

Dementia Prevention and Treatment: An Asian American Perspective

24th Annual Asian American Mental Health Training Conference

October 11th, 2018

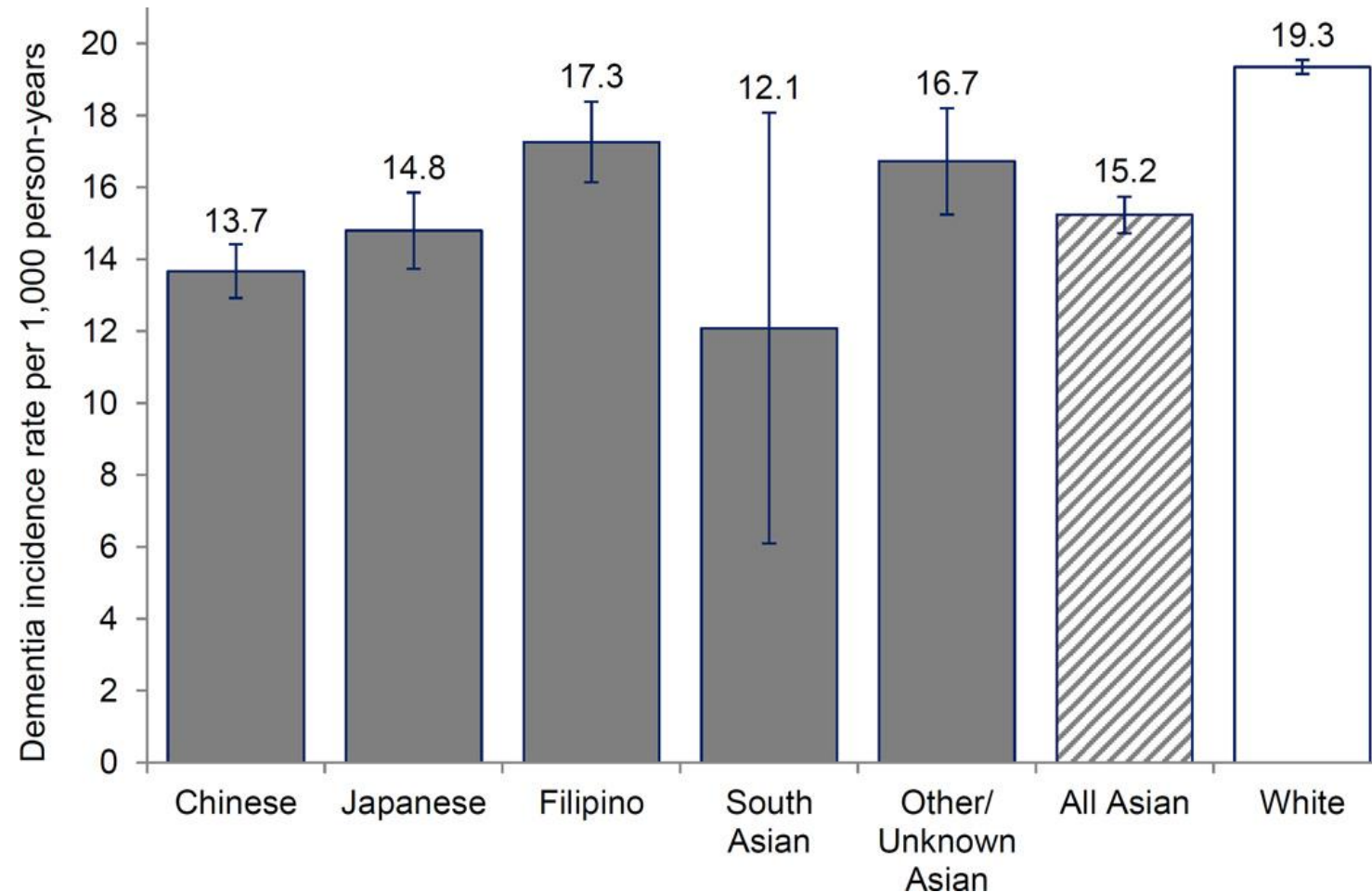
Benjamin Woo, M.D.

Associate Clinical Professor, UCLA

Dementia is a growing source of morbidity

- 50M people in the world have dementia
- Approximately 5.4 million Americans of all ages had AD in 2016
 - 5.2M aged 65 and older
- Cost of dementia was about 200B
 - *Medicare paid approximately 11B*
- In CA alone, more than 1M unpaid caregivers serving loved ones with dementia
- Numbers are growing
 - 135M by 2050
 - Largest growth in Asia

14-year dementia incidence between Asian American subgroups (Alzheimer Dis Assoc 2017)



Mayeda et al. Heterogeneity in 14-year Dementia Incidence Between Asian American Subgroups. Alzheimer Dis Assoc 2017

View of Dementia: Vietnamese American Immigrants (N=102)

- 75% *incorrectly* believe dementia patients become unable to perform familiar tasks all *at once*.
- 70% *incorrectly* believe dementia patients are unable to recognize their families.
- 60% *incorrectly* believe dementia patients are unable to recognize time, place, and person all at once.

View of Dementia: Chinese American Immigrants (N=288)

- 60% incorrectly believe dementia *can't* be prevented.
- 62% incorrectly believe dementia *wouldn't* shorten life expectancy.
- 67% unable to identify some types of dementia *can* be treated.

Dementia

- Many causes of dementia
 - Vascular dementia
 - LBDs
- Alzheimer's disease (Most common cause of dementia > age 65)

Symptoms

- Memory

PLUS

- Word finding
- Planning
- Organizing
- Depression
- Apathy

Slowly Progressive

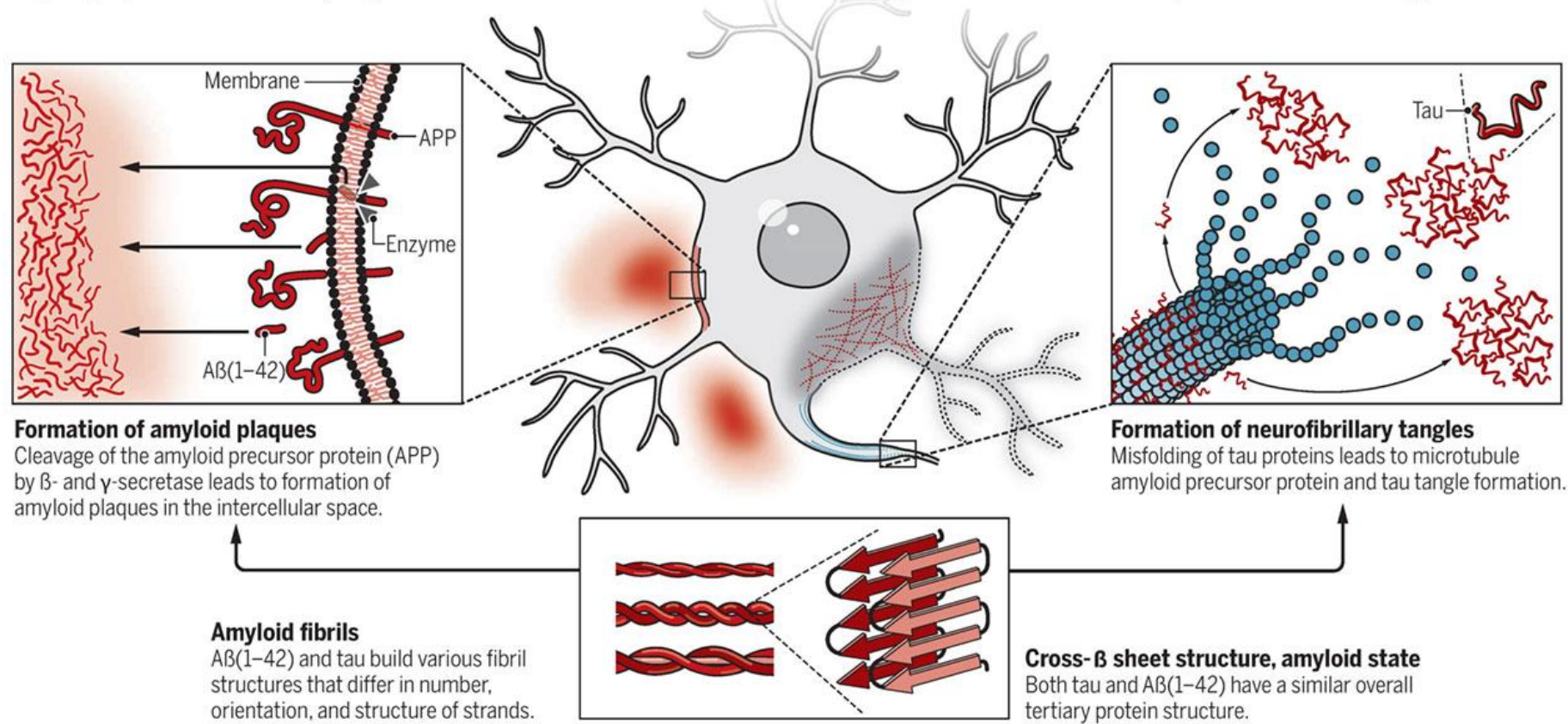
Impact ADLs

When the Clock Stops Ticking



Molecular characteristics of Alzheimer's disease

Amyloid plaques and neurofibrillary tangles that accumulate in an Alzheimer's brain consist of amyloid fibrils with different components but similar tertiary protein structures.



• Age-related cognitive impairment →

Mild cognitive impairment (MCI) →

Dementia

Dementia risk factors

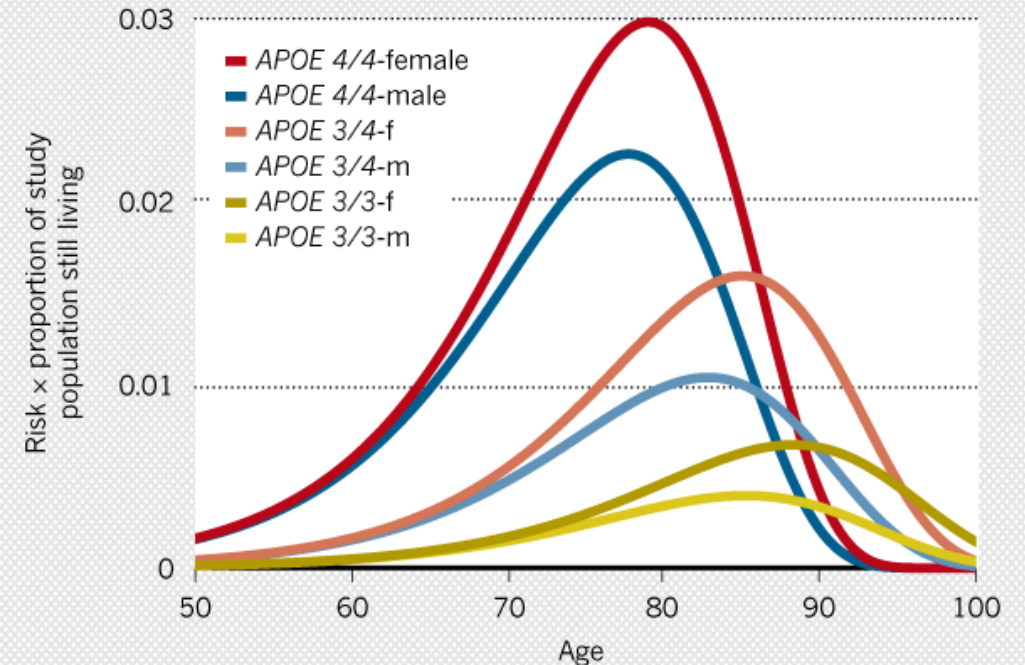
- Genetics
- Lack of physical exercise
- “Western” diet – do not underestimate Lady M or Half & Half
- Medical conditions (DM, HTN)
- Sleep apnea
- Brain-slowing Meds (Benadryl, Benzos, Terazosin, Paxil, etc.)

Alzheimer's Genetics

- Sporadic AD (>98%) onset > 65 yo
 - *Sporadic: Many genes + environment*
- ApoE gene: ApoE4
- No family history: Lifetime risk ~ 15%
 - - E4 9%
 - + E4 30%

RISKY INHERITANCE

People who carry the gene variant *APOE4* tend to develop Alzheimer's at a younger age than those with two copies of *APOE3*.



But only 40% Chinese and 50% Vietnamese American Immigrants believe some types of dementia are hereditary.

- Sporadic: Many genes + environment
 - ApoE gene: ApoE2/ApoE3/**ApoE4**
- If no family hx, lifetime risk ~15% (with E4 increased to 30%)
- One parent with AD: E3/E3: 30%; E3/E4: 45%; E4/E4: 60%



How to make a dx of AD

- History (r/o depression)
- Physical exam (r/o Parkinson's)
- Cognitive exam
- Brain MRI (r/o tumors)
- Blood: B12, thyroid, others

* Reached 85% accuracy

MONTREAL COGNITIVE ASSESSMENT (MOCA)

NAME :
 Education :
 Sex :
 Date of birth :
 DATE :

VISUOSPATIAL / EXECUTIVE

Copy cube

Draw CLOCK (Ten past eleven) (3 points)

POINTS

[] [] []

Contour Numbers Hands

___/5

NAMING

[] [] []

___/3

MEMORY Read list of words, subject must repeat them. Do 2 trials. Do a recall after 5 minutes.

	FACE	VELVET	CHURCH	DAISY	RED	No points
1st trial						
2nd trial						

ATTENTION Read list of digits (1 digit/ sec.). Subject has to repeat them in the forward order [] 2 1 8 5 4
 Subject has to repeat them in the backward order [] 7 4 2

___/2

Read list of letters. The subject must tap with his hand at each letter A. No points if ≥ 2 errors
 [] F B A C M N A A J K L B A F A K D E A A A J A M O F A A B

___/1

Serial 7 subtraction starting at 100 [] 93 [] 86 [] 79 [] 72 [] 65
 4 or 5 correct subtractions: 3 pts, 2 or 3 correct: 2 pts, 1 correct: 1 pt, 0 correct: 0 pt

___/3

LANGUAGE Repeat : I only know that John is the one to help today. []
 The cat always hid under the couch when dogs were in the room. []

___/2

Fluency / Name maximum number of words in one minute that begin with the letter F [] ___ (N ≥ 11 words)

___/1

ABSTRACTION Similarity between e.g. banana - orange = fruit [] train - bicycle [] watch - ruler

___/2

DELAYED RECALL

Has to recall words WITH NO CUE	FACE []	VELVET []	CHURCH []	DAISY []	RED []	Points for UNCUE recall only
Optional Category cue						
Multiple choice cue						

___/5

ORIENTATION [] Date [] Month [] Year [] Day [] Place [] City

___/6

Mini-Cog (<3)/Clock Drawing Test

Version 1

Banana
Sunrise
Chair

Version 2

Leader
Season
Table

Version 3

Village
Kitchen
Baby

Version 4

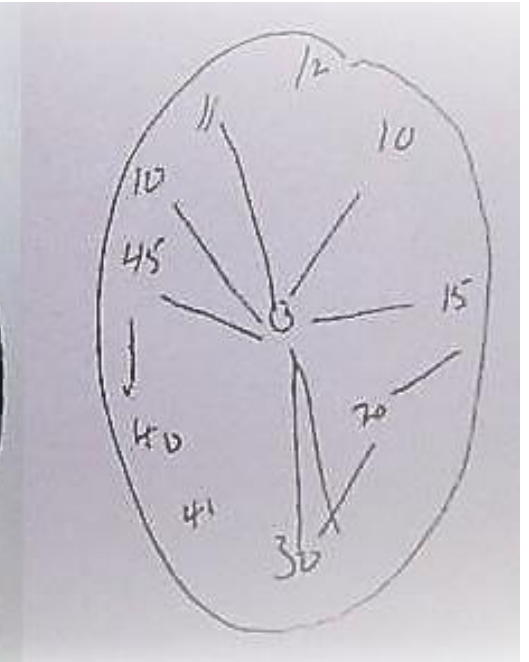
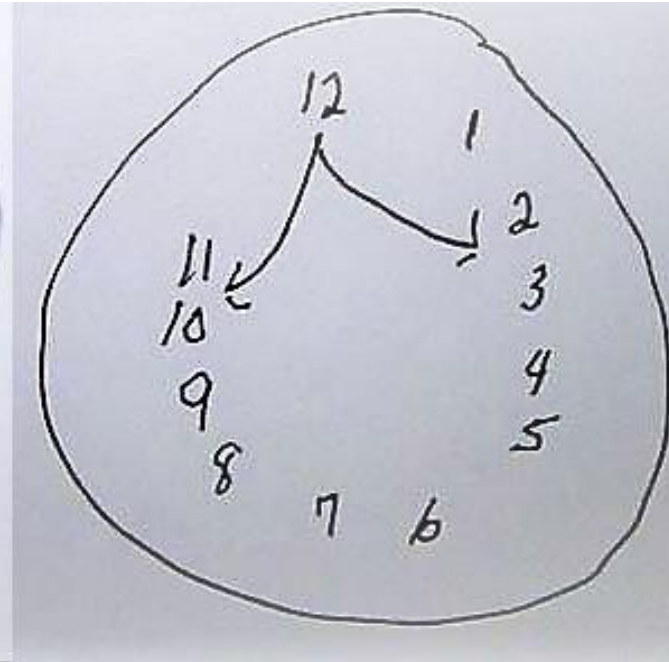
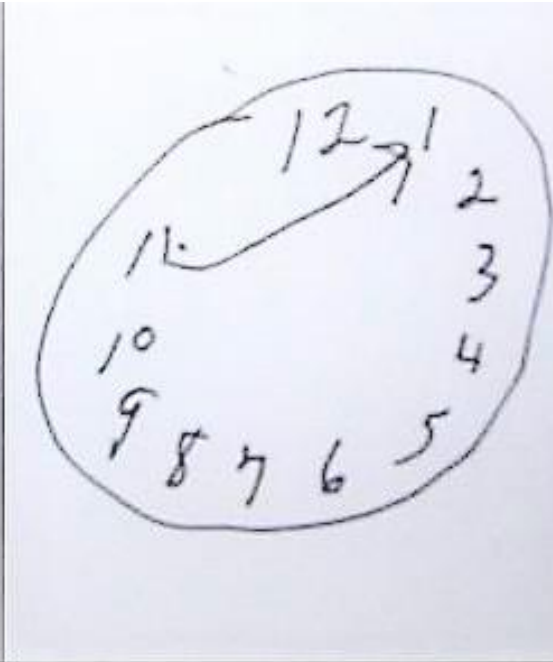
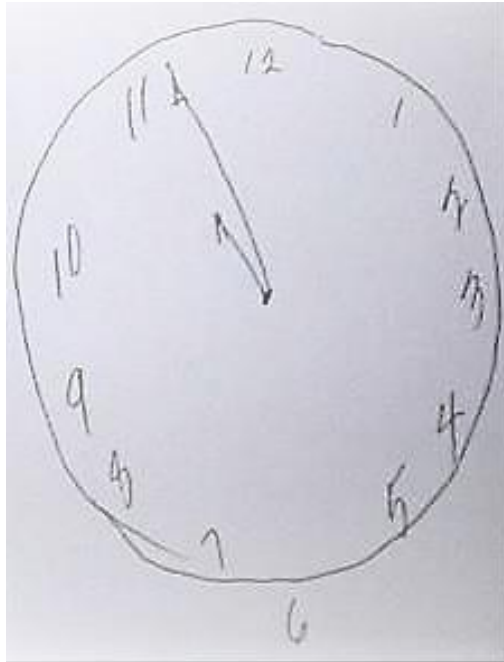
River
Nation
Finger

Version 5

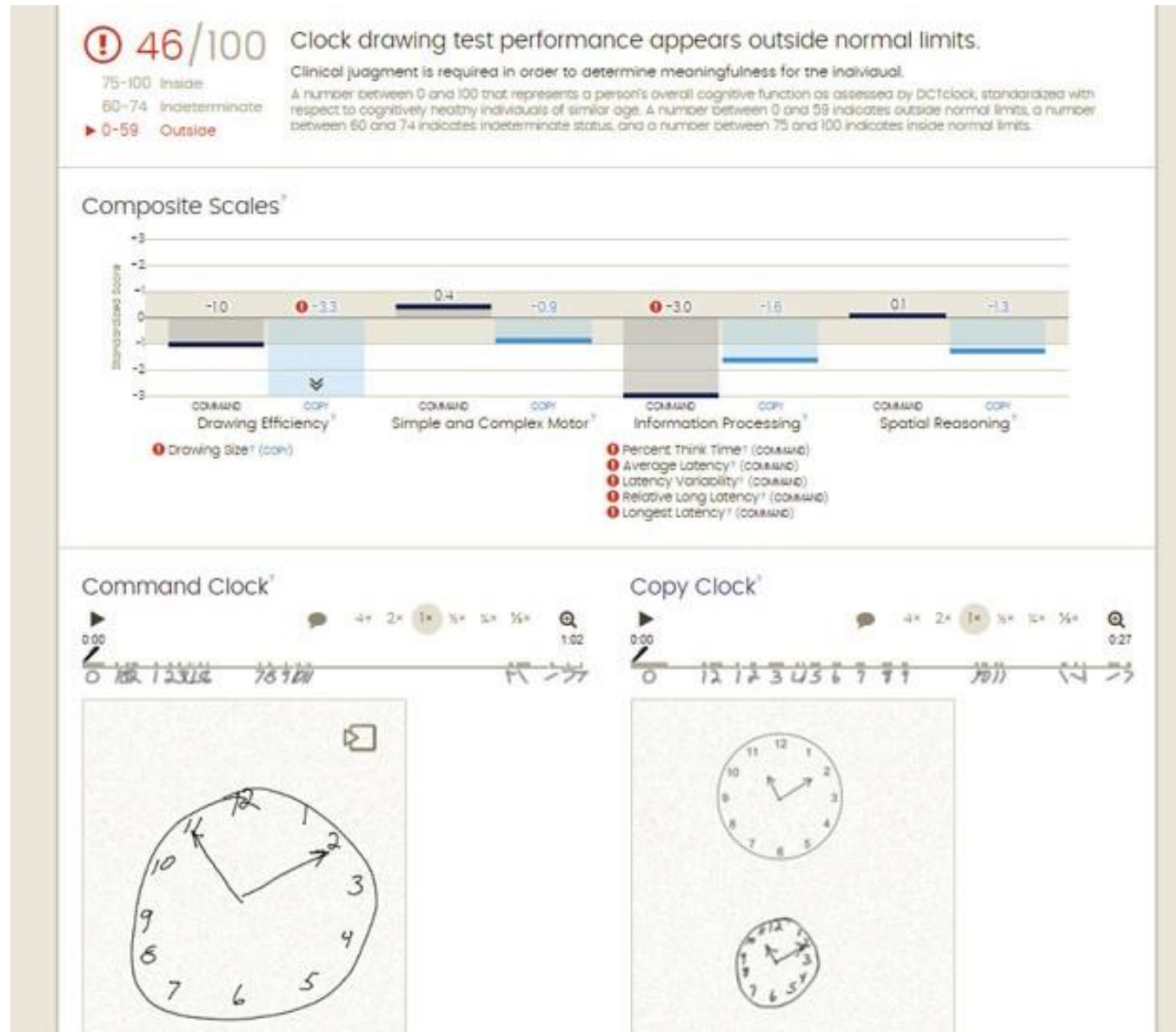
Captain
Garden
Picture

Version 6

Daughter
Heaven
Mountain



When dementia screening meets technology



The AD8: Washington University Dementia Screening Test (*informants or friends*)

Interpretation of Results

0-1: Normal cognition:

2 or greater: Impairment in cognition

Remember, "Yes, a change" indicates that there has been a change in the last several years caused by cognitive (thinking and memory) problems.	YES, A change	NO, No change	N/A, Don't know
1. Problems with judgment (e.g., problems making decisions, bad financial decisions, problems with thinking)			
2. Less interest in hobbies/activities			
3. Repeats the same things over and over (questions, stories, or statements)			
4. Trouble learning how to use a tool, appliance, or gadget (e.g., computer, microwave, remote control)			
5. Forgets correct month or year			
6. Trouble handling complicated financial affairs (e.g., balancing checkbook, income taxes, paying bills)			
7. Trouble remembering appointments			
8. Daily problems with thinking and/or memory			

2018 National Institute on Aging—Alzheimer's Association (NIA-AA) Research Framework
NIA-AA Research Framework: Toward a biological definition
of Alzheimer's disease

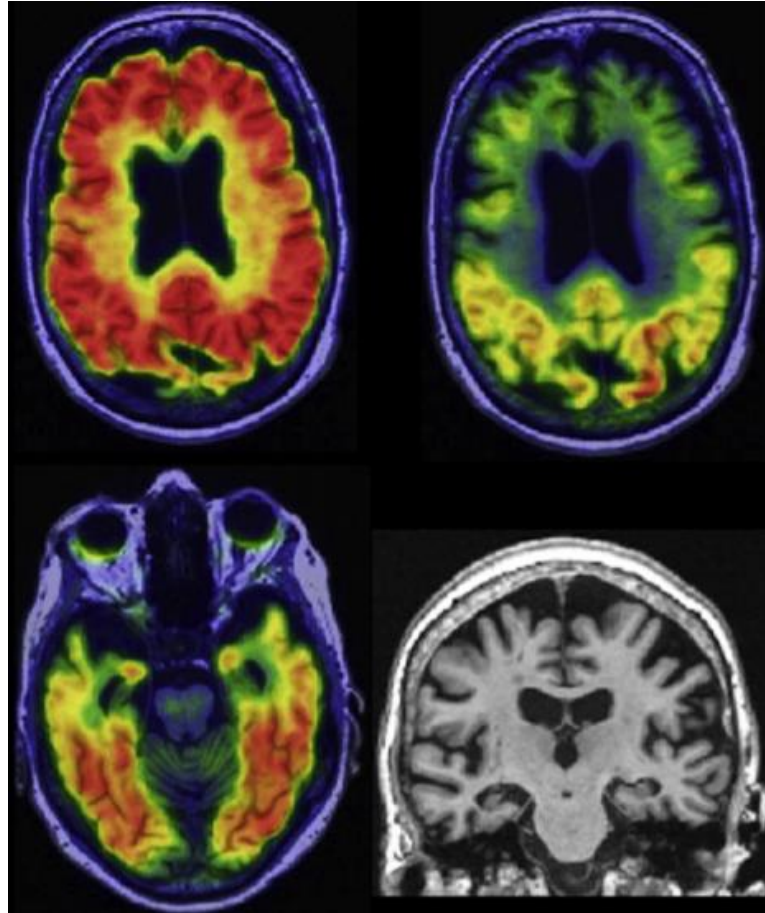


Fig. 1. Alzheimer's disease with dementia. A 75-year-old woman with amnesic multidomain dementia. Participant in the Mayo Alzheimer's Disease Research Center. Abnormal amyloid PET with Pittsburgh compound B (top left), tau PET with flortaucipir (top right and bottom left), and atrophy on MRI (bottom right). Biomarker profile A+T+(N)+.

Amyloid and tau detection with PET scans

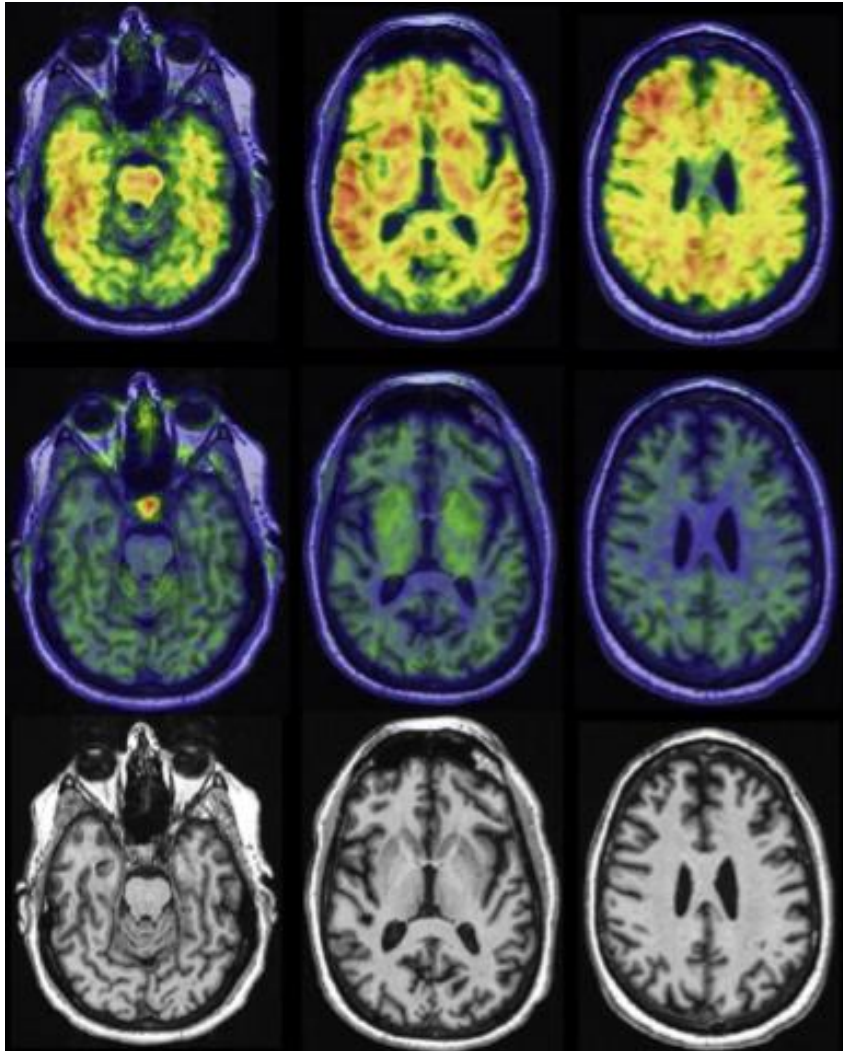
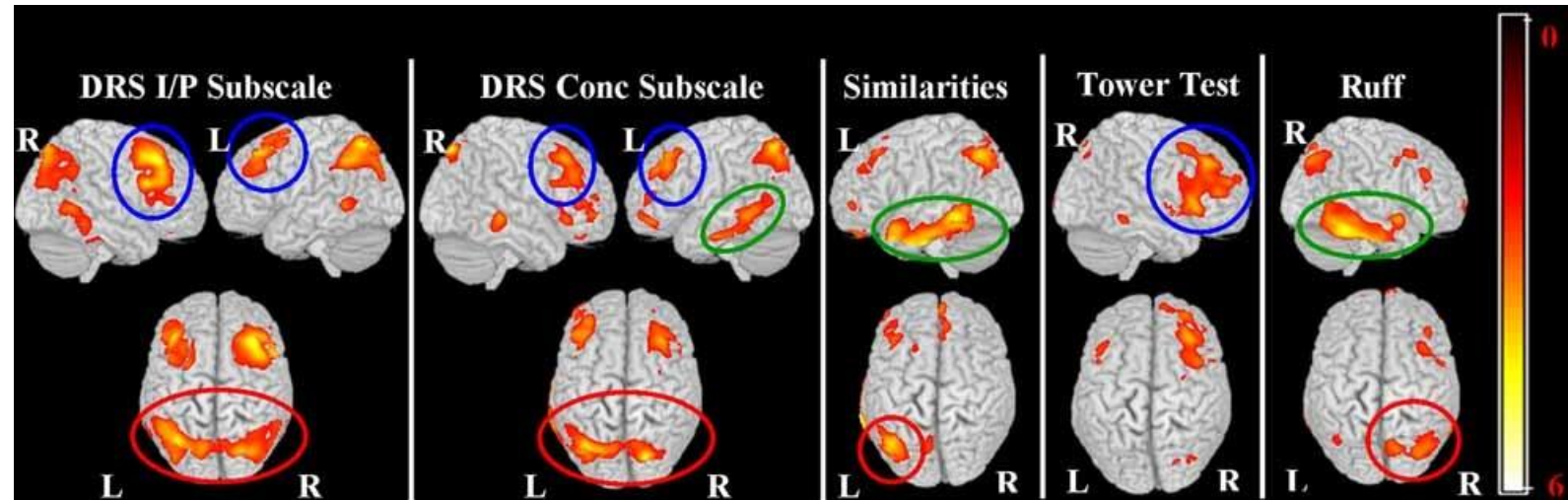
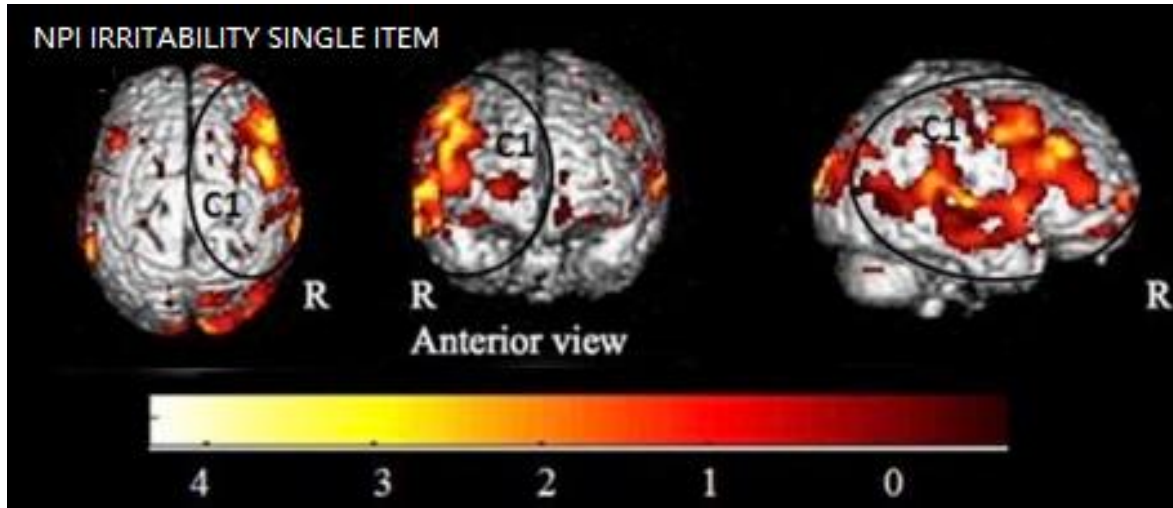


Fig. 2. Preclinical Alzheimer's pathologic change. A cognitively unimpaired 67-year-old man. Participant in the Mayo Clinic Study of Aging. Abnormal amyloid PET (Pittsburgh compound B, top row), no uptake on tau PET (with flortaucipir, middle row), no atrophy on MRI (bottom row).

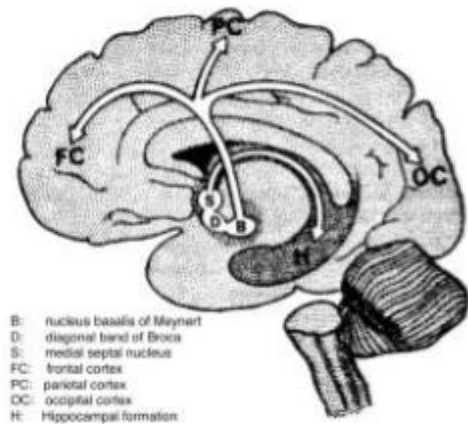
PET Imaging predicts neuropsychiatric symptoms



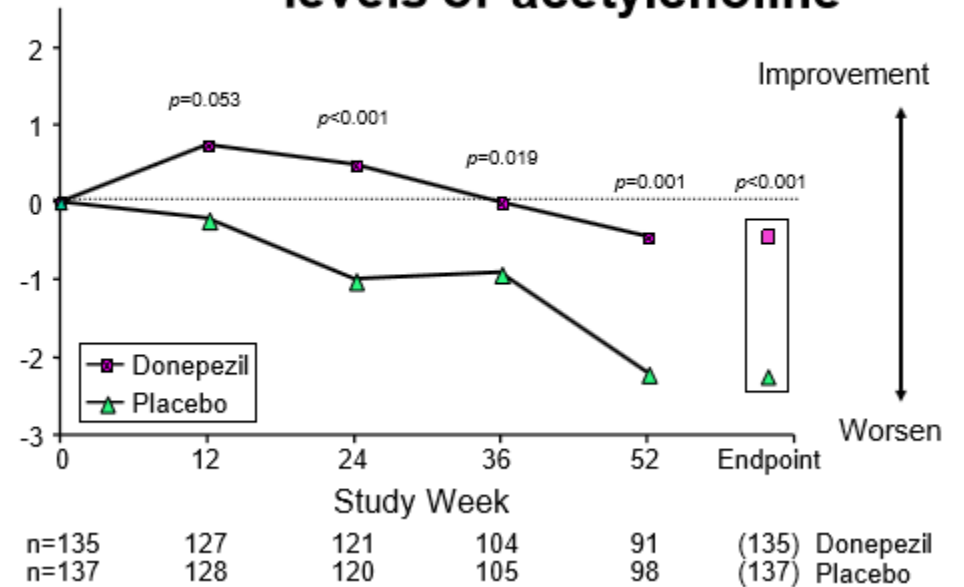
FDA approved treatments

Do not delay onset or slow progression

AD causes reduction in Acetylcholine



Cholinesterase inhibitors raise levels of acetylcholine



FDA approved treatments

Drug name	Brand name	Approved For	FDA Approved
1. donepezil	Aricept	All stages	1996
2. galantamine	Razadyne	Mild to moderate	2001
3. memantine	Namenda	Moderate to severe	2003
4. rivastigmine	Exelon	All stages	2000
5. donepezil and memantine	Namzaric	Moderate to severe	2014

Source: alz.org

Prevention Strategies

Family ask frequently, and new data is out every month!

- Cognitive exercise
- Diet
- Sleep
- Physical Exercise

COULD BRAIN TRAINING PREVENT DEMENTIA?

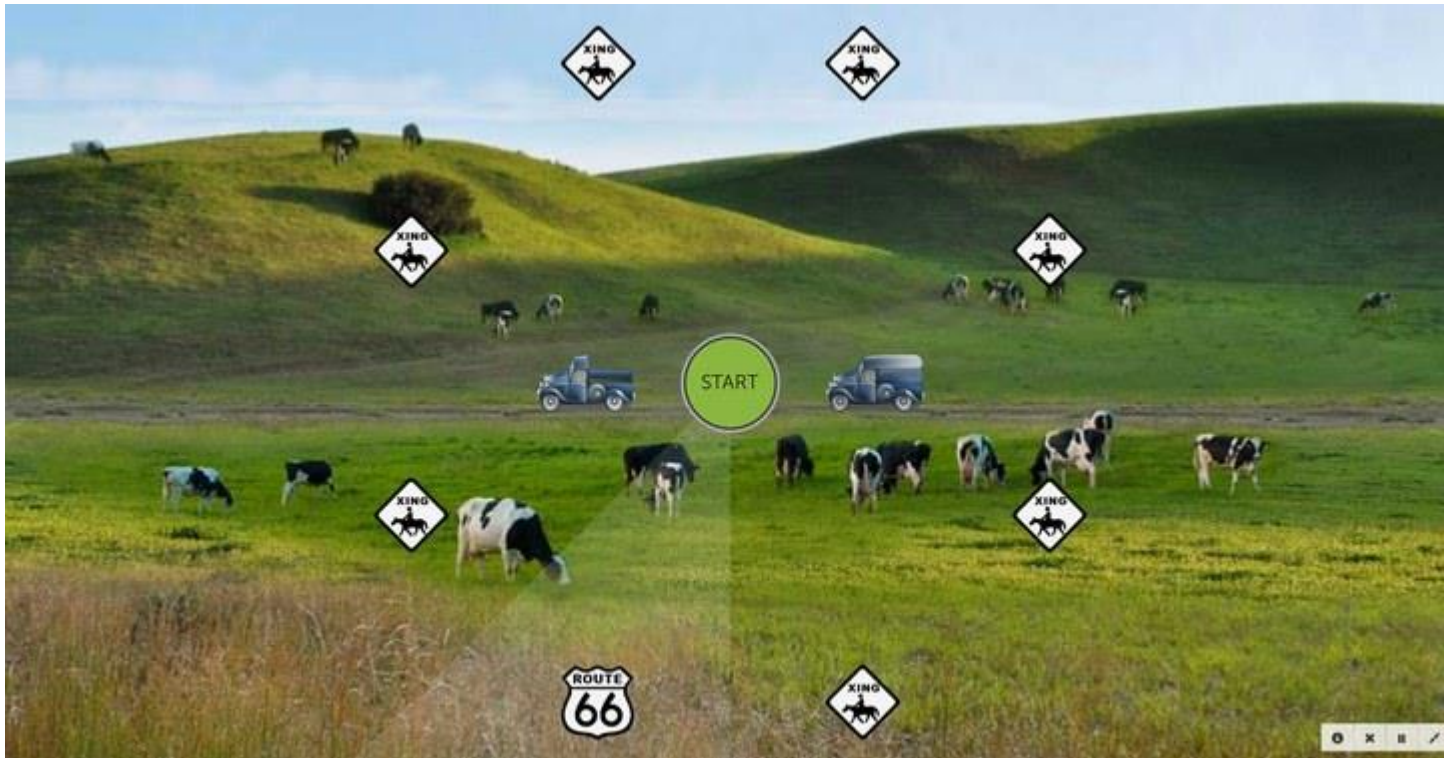
By Dan Hurley July 24, 2016

In October of 2014 a group of more than seventy academics published what they called a [consensus statement](#), asserting that playing brain games had been shown to improve little more than the ability to play brain games.

Dementia breakthrough? Brain-training game 'significantly reduces risk'

Advanced Cognitive Training for Independent and Vital Elderly (ACTIVE) study

- Speed-of-processing training



Comparison of Online Information in Chinese and in English Languages (Cureus 2017)

- A google search was performed for the phrase “dementia” in simplified Chinese characters and in English.
- No statistical significance was observed between the prevalence of signs and symptom explanations and readability of the websites.
- The simplified Chinese search websites were more likely to be commercial.



Association of Daily Intellectual Activities with Lower Risk of Incident Dementia Among Older Chinese Adults

- 1349 of 15582 older adults developed dementia over the 6-year.

Table 4. Differences in Proportion of Participants Participating in Different Types of Leisure Activities at Baseline Between Those With and Those Without Incident Dementia at Years 4 to 6

Type of Leisure Activities	Incident Dementia, No. (%)		P Value ^a
	No (n = 10 750)	Yes (n = 761)	
Intellectual	7414 (69.0)	430 (56.5)	<.001
Social	8371 (77.9)	592 (77.8)	.96
Other recreational	10 498 (97.7)	749 (98.4)	.17

Intellectual (reading books, newspapers, or magazines; playing board games, Mahjong, or card games; and betting on horse racing), Social (joining a social center, participating in voluntary work, meeting relatives or friends, and attending religious activities), and Other Recreational (watching television, listening to radio, shopping, and going to a teahouse).