



A PUBLIC HEALTH APPROACH TO ALZHEIMER'S AND OTHER DEMENTIAS

ALZHEIMER'S & OTHER DEMENTIAS – THE BASICS



Emory Centers
for Training and
Technical Assistance



LEARNING OBJECTIVES

- Define cognitive health
- Define and differentiate between dementia and Alzheimer's
- List at least 5 early signs of Alzheimer's
- Describe the changes that occur during the course of Alzheimer's
- Describe the role of caregivers



DISCUSSION QUESTION I



What is cognitive health?

COGNITIVE HEALTH'

- Cognition: the ability to think, learn, and remember
- Cognitive health continuum: “optimal functioning” to severe disability



COGNITIVE AGING^{2,3,4}

- The brain changes as it ages
- Increase in wisdom and expertise
- Speed of processing, making decisions, remembering may slow
- Normal part of aging



MILD COGNITIVE IMPAIRMENT (MCI)^{5,6}

- Difficulty with cognitive processes
- Not severe enough to interfere with daily life
- Increased risk of Alzheimer's or dementia
- May be caused by external factors (vitamin B12 deficiency, depression)





COGNITIVE IMPAIRMENT⁷

- Difficulty with cognitive processes that affect everyday life
- Spans wide range of functioning
- Can occur as a result of Alzheimer's, dementia, stroke, traumatic brain injury



DEMENTIA⁸

- Decline in mental ability severe enough to interfere with daily life
- Not a specific disease
- Not normal aging
- Caused by damage to brain cells from disease or trauma
- Many dementias are progressive



ALZHEIMER'S DISEASE

ALZHEIMER'S AND OTHER DEMENTIAS – THE BASICS



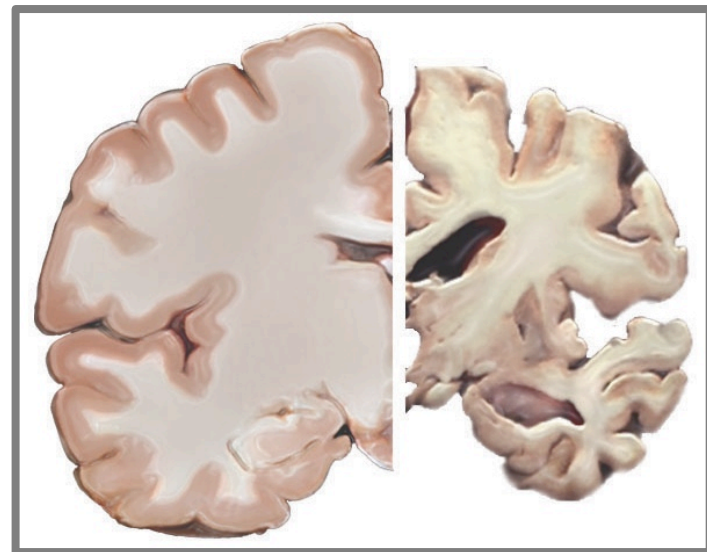
ALZHEIMER'S HISTORY⁹

- Identified in 1906 by Dr. Alois Alzheimer
- Examined brain of woman who died after living with profound memory loss
- Found abnormal clumps (plaques) and tangled fibers (tangles) in the brain



ALZHEIMER'S OVERVIEW¹⁰

- Most common cause of dementia
- 60% - 80% of cases
- Progressive – symptoms gradually worsen over number of years



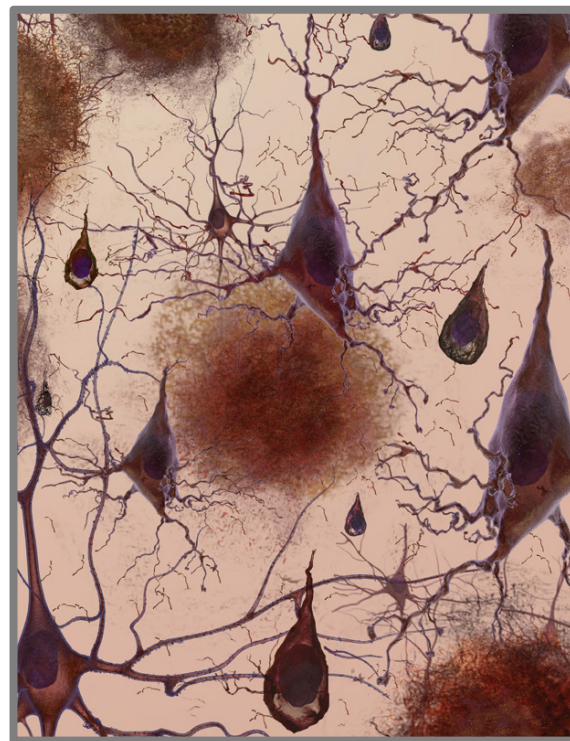


ALZHEIMER'S CAUSES''

- Precise changes in brain largely unknown
- Probably develops as a result of complex interactions among:
 - Age
 - Genetics
 - Environment
 - Lifestyle
 - Coexisting medical conditions

ALZHEIMER'S PHYSICAL BRAIN CHANGES¹²

- Brain shrinks dramatically
 - Nerve cell death
 - Tissue loss
- Plaques: abnormal clusters of protein fragments
- Tangles: twisted strands of another protein





DISCUSSION QUESTION 2



What are the characteristics of
Alzheimer's?

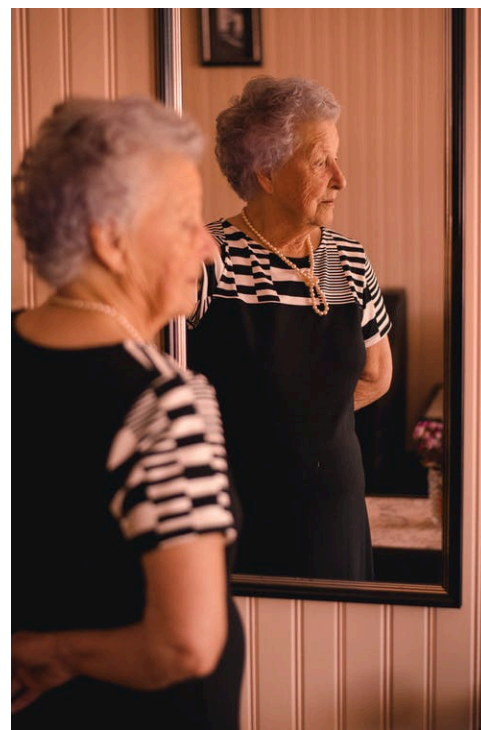
10 EARLY SIGNS OF ALZHEIMER'S¹³

1. Memory loss that disrupts daily life
2. Challenges in planning or solving problems
3. Difficulty completing familiar tasks
4. Confusion with time or place
5. Trouble understanding visual images and spatial relationships



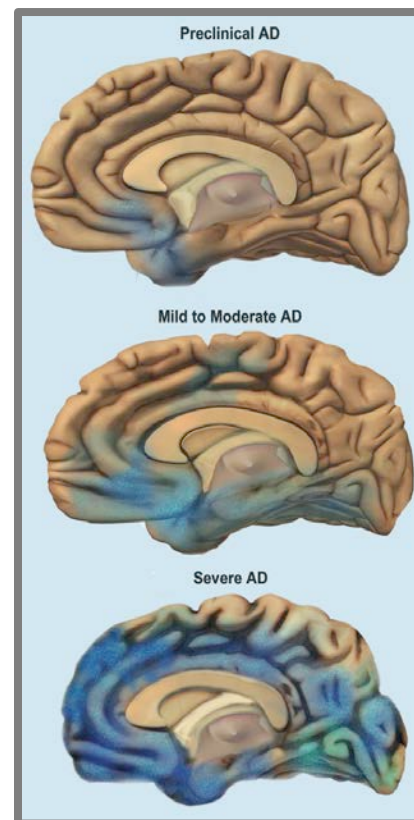
10 EARLY SIGNS OF ALZHEIMER'S (CONTINUED)¹⁴

6. New problems with words in speaking or writing
7. Misplacing things and losing the ability to retrace steps
8. Decreased or poor judgment
9. Withdrawal from work or social activities
10. Changes in mood and personality



STAGES OF ALZHEIMER'S¹⁵

- Average lifespan 4-8 years after diagnosis; as long as 20 years
- Progresses slowly in 3 stages:
 - Mild (early-stage)
 - Moderate (middle-stage)
 - Severe (late-stage)



MILD ALZHEIMER'S (EARLY-STAGE)¹⁶

- Able to function independently
- Common difficulties:
 - Forgetting familiar words
 - Losing everyday objects
 - Trouble remembering names
 - Greater difficulty performing tasks
 - Forgetting material just read
 - Increasing trouble with planning, organizing



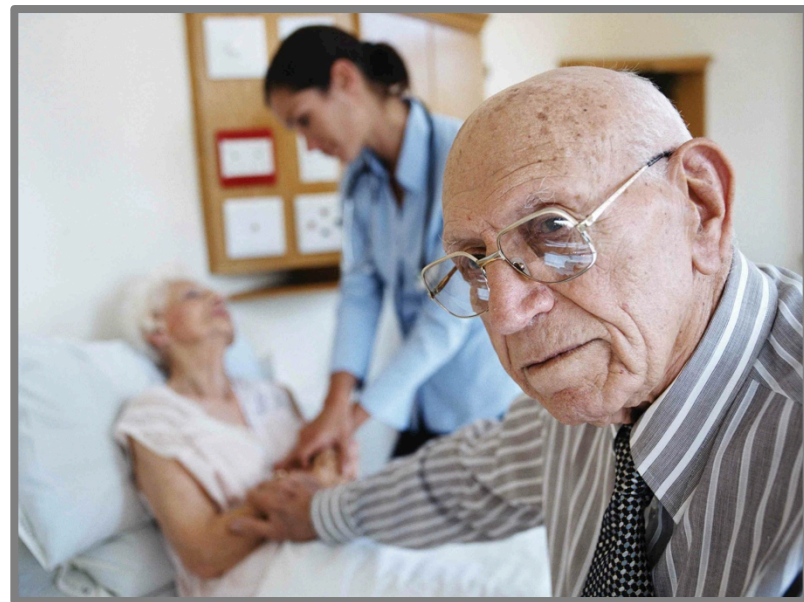


MODERATE ALZHEIMER'S (MIDDLE-STAGE)¹⁷

- Requires increasing care
- Symptoms include:
 - Forgetfulness of personal history
 - Confusion about place or time
 - Need for help with bathing, toileting, dressing
 - Changes in sleep patterns
 - Increased risk of wandering
 - Personality and behavioral changes

SEVERE ALZHEIMER'S (LATE-STAGE)¹⁸

- Typically longest stage
- Requires full-time care
- Loss of awareness of recent experiences and surroundings
- Changes in physical abilities (walking, sitting, swallowing)
- Vulnerable to infections





RISK FACTORS

ALZHEIMER'S AND OTHER DEMENTIAS – THE BASICS



RISK FACTORS: AGE^{19,20,21}

- #1 risk factor is advancing age
- Risk doubles every 5 years after age 65
- 1 in 3 people age ≥ 85



YOUNGER-ONSET ALZHEIMER'S DISEASE²²

- Affects people younger than 65
- Many are in their 40s and 50s
- 200,000 have younger onset (in U.S.)
- Up to 5% of population with Alzheimer's



RISK FACTORS: FAMILY HISTORY, EDUCATION²³

- Family history
- Environmental factors
- Years of formal education





RISK FACTORS: RACE & ETHNICITY²⁴

- African-Americans: 2 times greater risk
- Hispanics: 1.5 times greater risk
- Cardiovascular risk factors more common
- Lower levels of education, socioeconomic status

RISK FACTORS: WOMEN^{25,26}

- 2/3 of affected population
- 16% of women age ≥ 71 (11% of men)
- After age 65, have more than 1 in 5 chance (1 in 11 for men)



MODIFIABLE RISK FACTORS: HEAD TRAUMA²⁷

- Moderate and severe traumatic brain injury
 - Moderate injury: 2.3 times greater risk
 - Severe injury: 4.5 times greater risk
- Risk remains for years after injury



MODIFIABLE RISK FACTORS: LIFESTYLE^{28,29}

- Increases risk
 - Current smoking
 - Midlife obesity
- Decreases risk
 - Physical activity
 - Heart-healthy diets: DASH, Mediterranean diet
 - Mental and social activity



MODIFIABLE RISK FACTORS: CARDIOVASCULAR^{30,31}

- Heart-head connection
- Cardiovascular risk factors:
 - High blood pressure in midlife
 - Heart disease
 - Stroke
 - Diabetes





TREATMENT & MANAGEMENT

ALZHEIMER'S AND OTHER DEMENTIAS – THE BASICS



DIAGNOSING ALZHEIMER'S DEMENTIA³²

- No single test
- Medical evaluation
 - Medical history
 - Mental status testing
 - Information from family and friends
 - Physical and neurological exams
 - Rule out other causes





TREATING & MANAGING ALZHEIMER'S³³

- No cure
- Drug and non-drug treatments
- Goals of existing treatment
 - Maintain quality of life
 - Maximize functioning in daily activities
 - Foster safe environment
 - Promote social engagement

ALZHEIMER'S: CO-MORBIDITIES^{34,35}

- Additional chronic conditions (e.g., heart disease, diabetes, depression)
- Difficult to manage
- Higher rates of hospitalizations and costs
- Preventable hospitalizations



ALZHEIMER'S: UNIQUE ASPECTS³⁶

- Financial hardship
 - May lose income and savings
 - Increased reliance on public programs
- Stigma
- Vulnerability to abuse
- Caregiver burden





ALZHEIMER'S: CAREGIVERS³⁷

- Types of care activities include daily living activities, medication management, financial management
- Level of care needed increases and often results in complete dependence
- Caregiving has significant physical and emotional stress

ROLE OF PUBLIC HEALTH

- 4 key ways public health can have an impact:
 - Surveillance/monitoring
 - Risk reduction/primary prevention
 - Early detection and diagnosis
 - Safety and quality of care



DEMENTIA CAPABLE SYSTEMS AND DEMENTIA FRIENDLY COMMUNITIES

- Dementia capable systems
 - Support services
 - Workforce training
- Dementia friendly communities





FOR MORE INFORMATION

For more information, please visit:

Alzheimer's Association: <http://www.alz.org>

CDC's Alzheimer's Disease and Healthy Aging Program:
<https://www.cdc.gov/aging/>





COMPETENCIES

- **Academy for Gerontology in Higher Education (AGHE):**
 - 1.2.1 Distinguish normal biological aging changes from pathology including genetic factors.
 - 1.2.4 Recognize common late-life syndromes and diseases and their related bio-psycho-social risk and protective factors.
- **Council on Education for Public Health (CEPH) Foundational Competencies:**
 - 2. Locate, use, evaluate, and synthesize public health information (bachelors level)
 - 4. Interpret results of data analysis for public health research, policy, or practice (masters level)
- **Council on Linkages Between Academia and Public Health Practice:**
 - 1A1. Describes factors affecting the health of a community (e.g., equity, income, education, environment)

REFERENCES I

¹ National Institute on Aging. (n.d.) Cognitive Health and Older Adults. Retrieved from <https://www.nia.nih.gov/health/cognitive-health-and-older-adults>

² Institute of Medicine. (2015) *Cognitive Aging: Progress in Understanding and Opportunities for Action*.

³ National Institute on Aging. (n.d.) *Do Memory Problems Always Mean Alzheimer's Disease?*

⁴ Taylor CA, Bouillon ED, McGuire LC. *Subjective Cognitive Decline Among Adults Aged ≥45 Years — United States, 2015–2016*. *MMWR Morb Mortal Wkly Rep* 2018;67:753–757. DOI: <http://dx.doi.org/10.15585/mmwr.mm6727a1>

⁵ Alzheimer's Association. Alzheimer's Association. (2019) *2019 Alzheimer's Disease Facts and Figures*.

⁶ National Institute on Aging. (n.d.) *What is Mild Cognitive Impairment?* Retrieved from <https://www.nia.nih.gov/alzheimers/topics/mild-cognitive-impairment>

⁷ Alzheimer's Association and Centers for Disease Control and Prevention. *Healthy Brain Initiative, State and Local Public Health Partnerships to Address Dementia: The 2018-2023 Road Map*. Chicago, IL: Alzheimer's Association; 2018.

⁸ Alzheimer's Association. (n.d.) *What is Dementia?* Retrieved from <http://www.alz.org/what-is-dementia.asp#causes>

⁹ National Institute on Aging. (n.d.) *Alzheimer's Disease Fact Sheet*. Retrieved from <https://www.nia.nih.gov/health/alzheimers-disease-fact-sheet>

¹⁰ Alzheimer's Association. (n.d.) *What is Alzheimer's?* Retrieved from <https://www.alz.org/alzheimers-dementia/what-is-alzheimers>

¹¹ Alzheimer's Association. (n.d.) *Causes and Risk Factors*. Retrieved from <https://www.alz.org/alzheimers-dementia/what-is-alzheimers/causes-and-risk-factors>

¹² Alzheimer's Association. (n.d.) *Inside the Brain- A Tour of How the Mind Works*. Retrieved from https://www.alz.org/alzheimers-dementia/what-is-alzheimers/brain_tour

¹³ Alzheimer's Association. (n.d.) *10 Early Signs and Symptoms of Alzheimer's*. Retrieved from https://www.alz.org/alzheimers-dementia/10_signs

REFERENCES 2

- ¹⁴ Alzheimer's Association. (n.d.) *10 Early Signs and Symptoms of Alzheimer's*. Retrieved from https://www.alz.org/alzheimers-dementia/10_signs
- ¹⁵ Alzheimer's Association. (n.d.) *Stages of Alzheimer's*. Retrieved from <https://www.alz.org/alzheimers-dementia/stages>
- ¹⁶ Alzheimer's Association. (n.d.) *Stages of Alzheimer's*. Retrieved from <https://www.alz.org/alzheimers-dementia/stages>
- ¹⁷ Alzheimer's Association. (n.d.) *Stages of Alzheimer's*. Retrieved from <https://www.alz.org/alzheimers-dementia/stages>
- ¹⁸ Alzheimer's Association. (n.d.) *Stages of Alzheimer's*. Retrieved from <https://www.alz.org/alzheimers-dementia/stages>
- ¹⁹ Alzheimer's Association. (n.d.) *Causes and Risk Factors*. Retrieved from <https://www.alz.org/alzheimers-dementia/what-is-alzheimers/causes-and-risk-factors>
- ²⁰ Alzheimer's Association. (2019) *2019 Alzheimer's Disease Facts and Figures*.
- ²¹ Alzheimer's Association. (n.d.) *Younger/Early Onset*. Retrieved from <https://www.alz.org/alzheimers-dementia/what-is-alzheimers/younger-early-onset>
- ²² Alzheimer's Association. (n.d.) *Younger/Early Onset*. Retrieved from <https://www.alz.org/alzheimers-dementia/what-is-alzheimers/younger-early-onset>
- ²³ Alzheimer's Association. (n.d.) *Causes and Risk Factors*. Retrieved from <https://www.alz.org/alzheimers-dementia/what-is-alzheimers/causes-and-risk-factors>
- ²⁴ Alzheimer's Association. (2019) *2019 Alzheimer's Disease Facts and Figures*.
- ²⁵ Alzheimer's Association. (2019) *2019 Alzheimer's Facts & Figures*.
- ²⁶ Podcasy, J. & Epperson, C. (2016) Considering Sex and Gender in Alzheimer Disease and Other Dementias. *Dialogues in Clinical Neuroscience*, 18(4), 437–446.
- ²⁷ Alzheimer's Association. (n.d.) *Traumatic Brain Injury*. Retrieved from https://www.alz.org/alzheimers-dementia/what-is-dementia/related_conditions/traumatic-brain-injury

REFERENCES 3

- ²⁸ Morris, MC, Tangney, CC, Wang, Y, Sacks, FM, Bennett, DA, and Aggarwal, NT. (2015) MIND Diet Associated with Reduced Incidence of Alzheimer's Disease. *Alzheimer's & Dementia*, 11(9), 1007–1014. doi:10.1016/j.jalz.2014.11.009.
- ²⁹ Alzheimer's Association. (n.d.) *Prevention*. Retrieved from https://www.alz.org/alzheimers-dementia/research_progress/prevention
- ³⁰ Alzheimer's Association. (n.d.) *Prevention*. Retrieved from https://www.alz.org/alzheimers-dementia/research_progress/prevention
- ³¹ Yaffe, K. (2019). Prevention of Cognitive Impairment with Intensive Systolic Blood Pressure Control. *JAMA*, 321(6), 548-549.
- ³² Alzheimer's Association. (n.d.) *Diagnosis*. Retrieved from <https://www.alz.org/alzheimers-dementia/diagnosis>
- ³³ Alzheimer's Association. (2019) *2019 Alzheimer's Disease Facts and Figures*.
- ³⁴ Alzheimer's Association and Centers for Disease Control and Prevention. *Healthy Brain Initiative, State and Local Public Health Partnerships to Address Dementia: The 2018-2023 Road Map*. Chicago, IL: Alzheimer's Association; 2018.
- ³⁵ Alzheimer's Association. (2019) *2019 Alzheimer's Disease Facts and Figures*.
- ³⁶ Alzheimer's Association. (n.d.) *Abuse*. Retrieved from <https://www.alz.org/help-support/caregiving/safety/abuse>
- ³⁷ Alzheimer's Association. (n.d.) *Caregiving*. Retrieved from <https://www.alz.org/help-support/caregiving>