

GERD, SLEEP AND AGING

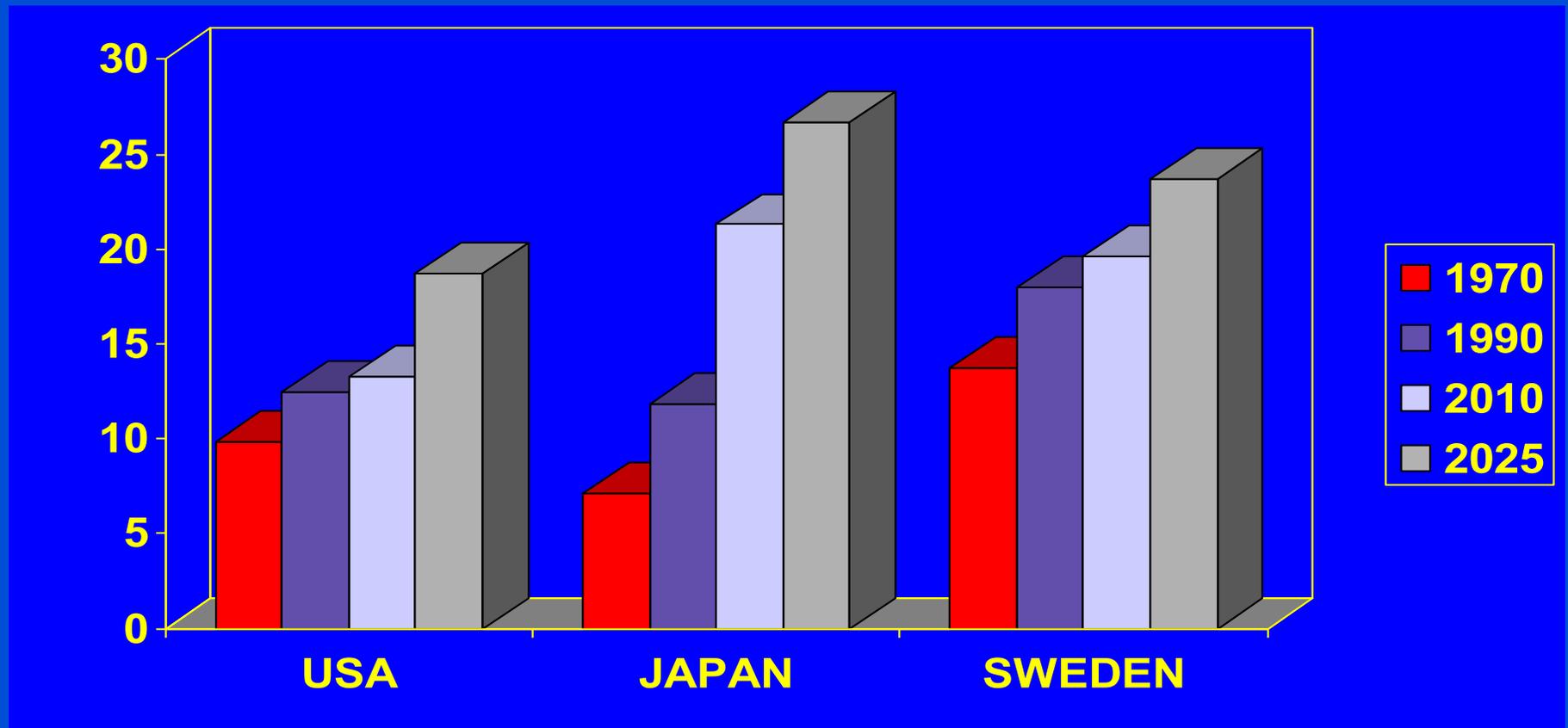
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Presentation Objectives

- **Discuss the growing proportion national populations represented by older adults.**
- **Outline the causes of disturbed sleep in older adults.**
- **Examine the associations between sleep problems and chronic illnesses in older adults with attention to GERD.**
- **Describe a number of important research questions in the area of GERD, sleep and aging.**
- **Note the potential role of GERD in dementia.**

Estimated Percents of National Populations 65 Years of Age or Older



Causes of Sleep Disturbance in Aging

- **Age-related sleep change**
 - Changes in homeostatic sleep drive and circadian rhythm for wakefulness
- **Co-morbid medical and psychiatric illnesses**
 - E.g.; Pain, Depression, Nocturia, GERD, etc.
- **Primary sleep disorders**
 - Insomnia, OSA, RLS, RBD, CRDs, etc.
- **Poor sleep hygiene**
 - Learned behaviors, environmental factors, etc.
- **Any combination of the above**

Vitiello Clinical Cornerstone 2(5): 16-27, 2000.

Prevalence of Sleep Complaints

Vitiello, et al. Prevalence of Chronic Sleep Complaints and Their Relationships to Medical Conditions in the VITAL Study Cohort of 77,000 Older Adults.

Sleep 27, A120, 2004.

	<u>SOD</u>	<u>SMD</u>	<u>EMA</u>	<u>NRS</u>	<u>EDS</u>
<u>Total</u>	17.6	33.1	26.6	26.0	13.3
<u>Men</u>	13.7	27.8	26.6	23.7	13.1
<u>Women</u>	21.2*	37.9*	26.6	28.1*	13.4

Prevalence of Chronic Illnesses in Older Adults

• Chronic pain/OA	48.4	• Diabetes	7.0
• Indigestion/GERD	21.4	• Rheumatoid A.	3.9
• BPH*	16.8	• COPD	3.7
• Depression	16.7	• Stroke	2.5
• Headache/Migraine	15.5	• Heart Failure	1.8
• Cancer	14.5	• Kidney Disease	1.0
• CAD	9.2	• Cirrhosis/Liver Dis.	0.5

Vitiello et al. *Sleep* 2004

Associations of Chronic Illnesses and Sleep Complaints

- **Most illnesses were associated with both nighttime (ORs of 1.0 - 1.7) and daytime sleep-related complaints (ORs of 1.1 - 2.8).**
 - **Depression (ORs of 1.7 - 2.8) had the strongest associations.**
 - **Chronic Pain/OA (ORs of 1.6 - 1.9) had the second strongest associations.**
 - **Similar patterns were observed for medical burden and were comparable for men and women.**

Associations of GERD and Sleep Complaints

- GERD associated with nighttime sleep-related complaints (OR = 1.37, CI:1.32-1.42, $p < .000$).
- GERD associated with daytime sleep-related complaints (OR = 1.71, CI:1.64-1.79, $p < .000$).
- GERD associated with insomnia classification (OR = 1.66, CI:1.59-1.74, $p < .000$).

Adjusted for age, sex, education and other medical conditions.

GERD and Sleep: Unanswered Questions

- Does prevalence of GERD increase with age?
- Does chronicity and severity of GERD increase with age?
- What are the relationships between GERD and sleep and obstructive sleep apnea?
 - And are they effected by age?
- What are the health implications of GERD-based nighttime awakenings in older adults?
 - Possible direct and indirect paths to dementia?

GERD: Pathway to Dementia

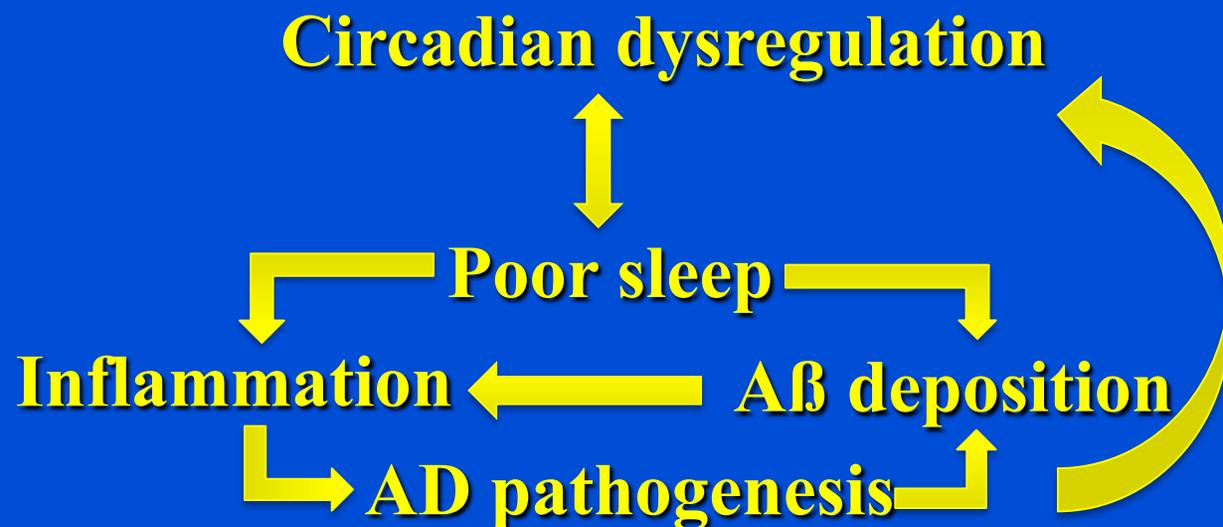
- Directly: Through GERD's impact on sleep, as a significant cause of diminished and fragmented sleep over time, which may increase beta-amyloid lead to dementia.
 - Landry GL, Liu-Ambrose T. (2014).
- Indirectly: Through treatment with proton pump inhibitors, which may increase brain beta-amyloid and lead to dementia.
 - Gomm W, et al. (2016).

Sleep and Cognitive Decline

- > **Abnormalities in sleep architecture reported in mild cognitive impairment (MCI)**
- > **Elevated levels of cerebrospinal fluid beta-amyloid (β A) in preclinical Alzheimer disease associated with lower sleep quality.**
- > **Role of sleep in AD? : While the brain sleeps, it clears out harmful waste proteins, including beta-amyloid via actions of the glymphatic system.**
- > **Poor sleep compromises glymphatic system function.**

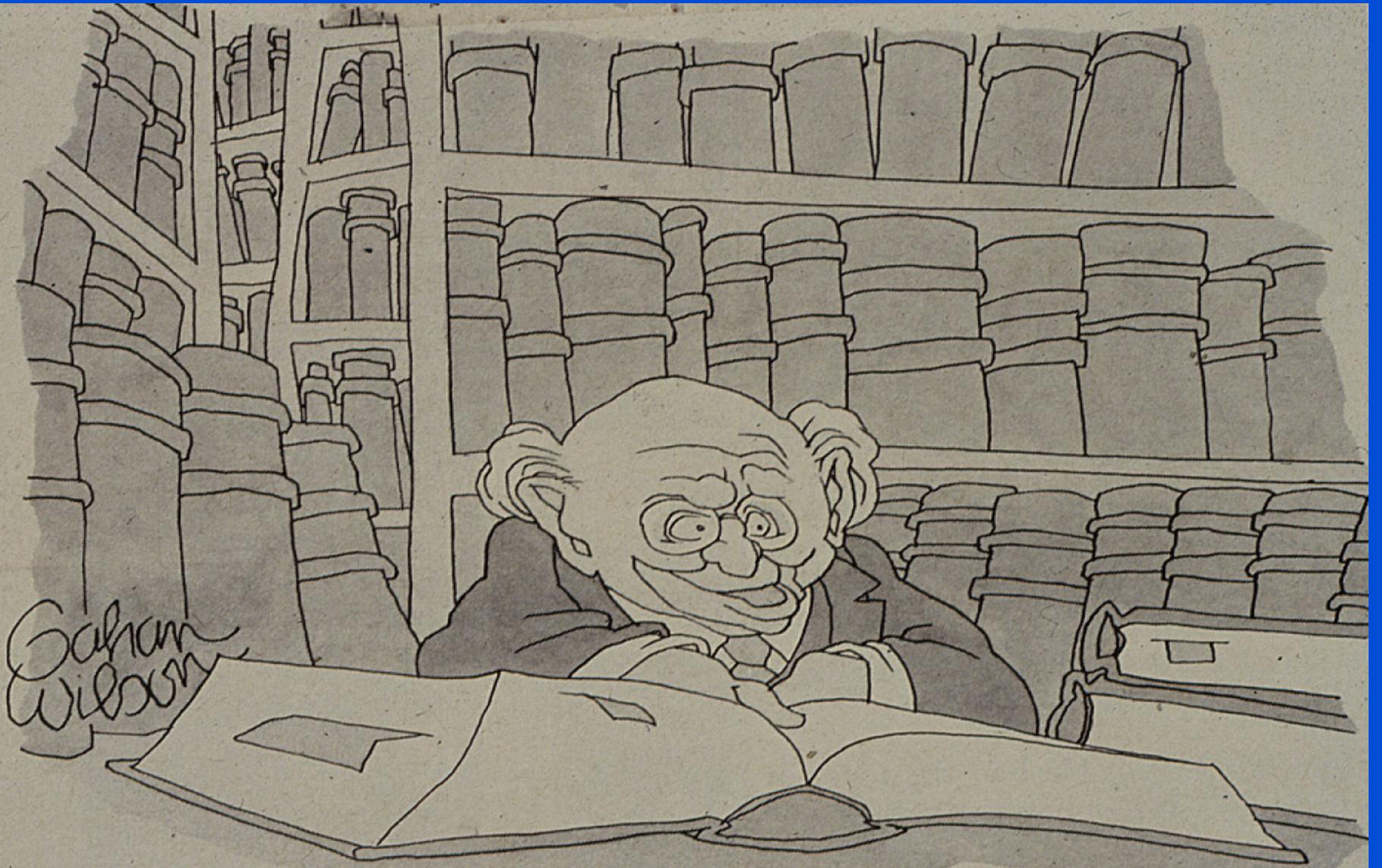
Sleep-Related Pathways to Alzheimer's

Studies suggest a bidirectional relationship between sleep and Alzheimer's disease:

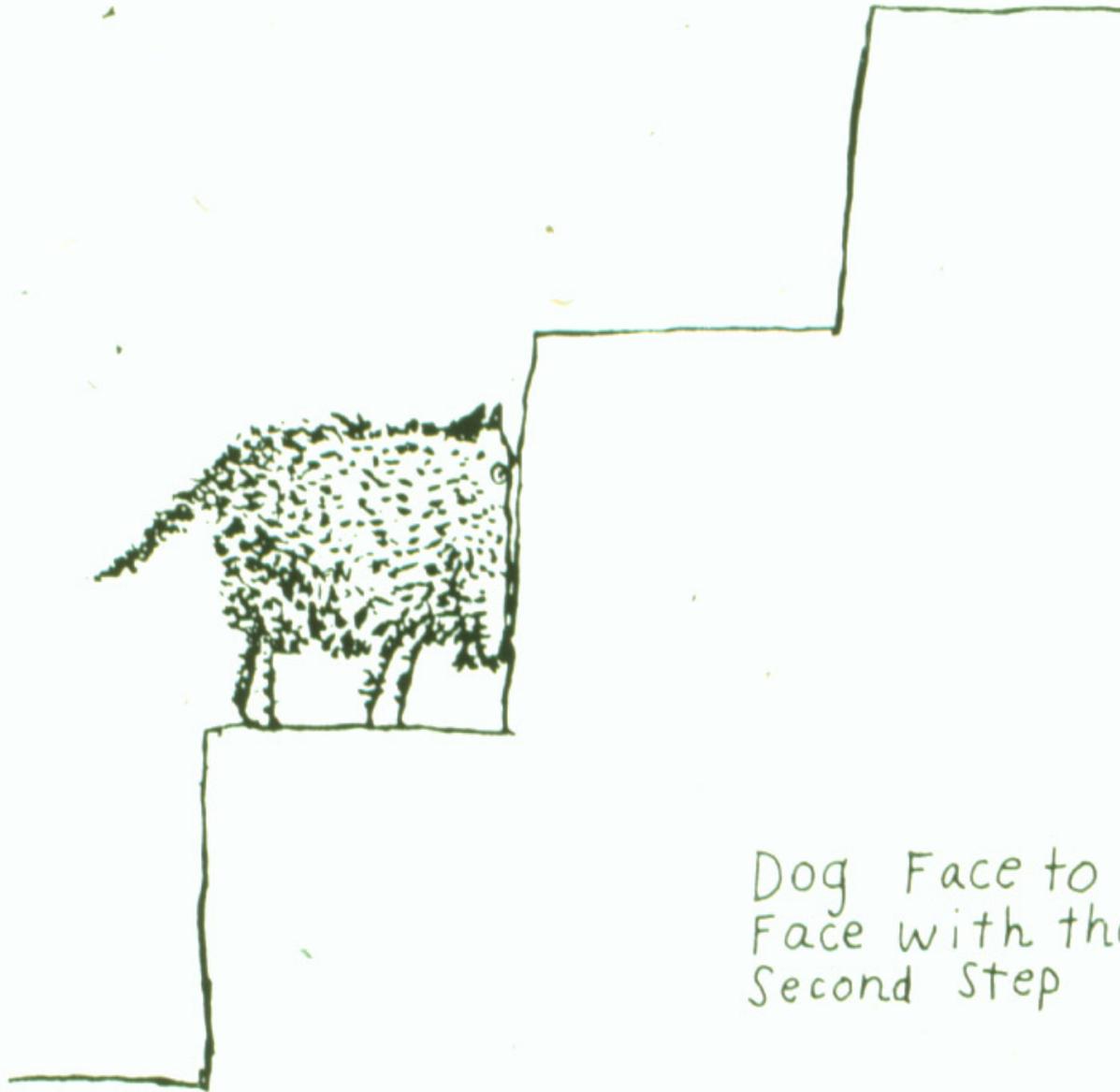


Landry GL, Liu-Ambrose T. (2014). Frontiers in Aging Neuroscience. Doi: 10.3389/fnagi.2014.00325

UNIVERSITY of WASHINGTON



“By God, for a minute there it suddenly all made sense!”



Dog Face to
Face with the
Second Step