <input type="checkbox"/> Promptly redirects her back to bed |
| <input type="checkbox"/> Eliminated evening naps | Post - 7.3 hrs/night, 1 awakening | <input type="checkbox"/> Stopped scolding, using angry tone |
| <input type="checkbox"/> Put child monitor in Mrs. A's room | | |

Points to Remember #4

Sleep interventions must be individualized to each situation.

Improving sleep can improve other psychosocial variables.

Summary: ABC Problem-Solving

1. Define the behavior you're working on
2. Observe it over time ("4 Ws")
2. Set a realistic goal for change
3. Brainstorm activators and consequences
4. Write down ideas: What can you change?
5. Implement the change for a week
6. Evaluate what happened
7. Refine the plan as needed

Real Life Lessons: Problem-Solving

AFH Sleep Education Plan, Interventionist Version

AFH
Aston Family Health
Sleep Studies

Subject ID: [] [] [] [] [] []
Intrv ID: [] [] [] [] [] []
Session: 1
Date: [] [] [] [] [] []
Month Day Year

Sleep-Wake Practices

Target bed time NA _____
Target rising time NA _____
Napping plan NA _____

Reduce napping duration Change nap schedule/time of day Other _____

Environmental Modifications NA _____

Light Noise Temperature Pets Roommate Other _____

Diet / Health NA _____

Caffeine Night snacks Fluids Meds Exercise Other _____

How will you change your approach? NA _____

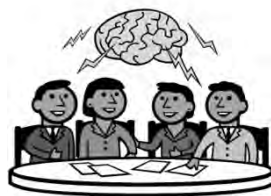
Communication Directions to resident Pleasant events Other _____

- It is important to develop plans that fit your unique situation and can evolve over time

- Any intervention will work better if it is enjoyable and incorporated into a daily routine

Real Life Lessons: Brainstorming

The best way to get a good idea is to get lots of ideas.



Linus Pauling

Points to Remember #5

We have not found that nonpharmacological sleep interventions are less effective for persons with more severe dementia.

Things We've Learned Along the Way

- Providing caregivers with sleep education and written information alone is not enough (McCurry, et al. 2003, J Am Geriatr Soc, 51: 1455-1460)
- Treating care-receiver sleep disturbances does not necessarily improve caregiver sleep, and vice versa.
- 25% of subjects never follow treatments (walking, light therapy) as prescribed; older, less cognitively impaired, and more depressed people are less likely to comply (McCurry, et al., 2010, Am J Alzheimer Dis Other Dem, 25:505-512).
- More is not always better for improving sleep; rather, finding the right treatment for each situation is essential (McCurry, et al., 2011, J Am Geriatr Soc, 59:1393-1402)

Make Sure You Know Who's The Client

- Caregiver and care-recipient factors influence the reliability of reports of sleep problems in persons with dementia (McCurry, et al. 2006, Am J Geriatr Psychiatry, 14: 112-120)
- Caregiver sleep disturbances do not always co-occur with patient sleep problems (McCurry et al. 2008, Sleep, 31: 741-748)
- Caregiver depression and burden predicts the onset of caregiver sleep problems over 5 years; ADL impairment and depression predicts onset of care-recipient sleep problems (McCurry, et al., 2009, Sleep Med Clin, 4: 519-526)

Potential Limitations of Behavioral Treatments for Sleep in Dementia

- They take time to implement and sustain
- They are not a magic bullet for all problems, in all people, all of the time
- They require significant patient/caregiver participation
- They are not crisis interventions
- Some treatments may not be reimbursable

Reviews of Interest

- Ancoli-Israel S, Ayalon L. Diagnosis and treatment of sleep disorders in older adults. Am J Geriatric Psychiatry, 14, 95-103 (2006).
- Cole C, Richards K. Sleep disruption in older adults. Harmful and by no means inevitable, it should be assessed for and treated. Am J Nurs, 107, 40-49 (2007).
- Deschenes CL, McCurry SM. Current treatments for sleep disturbances in individuals with dementia. Curr Psychiatry Rep, 11, 20-26 (2009).
- Fiorentino L, Martin JL. Awake at 4 am: Treatment of insomnia with early morning awakenings among older adults. J Clin Psychol, 66, 1161-1174 (2010).
- Landry GJ, Liu-Ambrose. Buying time: A rationale for examining the use of circadian rhythm and sleep interventions to delay progression of mild cognitive impairment to Alzheimer's disease. Front Aging Neurosci, Dec 8; 6:325 (2014).
- McCurry SM, et al. Sleep disturbances in caregivers of persons with dementia: Contributing factors and treatment implications. Sleep Med Rev, 11. 143-153 (2007)

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