Managing Cognitive Concerns in Primary Care Settings: Brain Health in Aging

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Disclosure

- Nothing to disclose
- The views and opinions in this presentation are those of the presenter and they do not necessarily reflect, and should not be taken as, official policy of the U.S. Department of Veterans Affairs or the University of Washington.

Title slide image: www.colourbox.com

Objectives

- Address patient concerns about cognition by
  - gathering information, including objective cognitive markers
  - tracking cognitive changes that might not be typical for aging
  - acting on red flags or providing reassurance
- Motivate patients toward proactive behavioral change which can support brain health:
  - review some top modifiable risk factors
  - dispel misconception that one can "prevent" dementia
- Flip perspective from preventing disease to encouraging healthy brain aging

Dementia vs MCI vs Typical Cognitive Aging

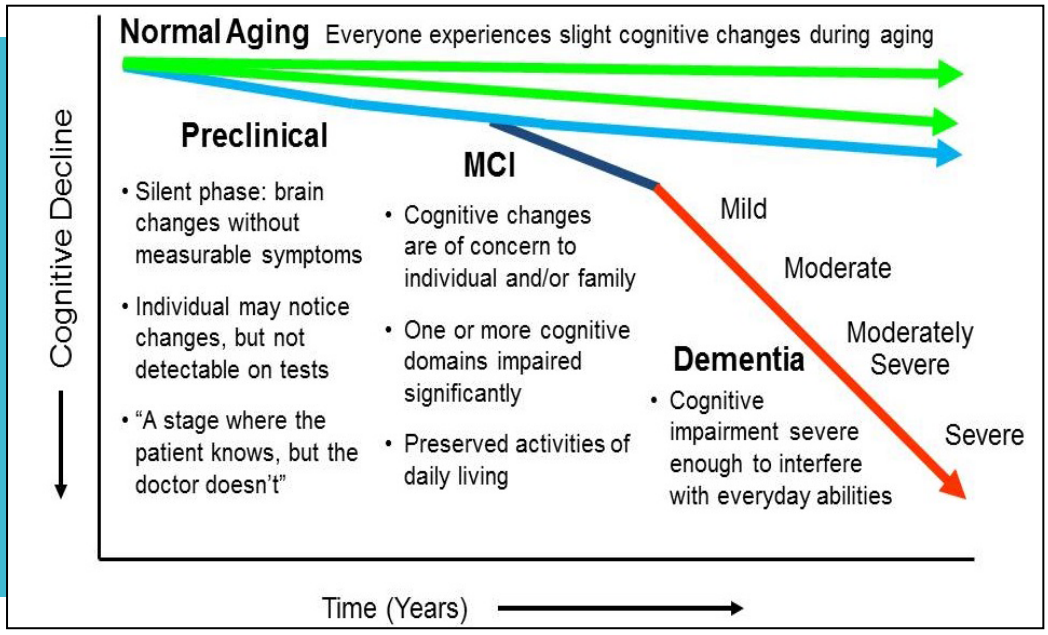
- Is there a change in thinking from baseline?
- Was the change insidious and demonstrates progression over time?
- Has the change(s) had a negative effect on independence for instrumental activities of daily living?

DEMENTIA (assuming workup complete to exclude other causes)

- But what if the first two are answered "yes" but the third was not? How to manage?

Case: Joseph

- 66 year old male Veteran, living in an apt
- New to clinic; moved here to be closer to daughter (divorced)
- Daughter is concerned
- PMHx: diabetes, HTN – previously good control, vitals and labs didn't look good;
- Is he taking his medications/insulin as prescribed?
- Doesn't seem cognitively sharp; disengaged at visit (MoCA 25/30)
- Delirium ruled out
- Depression tx initiated
- Dementia tbd



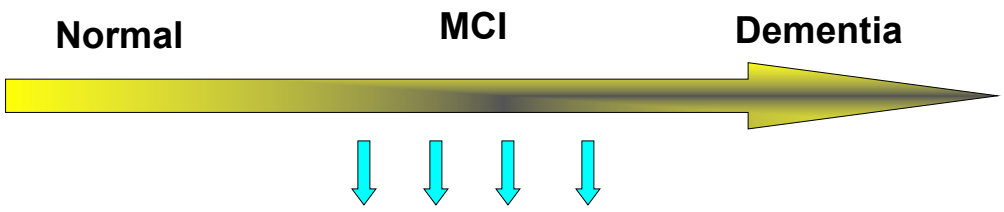
From S. McCurry who credits: http://health.mashangel.com

MCI in Older Adults

- Meta-analysis[1] (U.S., Europe, Australia) estimates (95% CI) of MCI per 1000 person-years were:
  - 22.5 (5.1–51.4) for ages 75–79
  - 40.9 (7.7–97.5) for ages 80–84
  - 60.1 (6.7–159.0) for ages 85+
- Conservative U.S. samples[2]:
  - 8 percent of people age 65 to 69
  - 10 percent of age 70 o 74
  - 15 percent of age 75 to 79
  - 25 percent of those age 80 to 84
  - 37 percent of people 85+
- It Matters: of people aged 65+ who have MCI…
  - ~ 7.5 percent will develop dementia in the 1st year after MCI diagnosis
  - ~ 15 percent will develop dementia in the 2nd year
  - ~ 20 percent will develop dementia in the 3rd year

1. Gillis, et al. Alzheimers Dement (Amst). 2019 Dec; 11: 248–256. 2. American Academy of Neurology: Practice Guideline Update Summary: Mild Cognitive Impairment. Reaffirmed on January 30, 2021 https://www.aan.com/Guidelines/home/GuidelineDetail/881

Mild Cognitive Impairment



Or – maybe even Pre-MCI?

An ideal point of intervention?

Cognitive Impairment: to screen or not to screen?

- US Preventive Services Task Force (USPSTF, 2020):
  - For community-dwelling adults who are 65+ and have no signs or symptoms of cognitive impairment, the current evidence is insufficient to assess the balance of benefits and harms of screening for cognitive impairment
  - https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/cognitive-impairment-in-older-adults-screening)
- Centers for Medicare and Medicaid Services (CMS):
  - Detecting cog impairment is a required element of Medicare's Annual Wellness Visit; can also be detected during another routine visit through direct observation or by considering information from the patient, family, friends, caregivers, and others.
  - Medicare covers a separate visit to perform a more detailed cognitive assessment and develop a care plan. This additional evaluation may be helpful to diagnose a person with dementia, such as Alzheimer's disease, and to identify treatable causes or co-occurring conditions such as depression or anxiety. Use CPT code 99483 to bill if in an office setting; as of 1/1/2022, Medicare pays ~$283 (may be geographically adj).
- Veterans Health Administration (VHA, Dementia Steering Committee report 2016): only if "dementia warning signs" are present
- Institute for Healthcare Improvement (IHI)'s goal to create Age-Friendly Healthy Systems www.ihi.org
  - To be considered age-friendly (4Ms) care, you must engage or screen all patients 65+ for all 4Ms, document the results, and act on them as appropriate

Cognitive Impairment: to screen or not to screen?

- Historically unrecognized (especially) in Primary Care settings before families brought it up, and often as a result of a crisis (behavioral or otherwise)
- Last decade has seen increased effort to identify warning signs or use screening tools to trigger evaluations and diagnosis with treatment plans
- But what is the goal to be achieved (What Matters?) and which tools can meet that goal?
  - Need sensitivity
  - Need specificity
  - Avoid false positives and false negatives
- Subjective concerns vs Objective concerns

Patient Care Scenarios: Subjective Concerns

- John: 74 yo Veteran with chronic PTSD is expressing mild memory concerns memory; wife agrees, is more worried
- Chris: 80 yo socially-isolated, with multiple medical comorbidities, seems to be forgetting to take medications as prescribed and she has lost weight
- Pat: 65 yo runs own successful small business but has been struggling recently to keep on top of invoices and other business matters; very worried they're getting dementia "like mom did"

Patient Care Scenarios: Subjective Concerns

- John: 74 yo Veteran with chronic PTSD is expressing mild memory concerns memory; wife agrees, is more worried
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Subjective Cognitive Concerns

- Study of n=5106 patients, community dwelling, age 70+, asked about subjective memory impairment (SMI) and related worries, then objectively screened/testing for dementia
- Sensitivity of SMI was just 54%. This means that 46% of the primary care patients screened positive for dementia did not report SMI before the screening.
- Almost half of the patients with cognitive impairment would have been overlooked if SMI was the precondition for performing an objective cognitive test.

Table 2
Subjective memory impairment and related worries among patients screened negative and positive for dementia: sensitivity, specificity, predictive value, and clinical utility index

	Total sample	Patients screened negative	Patients screened positive	Sensitivity	Specificity	PPV	NPV	UI+	UI−
Total, n	5106	4214	892						
No SMI	2550 (50%)	2142 (51%)	408 (46%)	54%	51%	19%	84%	0.10 (poor)	0.43 (moderate)
SMI	2556 (50%)	2072 (49%)	484 (54%)						
Total, n	2480	2011	469						
No worries	1362 (55%)	1138 (57%)	224 (48%)	52%	57%	22%	84%	0.11 (poor)	0.47 (moderate)
Worries	1118 (45%)	873 (43%)	245 (52%)						

Abbreviations: SMI, subjective memory impairment; PPV, positive predictive value; NPV, negative predictive value; UI+, positive utility index; UI−, negative utility index.

Eichler, et al. Alzheimer's & Dementia. 2015.

Subjective Cognitive Concerns

- What complicates subjective report?
  - Anosognosia is common in dementia
  - Dread or shame may result in denial or avoidance of symptom report
- A study of n=124 (age≥65, mean = 73.59, SD = 6.26) completed a 2-item questionnaire of subjective memory functioning, a brief computerized cognitive test, and the MoCA, and were assigned to 1 of 4 conditions, based on their subjective (low/high) and objective (impaired/unimpaired) levels of cognitive functioning.[2]
  - The proportion in the impaired subsample (ie, MoCA<26), who reported a high level of subjective concern about their memory, was low (ie, 0.15).
  - Screening protocols in which cognitive testing is administered subsequent to patient complaint are prone to underdiagnosis. In addition, common dementia screens are insensitive to subjective deficits and healthy cognitive aging. Therefore, they may lead to dismissing valid concerns that deserve preventive attention.
- PCP's judgments of cognitive concern showed 61% sensitivity and 86% specificity against the neuropsychological standard. When combined with a Mini-Mental State Examination score ≤26, PCP recognition improved in sensitivity (82%) with some loss in specificity (74%).[2]
- American Academy of Neurology (AAN) Practice Guidelines (2017) state that the Medicare Annual Wellness Visit should NOT rely on historical report of subjective memory concerns.

1. Hess, et al. J Am Board Fam Med. 2020. 2. Tierney, et al. Alzheimer Dis Assoc Disord. 2014.

Patient Care Scenarios: Objective Concerns

- John: 74 yo Veteran with chronic PTSD is expressing mild memory concerns memory; wife agrees, is more worried
- Chris: 80 yo socially-isolated, with multiple medical comorbidities, seems to be forgetting to take medications as prescribed and she has lost weight
- Pat: 65 yo runs own successful small business but has been struggling recently to keep on top of invoices and other business matters; very worried they're getting dementia "like mom did"

Purpose of Brief Cognitive Tests: Originally designed to detect dementia

- To obtain a quick sense of global cognitive function
  - To identify if there are deficits
  - To follow someone with identified deficits over time
- To identify cognitive decline early
  - Benefits: early introduction of cholinesterase inhibitors, addressing any reversible influences, assist with care planning, to motivate Veterans toward positive behavioral change
- Is there any reason to question whether the patient has decision-making capacity?

Benefits of timely recognition and diagnosis of cognitive impairment

- Prompts early evaluation for common, treatable and potentially reversible causes of cognitive impairment, which may include the following:
  - Major depressive disorder, anxiety, vitamin deficiency, sleep disturbances, hearing or vision loss, metabolic disorders, pain syndromes, substance abuse/dependence (including alcohol), sleep apnea and side effects from medication (e.g. anticholinergics, benzodiazepines, sedative–hypnotics, narcotics, antipsychotics, antidepressants and antiepileptics)
- Enables patient and family education and counselling about existence and implications of a diagnosed illness, which may help mitigate the following:
  - Family and marital discord
  - Risk of home and community mishaps such as house fires, motor vehicle collisions, wandering and weapons access
  - Legal and law enforcement encounters
  - Caregiver burden
  - The likelihood of financial fraud or other exploitation of the patient
- Maximizes the time available for medical and estate planning, including creation of support systems, the establishment of a comprehensive medical plan and the development of advance directives
- Allows early introduction of strategies and tools to maximize independence (e.g. daily memory planners; safety bracelets; and electronic technologies such as pill dispensers, GPS pendants, in-home cameras and cloud-based voice/virtual assistant reminders such as Alexa and Siri)
- Enables potential pharmacologic and nonpharmacologic intervention for memory loss, mood and anxiety disorders, and psychosis
- Extends opportunity to control comorbidities that may contribute to cognitive decline and modify lifestyle risk factors (e.g. smoking, exercise, diet) that may slow or mitigate risk of further decline
- Affords opportunity to connect with support agencies, such as Alzheimer's Association (in the case of AD diagnosis), and to enroll in free safety program such as "Safe Return"
- Provides more opportunities to participate in clinical research trials
- Consistent with promoting autonomy, justice and beneficence
- May delay nursing home admission

Box 2. Liss, et al. J of Int Med. 2021.

What makes a good BCT?

Detection (not a screen with clear diagnostic meaning)

Good sensitivity and good specificity?

Easy to administer / but still need training and practice

Reasonable amount of time

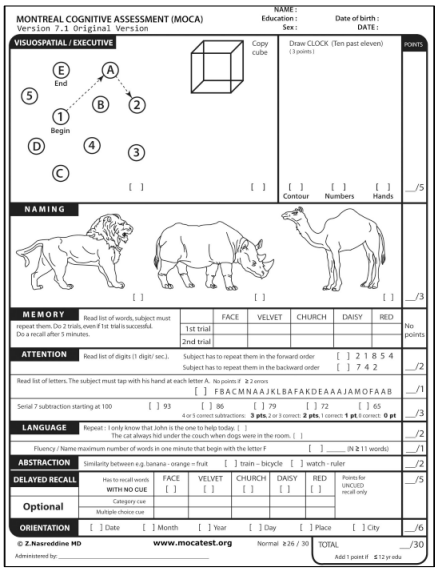
Acceptable to the person being tested

Cost-Effective – example of the Mini-Mental Status Examination

Fundamentals of Administration

Standard MoCA

www.mocatest.org



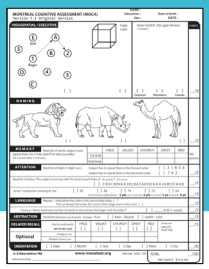
Fundamentals of Administration

Don't MoCA mistake: Top 10 administration errors

Use the standard instructions

1. Trails - ANY error on trails that's not self-corrected = 0
2. Cube – parallel lines
3. Clock – hands go in correct direction; hour hand is clearly shorter; must draw circle
4. Naming – rhino or rhinoceros, camel or dromedary
5. Too fast/slow (1 sec per item: word list, digit span, vigilance)
6. Word List: "THIS IS A MEMORY TEST" – can't correct them, just read it again; never more than 2 trials learning trials
7. Fluency has RULES
8. Abstraction prompts (even if they get it correct)
9. Subtractions – a mistake? can get points if next subtraction is correct
10. Sentences: must be perfect

MoCA FAQ



- What age group has the MoCA been validated for?
  - Validated for 55-85 year olds
- Can a subject use any aids for the calculation task?
  - The calculation must be performed mentally; therefore, the subject may not use his/her fingers nor a pencil and paper to execute the calculation task.
- How do I correct the score for education?
  - For 12 yrs or less, add 1 point to the total score. Number of years does not refer to a particular education level; the # of years of education must be counted starting after kindergarten (kindergarten not be included in the count). *Can't get 31 points.
- What is the test-retest time frame?
  - Test-retest performance is good at even 1 month with no significant learning effect (see validation study in the References section of the website). Use the alternative/equivalent versions of the MoCA to decrease possible learning effects for repetitive MoCA administration (e.g., q 3 mos, or less).

For more information, please see the Normative Data section of the MoCA website.

MOCA SCORES

	Normal Controls (NC)	Mild Cognitive Impairment (MCI)	Alzheimer's Disease (AD)
Number of subjects	90	94	93
MoCA average score	**27.4**	**22.1**	**16.2**
MoCA standard deviation	2.2	3.1	4.8
MoCA score range	25.2 – 29.6	19.0 – 25.2	21.0 – 11.4
Suggested cut-off score	**≥26**	**<26**	**<26ψ**

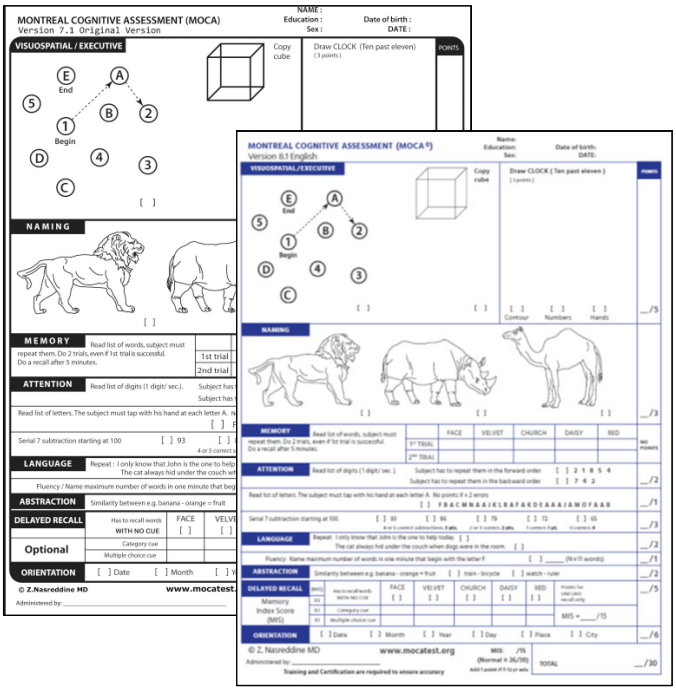
ψ Although the average MoCA score for the AD group is much lower than the MCI group, there is overlap between them. The suggested MoCA cut-off score is thus the same for both. The distinction between AD and MCI is mostly dependent on the presence of associated functional impairment and not on a specific score on the MoCA test.

Sensitivity and Specificity (%) MoCA and MMSE

Cut-off	≥ 26	< 26	< 26
Group (n)	Normal controls (90)	Mild Cognitive Impairment (94)	Alzheimer Disease (93)
MoCA	87	90	100
MMSE	100	18	78

SCORE

26-30	• Normal
20-25	• Suspect for mild impairment
15-19	• Probable cognitive impairment
14 and Lower	• Significant cognitive problems

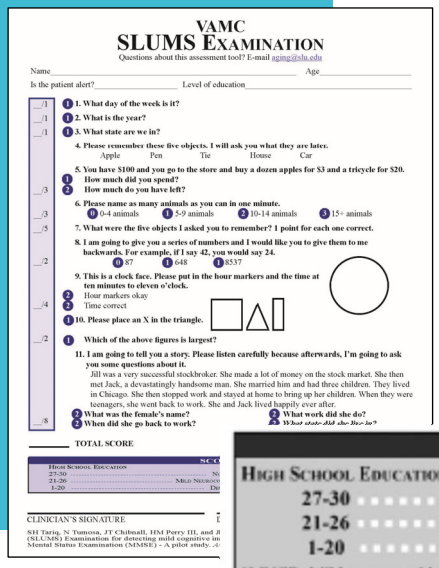


No difference between Original Version and Version 8.1

As of Feb 2021:

- "Training and Certification are required to ensure accuracy"
- Rare exemptions (Neuropsychologists)
- Cost (without any discount is ~$150)
- Register with site and then takes 1 hour

SLUMS



St. Louis University Mental Status

- **Original publication 2006**
- **Mean administration time was 7 minutes**
- Limited research / development sample
  - White, all male, mean age 75.3 (sd 5.5)
  - NC n=440, MNCD n=180, Dementia n=82
  - Focused on Education – dichotomous only (30.6% had <hs)
- **Use the standard instructions**
- https://www.youtube.com/watch?v=z4ctoWU-qzw

SCORING

HIGH SCHOOL EDUCATION		LESS THAN HIGH SCHOOL EDUCATION
27-30	Normal	25-30
21-26	MNCD*	20-24
1-20	Dementia	1-19

*MNCD=Mild neurocognitive disorder

1. **Can I give cues in the memory recall in item 7?** No, this memory recall test is free of cues because it is intended to measure delayed recall.
2. **How many times can I repeat the 5 objects to the patient in item 4?** Maximum three times if the patient needs help to memorize the objects.
3. **In item 5, if the patient gives a wrong answer to the first question but answered the second correctly (i.e. if the answer is $56 spent and $44 left instead of the right answer, $23 spent and $77 left). How would I score this item?** If this is the case, give the patient two points for the second part of the item.
4. **If patient names a specific animal category before listing specific animal names in that category, would I count the animal categories and specific animal names all together or individually?** No, do not count the animal category. Count only the specific animal names.
5. **May I draw the clock face in a larger scale?** Yes, this will benefit the patient with visual impairment.
6. **In item 11, if patient answers Chicago as the state she lived in instead of IL, how do I score this?** The answer of Chicago as the state she lives in gets no credit but you may prompt them once by repeating the question.

SLUMS: FAQ

7. **How effective is the SLUMS in measuring Mild Cognitive Impairment (MCI) and Dementia compared to other instruments (i.e. Mini-Mental Status Examination, MMSE)?** The SLUMS is more specific than the MMSE in detecting Mild Cognitive Impairment.

Sensitivity to detect MCI according to the area under the curve (AUC) analysis[1]

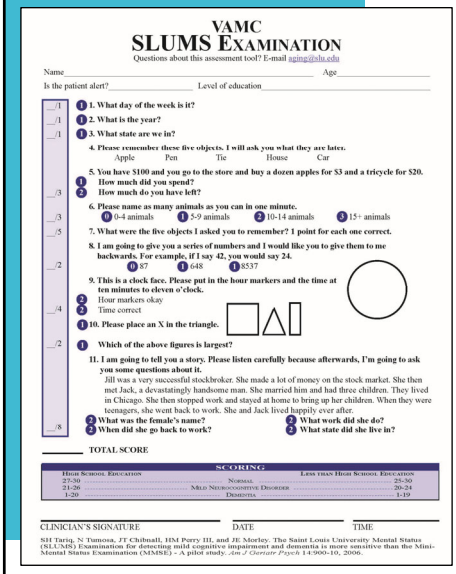
Education	Less than HS		More than HS	
Instrument	MMSE	SLUMS	MMSE	SLUMS
AUC (Sensitivity)	67%	93%	64%	94%

8. **After the patients answer, do I give them the right answer?** No, this will be a distraction for the examinee. You can tell the patient that you will answer his/her questions after the test is finished.
9. **What are we measuring in each SLUMS item? How is this related to dementia and MCI?**

Q1-Q3: Attention, Immediate Recall, and Orientation.
Q4 & Q7: Delayed Recall with Interference.
Q5: Numeric Calculation and Registration.
Q6: Immediate Recall with Interference (time constraint).
Q8: Registration and Digit Span.
Q9: Visual Spatial and Executive Function.
Q10: Visual Spatial.
Q11: Executive Function plus Extrapolation.

SLUMS: FAQ

SLUMS



VAMC
SLUMS EXAMINATION
Questions about this assessment tool? E-mail aging@slu.edu

Name _____ Age _____
Is the patient alert? _____ Level of education _____

__/1 1. What day of the week is it?
__/1 2. What is the year?
__/1 3. What state are we in?
4. Please remember these five objects. I will ask you what they are later.
Apple Pen Tie House Car
5. You have $100 and you go to the store and buy a dozen apples for $3 and a tricycle for $20.
1 How much did you spend?
__/3 2 How much do you have left?
6. Please name as many animals as you can in one minute.
__/3 0 0-4 animals 1 5-9 animals 2 10-14 animals 3 15+ animals
__/5 7. What were the five objects I asked you to remember? 1 point for each one correct.
8. I am going to give you a series of numbers and I would like you to give them to me backwards. For example, if I say 42, you would say 24.
__/2 0 87 1 648 1 8537
9. This is a clock face. Please put in the hour markers and the time at ten minutes to eleven o'clock.
2 Hour markers okay
__/4 2 Time correct
1 10. Please place an X in the triangle.
__/2 1 Which of the above figures is largest?
11. I am going to tell you a story. Please listen carefully because afterwards, I'm going to ask you some questions about it.
Jill was a very successful stockbroker. She made a lot of money on the stock market. She then met Jack, a devastatingly handsome man. She married him and had three children. They lived in Chicago. She then stopped work and stayed at home to bring up her children. When they were teenagers, she went back to work. She and Jack lived happily ever after.
__/8 2 What was the female's name? 2 What work did she do?
2 When did she go back to work? 2 What state did she live in?

_____ TOTAL SCORE

SCORING

High School Education		Less than High School Education
27-30	Normal	25-30
21-26	Mild Neurocognitive Disorder	20-24
1-20	Dementia	1-19

CLINICIAN'S SIGNATURE _____ DATE _____ TIME _____

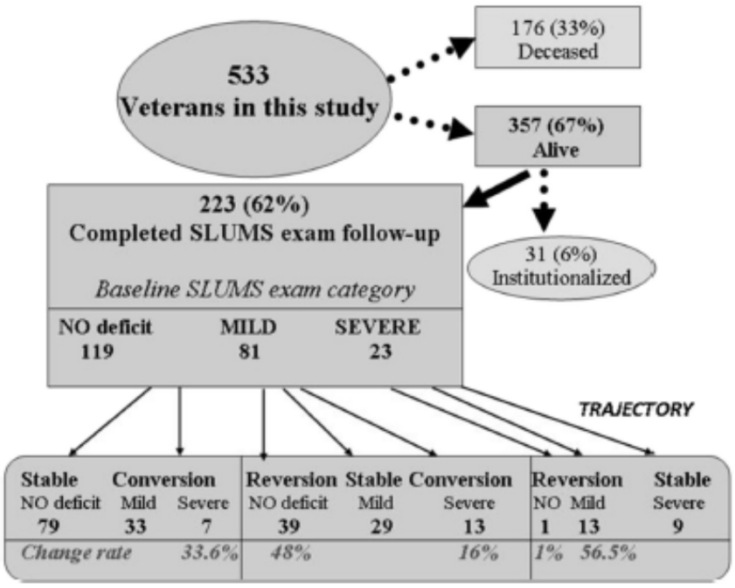
SH Tariq, N Tumosa, JT Chibnall, HM Perry III, and JE Morley. The Saint Louis University Mental Status (SLUMS) Examination for detecting mild cognitive impairment and dementia is more sensitive than the Mini-Mental Status Examination (MMSE) - A pilot study. *Am J Geriatr Psych* 14:900-10, 2006.

- Good news/Bad news situation:
  - It's free (yay) and no training required (sort of yay)
  - Spanish version (PR Spanish and Jill is an attorney instead of a stockbroker) and Canadian version (province and Toronto)
  - No official adaptation for telephone or telemedicine
  - BIAS – cultural and SES, etc

What to do about the Jill story?

Bill was a successful small business owner. He lived in Chicago. One day Bill met Jack. They felt an instant connection and got married a few years later. They raised three children. After the kids were grown, Jack and Bill sold the business and moved to Florida.

Little published research using the SLUMS



2017 Yoelin & Saunders – education
2014 Cruz-Oliver, et al – 7.5 yr f/u

Patient Care Scenarios

- John: 74 yo Veteran with chronic PTSD is expressing mild memory concerns memory; wife agrees, is more worried
  - SMI – yes; SLUMS 28/30
  - Next steps?
- Chris: 80 yo socially-isolated, with multiple medical comorbidities, seems to be forgetting to take medications as prescribed and she has lost weight
  - SMI – no; Mini-Cog 2/5
  - Next steps?
- Pat: 65 yo runs own successful small business but has been struggling recently to keep on top of invoices and other business matters; very worried they're getting dementia "like mom did"
  - SMI – yes; MoCA 24/30
  - Next steps?

Cognitive Concerns: Action Plan

Step 1 – Rule-Out

Identify potentially treatable causes of cognitive decline.
[use frontline tools, history, physical exam, blood tests]

Step 2 – Monitor

Once these are ruled out and/or treated, monitor patients over time.
[use frontline tools to catch signs early]

Step 3 – indepth Evaluation

If problems persist and/or worsen, consider further evaluation.
[brain scan, additional labs, specialists]

Case: Joseph

- *66 year old male Veteran, living in an apt*
- *New to clinic; moved here to be closer to daughter (divorced)*
- *Daughter is concerned*
- *PMHx: diabetes, HTN – previously good control, vitals and labs didn't look good; taking his medications/insulin as Rxd?*
- *Doesn't seem cognitively sharp; disengaged at visit (MoCA 25/30)*
- *Delirium ruled out, Depression tx initiated, Dementia tbd*
- **At 6 month f/u, depression is better; now both Veteran and daughter have concerns about cognition**
- **ROME stages of Rule Out and Monitor should also always include Education about Brain Health in Aging**

Case: Joseph

- Repeat MoCA is 26
- Joe has insomnia and has been taking OTC sleep aids
- Insufficient or poor-quality sleep affects the immune system, weight management, glucose metabolism, cardiovascular and cerebrovascular health, cognition, work productivity, psychological well-being, and public safety.
- OSA is common, particularly after the age of 65 years, when it has an estimated prevalence of at least 20%[1]
- OSA causes not only sleep fragmentation but also intermittent hypoxia, which may affect both brain structure and function.
- Only 8% of older adults at high risk of OSA are tested with home or in-laboratory sleep studies; when at risk adults were investigated, OSA was confirmed in 94% of the cases[2]
- We don't have a collateral; home sleep study initiated
- Joe has moderate OSA
- Meta-analysis of 6 prospective studies that included 212,943 participants age 40+ found that those with OSA were 26% more likely to develop significant cognitive decline or dementia at the 3- to 15-year follow-up[3]

1. Punjabi. Proc Am Thorac Soc. 2008; 2. Braley, et al. J Am Geriatr Soc. 2018; 3. Leng , et al. JAMA Neurol. 2017

Brain Health in Aging

Can we prevent dementia?

Image: PenCLAHRC - NIHR

Approaches to Dementia Prevention

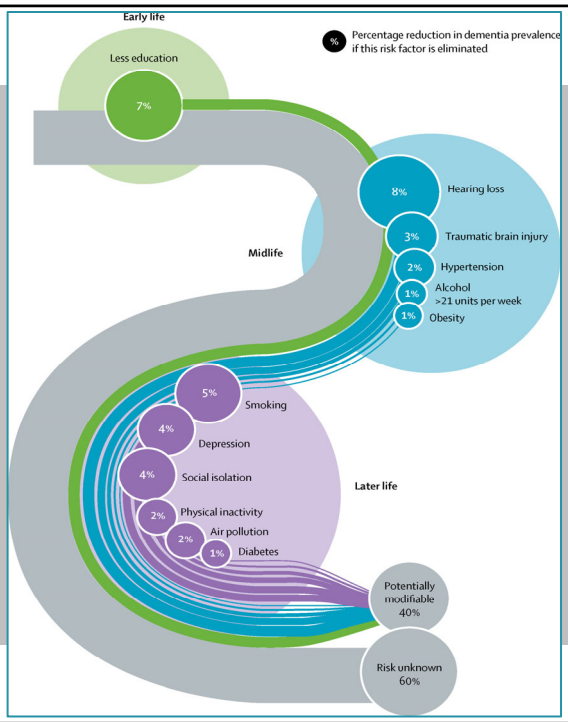
What are the top risk factors?

- Can't change **age**
- Can't change **genetics**
- Focus on modifiable risk factors

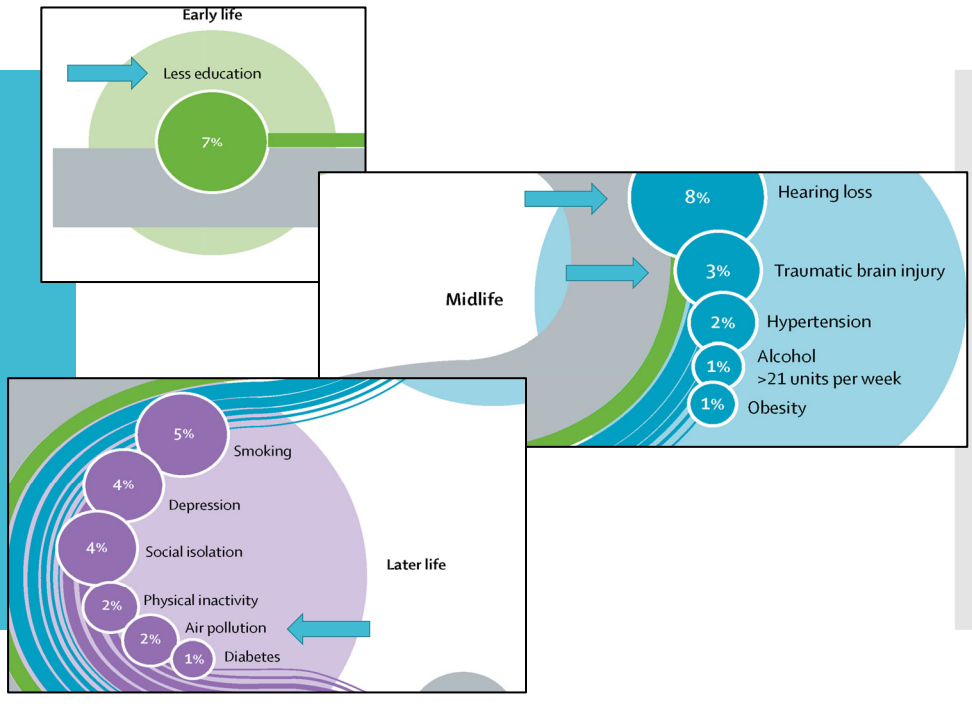
Dementia prevention, intervention, and care: *2020 Lancet Commission*

Prof Gill Livingston, MD, Jonathan Huntley, PhD, Andrew Sommerlad, PhD, Prof David Ames, MD, Prof Clive Ballard, MD, Prof Sube Banerjee, MD, Prof Carol Brayne, MD, Prof Alistair Burns, MD, Prof Jiska Cohen-Mansfield, PhD, Prof Claudia Cooper, PhD, Sergi G Costafreda, PhD, Amit Dias, MD, Prof Nick Fox, MD, Prof Laura N Gitlin, PhD, Prof Robert Howard, MD, Prof Helen C Kales, MD, Prof Mika Kivimäki, FMedSci, Prof Eric B Larson, MD, Prof Adesola Ogunniyi, MBChB, Vasiliki Orgeta, PhD, Prof Karen Ritchie, PhD, Prof Kenneth Rockwood, MD, Prof Elizabeth L Sampson, MD, Quincy Samus, PhD, Prof Lon S Schneider, MD, Prof Geir Selbæk, MD, Prof Linda Teri, PhD, Naaheed Mukadam, PhD

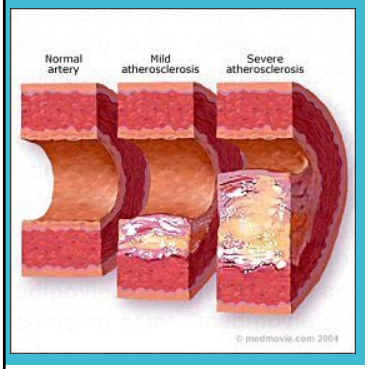
The Lancet 2020 396413-446 DOI: (10.1016/S0140-6736(20)30367-6)

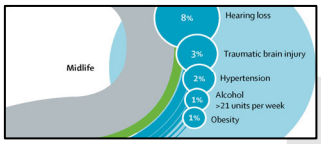


Modifiable?



Vascular Disease

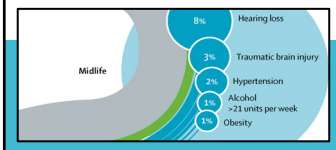




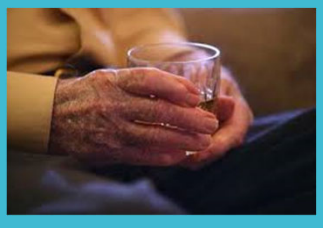
Hypertension/Atherosclerosis

- Longitudinal studies have suggested that high blood pressure in midlife is associated with a higher incidence of both AD and VaD in later life.
- Some studies suggest that hypotension; especially low diastolic blood pressure in late-life is also associated with an increased risk of AD.
- Long-standing hypertension may lead to severe atherosclerosis and impaired cerebrovascular autoregulation.
- Decline in BP in later life may contribute to diminished cerebral perfusion which may in turn lead to increased beta-amyloid

Kennelly, Lawlor, & Kenny, *Ageing Research Reviews*, 2009



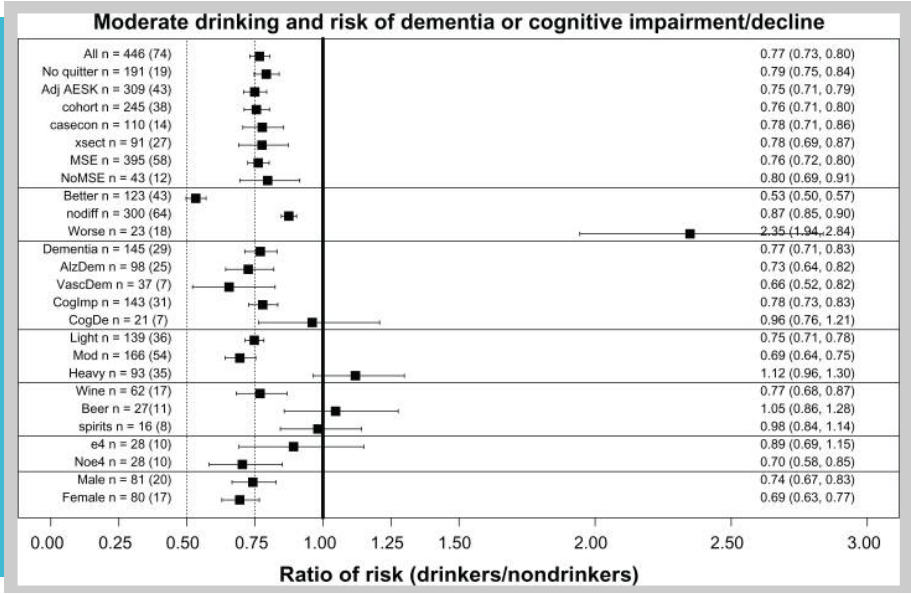
Alcohol & Aging



- **Alcohol can be a Primary or Secondary cause of dementia**
- Long-term, excessive drinking of alcohol is known to cause damage to the brain – resulting in neurological damage and impaired cognitive function
  - Alcohol-related dementia
  - Wernicke-Korsakoff syndrome
- Drinking more than recommended amounts increases risk of developing common types of dementia (AD and VaD)
- Increases risk of stroke and heart disease
- 2-10% of older adults abuse alcohol or are alcohol dependent
- At-risk drinking found in ~15% of adults 65+
- Potential interaction of alcohol and medications
- Increases the risk of many other potential geriatric syndromes: falls, head injury, delirium
- **Recommended Drinking Limits for Older Adults**
  - No more than 1 standard drink per day or 7 per week
  - No more than 2-3 drinks on any drinking day
  - Stricter limits for older women

Farcnik & Persyko, *Can AD Review*, 2005; Rigler, *AmFamPhys*, 2000; Special Populations: Older Adults on www.niaaa.nih.gov

Light to Moderate Alcohol



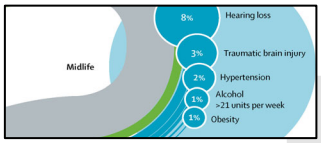
Neafsey & Collins, 2011

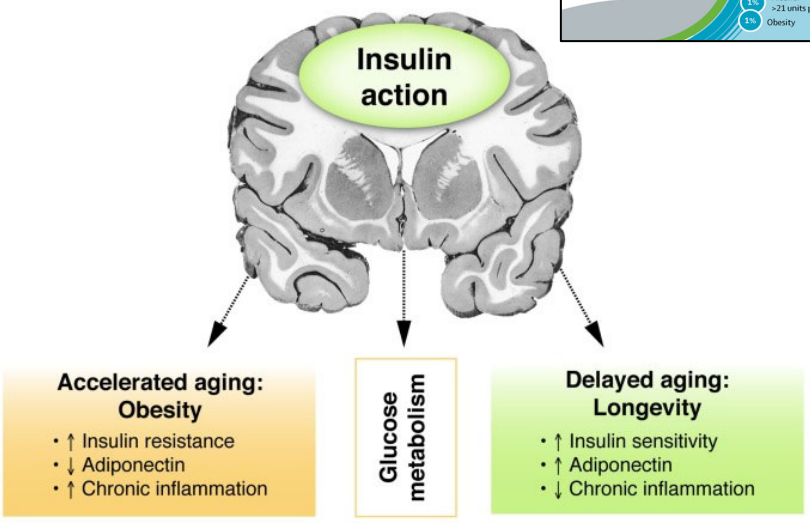
Obesity: Insulin and Glucose Metabolism

Putative relationship between central insulin action and glucose metabolism in models of accelerated or delayed aging.

Obesity as a model for accelerated aging is associated with peripheral insulin resistance, decreased adiponectin levels, and enhanced chronic inflammation.

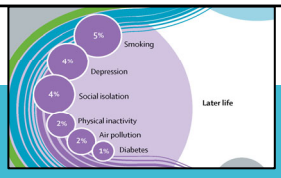
The opposite is observed in healthy longevity.





Akintola and van Heemst, Frontiers in Endocrinology, 2015

Smoking



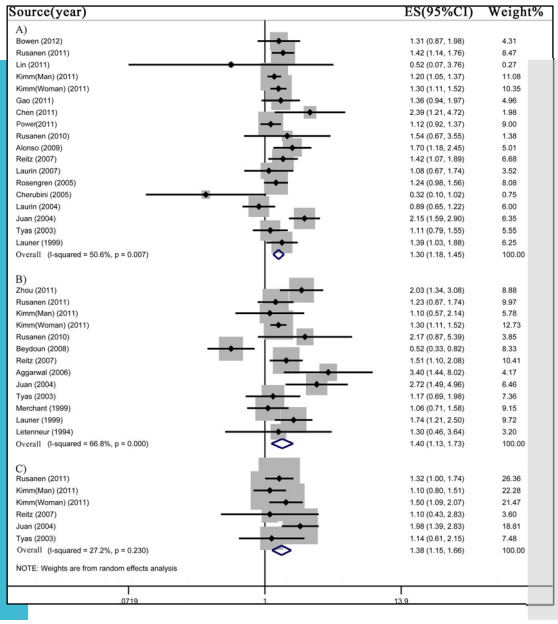
Prospective cohort studies (n=37 high quality)

Versus never smokers, current smokers had an increased risk of all-cause dementia (risk ratio (RR) 1.30, 95% (CI) 1.18–1.45), AD (RR 1.40, 95% CI 1.13–1.73) and VaD (RR 1.38, 95% CI 1.15–1.66). For all-cause dementia, the risk increased by 34% for every 20 cigarettes per day (RR 1.34, 95% CI 1.25–1.43). Former smokers did not show an increased risk of all-cause dementia (RR 1.01, 95% CI 0.96–1.06), AD (RR 1.04, 95% CI 0.96–1.13) and VaD (RR 0.97, 95% CI 0.83–1.13). Subgroup analyses indicated that (1) the significantly increased risk of AD from current smoking was seen only in apolipoprotein E ε4 noncarriers; (2) current smokers aged 65 to 75 years at baseline showed increased risk of all-cause dementia and AD compared to those aged over 75 or under 65 years; and (3) sex, race, study location and diagnostic criteria difference in risk of dementia was not found.

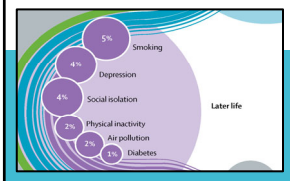
Smokers had an increased risk of dementia, and smoking cessation decreases the risk to that of never smokers.

Current smoking increased risk of AD in the Apoe e4-

Survival bias and competing risk reduce the risk of dementia from smoking at extreme age.



Zhong, et al, *PLOS*, 2015



Mental Health Conditions

Image: www.socialworker.com

Depression

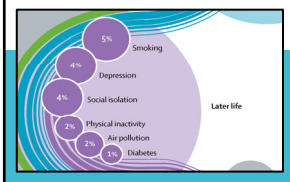
- Early-onset depression before age 65 years and recurrent depression, may constitute long-term risk factors for development of dementia
- Late-onset depressive symptoms may be a feature of prodromal phase of dementia
- Recent studies suggest that long-term treatment with antidepressants may decrease the risk
  - Kessing, Curr Opin Psychiatry, 2012

Post-traumatic stress disorder

- Double the risk in Veteran groups studied
  - Yaffe, et al, 2010; Quereshi, et al, 2010

Anxiety

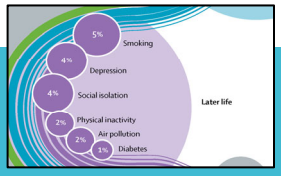
- Not associated with the risk of dementia or cognitive decline: the Rotterdam Study.
  - de Bruijn, et al, Am J Geriatr Psychiatry, 2014



Social Isolation / Loneliness

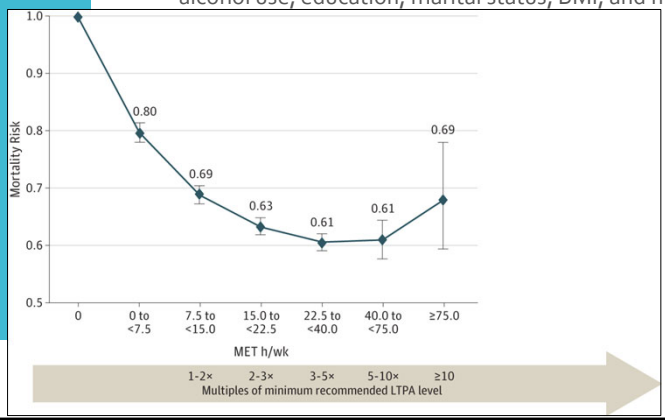
- National Academies of Sciences, Engineering, and Medicine (NASEM)[1]
  - More than one-third of adults aged 45+ feel lonely. About one-fourth of adults aged 65 and older are considered to be socially isolated.
  - Poor social relationships (characterized by social isolation or loneliness) was associated with a 29% increased risk of heart disease and a 32% increased risk of stroke.
  - Loneliness associated with higher rates of depression, anxiety, & suicide.
  - Loneliness among heart failure patients was associated with a nearly 4 times increased risk of death, 68% increased risk of hospitalization, and 57% increased risk of emergency department visits
  - Rates of loneliness higher among immigrants, LGBTQ folk and other minorities and among victims of elder abuse
- Swedish study with 1,905 nondemented participants at baseline, followed for up to 20 years ((mean 11.1 yrs)[2]
  - Loneliness measured with a single question: "Do you often feel lonely?"
  - Increased risk of all-cause dementia (hazard ratio [HR] = 1.46, 95% confidence interval [CI] 1.14–1.89), and AD (HR = 1.69, 95% CI 1.20–2.37), but not VaD (HR = 1.34, 95% CI 0.87–2.08).
  - After adjusting for potential confounders and excluding participants with dementia onset within the first 5 years of baseline (to consider the possibility of reverse causality), the increased risk for the development of all-cause dementia and AD remained significant.

1. NASEM. 2020. Social Isolation and Loneliness in Older Adults: Opportunities for the Health Care System. Washington, DC: The National Academies Press; 2. Sundstrom, et al. Jls of Gerontology, Series B. 2020.

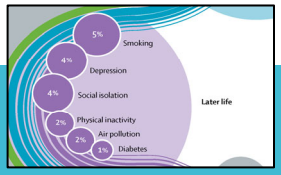


Physical Activity

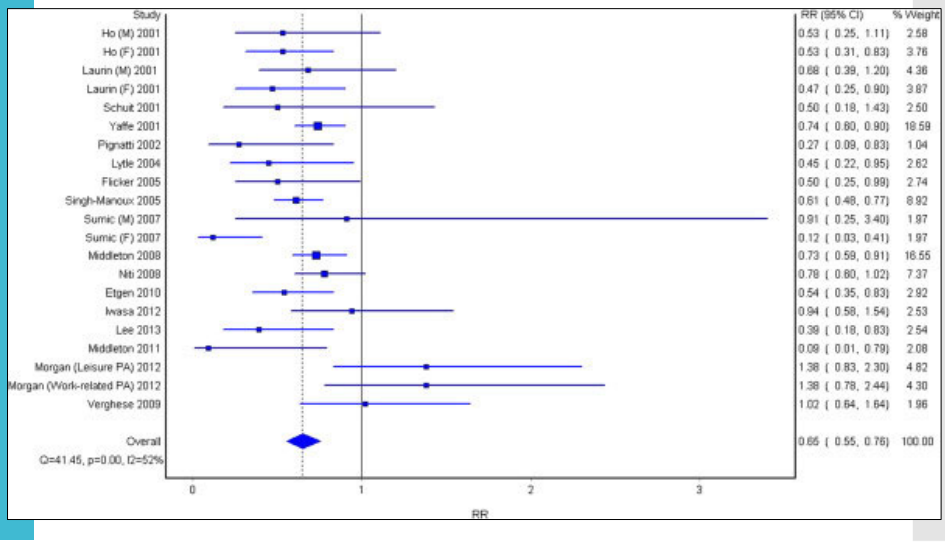
- 2008 Physical Activity Guidelines recommended 75 vigorous or 150 moderate intensity minutes/weekly (7.5 METS weekly)
- Dose response? Pooled analysis of 6 prospective, pop-based studies
- N > 660,000; Median age = 62 (range 21-98); > 116,000 deaths over 11 years
  - Cox Proportional Hazards Regression for overall mortality; Similar for cardiovascular and cancer-related deaths; Model adjusted for gender, smoking, alcohol use, education, marital status, BMI, and medical comorbidities



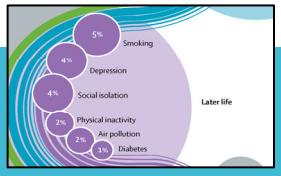
Arem, et al, *JAMA Int Med*, 2015



Physical Activity in Older Adults



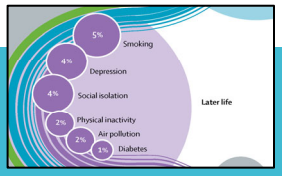
Blondell, Hammersley-Mather, & Veerman, *BMC Pub Health*, 2014



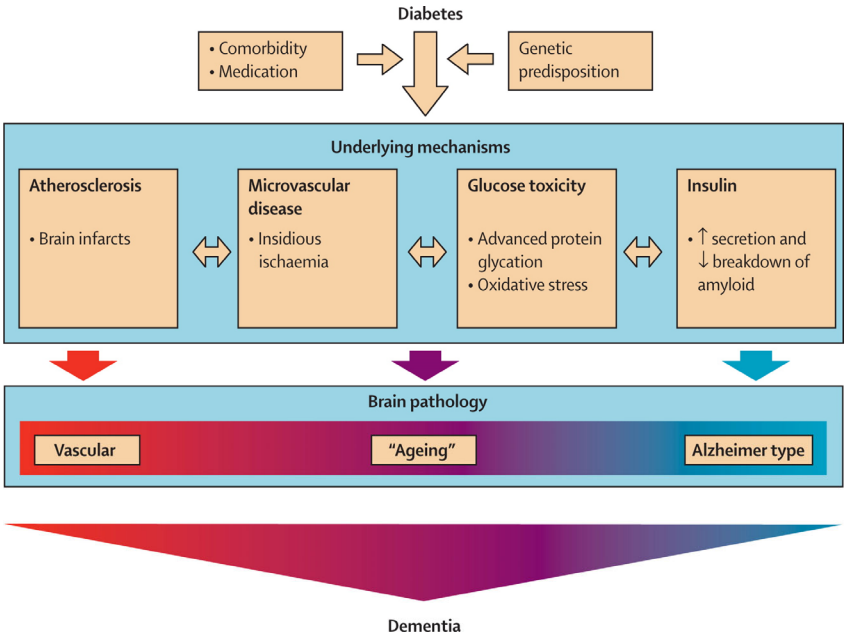
Diabetes

- Diabetes Type 1 and 2 are associated with cognitive weaknesses
  - Processing speed and flexibility (DM I & II)
  - Learning and Memory (DM II)
- Faster rate of decline in older adults with DM II
- Fairly consistent finding that Diabetes is related to higher risk of "any dementia" – with specific findings for Alzheimer's (50-100%) and Vascular dementia (100-150%) types
- Mechanisms are not entirely clear, but reasonable hypotheses exist . . .

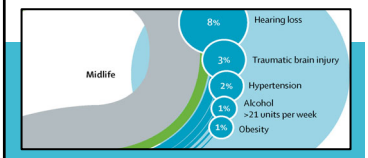
Biessels, et al., *Lancet Neurology*, 2006



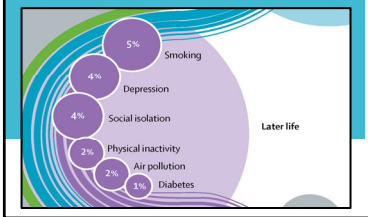
Diabetes



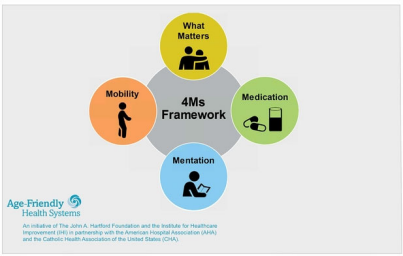
Biessels, et al., *Lancet Neurology*, 2006



Brain Health in Aging



4Ms of Aging
- Mentation
- Mobility
- Medicines
- Matters (as in What Matters)



Flip our perspective

- Euro-centric Western medicine has operated within a disease-focused framework
  - Identify the cause and stop it/fight it/treat it . . .
  - "Forward thinking" is to prevent it
- Person-centric care should be our real goal
  - Individualized health plans
  - What Matters for your quality of life, for your values, for what you care about?

Case: Joseph

- Factors Joe wanted to work on:
  - Less fast food
  - Increase physical activity
  - Lose weight
- Join CPAP desensitization class, but very ambivalent. Only considering because of dementia risk
  - Randomized study of 33 patients with OSA aged 71.3 ± 5.5 years, 3 months of CPAP improved short-term memory, working memory, selective attention, and executive functions as well as functional connectivity in the right middle frontal gyrus
  - In a nondemented cohort of elderly participants (ADNI), CPAP treatment delayed the age of MCI onset by approximately 10 years (72 vs. 82 yr old)
  - A case study of a patient with OSA and subjective cognitive impairment showed that 1 year of CPAP treatment normalized the CSF Aβ42 and t-tau/Aβ42 ratio levels as well as the cognitive complaints

Dementia risk, as reviewed in Gosselin, et al. Am J Respir Crit Care Med. 2019.

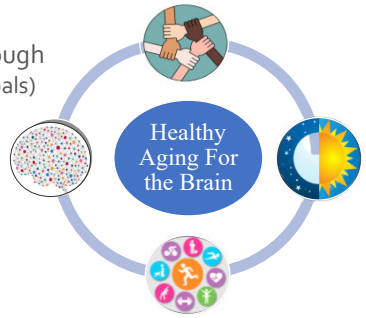
Tools to Support Behavioral Change

Psycho-education and Motivational Interviewing

Educational Materials

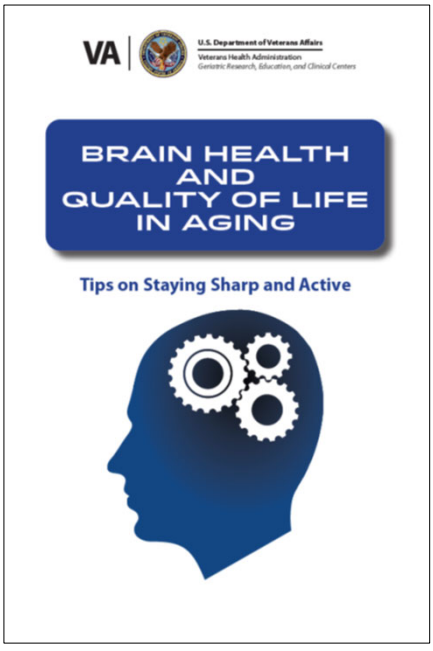
Healthy Aging Project: Brain (aka HAP-B "Happy")

- 6 group sessions, weekly for 90 minutes:
  - Sleep Improvement
  - Social Engagement
  - Cognitive Stimulation
  - Physical Activity
- Providing psychoeducation around these topics and increasing self-awareness of health behaviors
- Promoting positive behavior change through
  1) Individualized goal-setting (SMART goals)
  2) Monitoring
  3) Support (peer and staff)
- Workbook
- Daily health behavior log

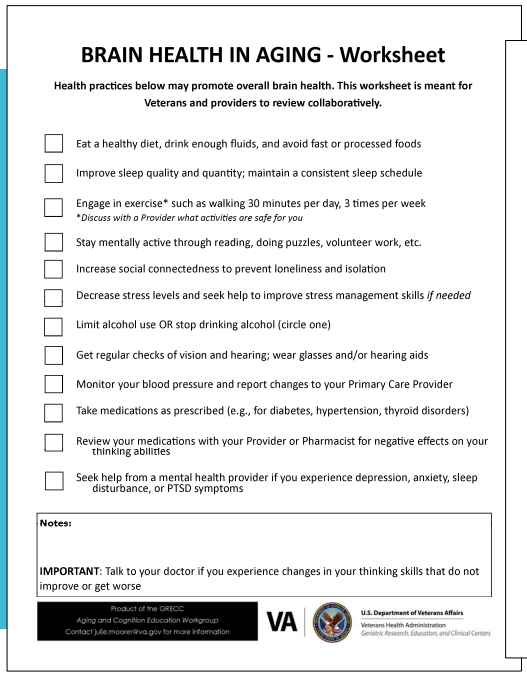


Educational Materials

- Sleep
- Mental Health
- PTSD
- Loneliness
- Physical Activity
- Side Effects
- Vision and Hearing
- Medical Problems
- Tips
- Contact Julie.Moorer@va.gov for print materials
- www.va.gov/geriatrics/brain



Tools for Discussion



BRAIN HEALTH IN AGING - Worksheet

Health practices below may promote overall brain health. This worksheet is meant for Veterans and providers to review collaboratively.

- ☐ Eat a healthy diet, drink enough fluids, and avoid fast or processed foods
- ☐ Improve sleep quality and quantity; maintain a consistent sleep schedule
- ☐ Engage in exercise* such as walking 30 minutes per day, 3 times per week
  **Discuss with a Provider what activities are safe for you*
- ☐ Stay mentally active through reading, doing puzzles, volunteer work, etc.
- ☐ Increase social connectedness to prevent loneliness and isolation
- ☐ Decrease stress levels and seek help to improve stress management skills *if needed*
- ☐ Limit alcohol use OR stop drinking alcohol (circle one)
- ☐ Get regular checks of vision and hearing; wear glasses and/or hearing aids
- ☐ Monitor your blood pressure and report changes to your Primary Care Provider
- ☐ Take medications as prescribed (e.g., for diabetes, hypertension, thyroid disorders)
- ☐ Review your medications with your Provider or Pharmacist for negative effects on your thinking abilities
- ☐ Seek help from a mental health provider if you experience depression, anxiety, sleep disturbance, or PTSD symptoms

Notes:

IMPORTANT: Talk to your doctor if you experience changes in your thinking skills that do not improve or get worse

Product of the GRECC
Aging and Cognition Education Workgroup
Contact julie.mooer@va.gov for more information

VA | U.S. Department of Veterans Affairs
Veterans Health Administration
Geriatric Research, Education, and Clinical Centers

What Matters Most to Me? _____

_____

_____

Because of these values, I would like to achieve these brain health goals:

1.
2.
3.

Steps I can take to move toward my goals are these:

1.
2.
3.

Resources that might help me include:

_____

_____

_____

_____

Tips for Conversations about Brain Healthy Behaviors

- Collaborate with the patient to identify concrete steps to improve their health practices/behaviors.
- Use Motivational Interviewing skills to help guide the conversation
  - Open ended questions: not easily answered with a yes/no, invite elaboration on their values and reasons for change
  - Affirmations: recognizing their strengths can help establish rapport and build confidence that change is possible
  - Reflections: ways to indicate understanding, used to highlight negative change talk or emphasize the positive
  - Summaries: recap what has been discussed so far communicating interest and understanding
- Listen for "change talk" which may include references to desire (I want), ability (I can), reason (It's important), or need (I should). This can be expressed even more strongly with commitment language (I will) or active statements (I am ready).
- If you don't hear any "change talk" try these approaches:
  - Acknowledge the patient's ambivalence with a reflection— "I hear that you don't want to [health behavior] and I hear that it's important for you to [insert value]."
  - Ask permission to provide information— "You may not agree— and that's okay— I just want to let you know that…"
  - Come back to this conversation at another visit — "It doesn't sound like you are ready to think about this behavior yet, may we discuss this at your next visit?"

Healthy Brain?

OR

Latest Fad?

OR

False Promises?

- Expensive brain imaging
- Ginkgo biloba
- Omega-3 fatty acids
- Coconut oil
- Red wine (resveratrol)
- Statins
- Diet manipulations
- Brain games
- Vitamin E & selenium
- What else have you heard?

My Mindset when Asked about Healthy Brain Aging Ideas

#1 Be Composed

- Try to avoid a strong positive or negative response
- Keep up with the literature
- Pay attention to the popular press
- Show, don't tell, when providing education
- The "inverted U" or "J-shaped curve" when discussing doses
- Provide guidance on where to find reputable information
- Big claims and asking for big money? Get suspicious
- HOPE – don't squash it

Case: Joseph

- Joe joined our HAP-B class
- He made 1 friends in the class and during the week focused on social connectedness, he made 1 friend in his apartment building
- He revamped his nutrition dramatically
- Started walking daily, building up slowly to 1-2 miles.
- Objective markers:
  - A1c was lower
  - Fewer "foggy" cognition periods/improved glucose control
  - His tracked BP was improved
- He lost weight and OSA was treatable with CPAP at less pressure (which was more tolerable)
  - More energy
  - Better sleep

Managing Cognitive Concerns in Primary Care Settings: Brain Health in Aging

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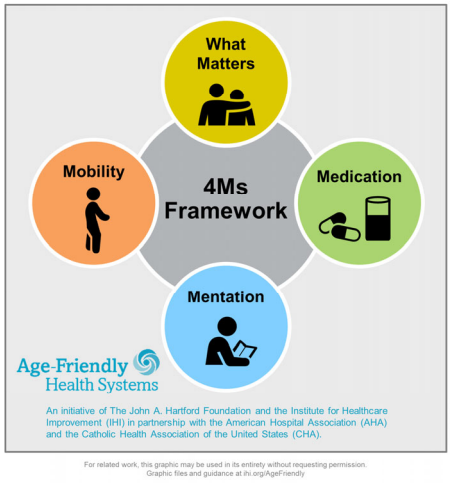

What Matters
Know and align care with each older adult's specific health outcome goals and care preferences including, but not limited to, end-of-life care, and across settings of care.

Medication
If medication is necessary, use Age-Friendly medication that does not interfere with What Matters to the older adult, Mobility, or Mentation across settings of care.

Mentation
Prevent, identify, treat, and manage dementia, depression, and delirium across settings of care.

Mobility
Ensure that older adults move safely every day in order to maintain function and do What Matters.

Contact Julie.Moorer@va.gov for print materials