CHOIR
CENTER FOR HEALTH OUTCOMES AND INTERDISCIPLINARY RESEARCH
IMPROVING HEALTH ACROSS THE LIFESPAN

Reducing Dementia Risk through Prevention Interventions in Faith-Based Communities

Understanding the Need,
Advancing the Science and Shaping the Future

Ana-Maria Vranceanu, PhD
David T. Rovee, PhD and Joanne V Rovee Endowed Chair in Psychology
Professor of Psychology, Harvard Medical School
Director, Center for Health Outcomes and Interdisciplinary Research (CHOIR)
Department of Psychiatry
Massachusetts General Hospital

1

CONFLICT OF INTEREST

- I have no "relevant" financial relationships

- But my research has been supported by many funding agencies:
- PCORI
- NIH (NIA, NINDS, NCCIH, NINR, NICDR)
- DOD

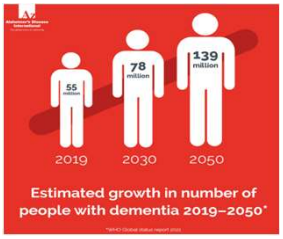
2

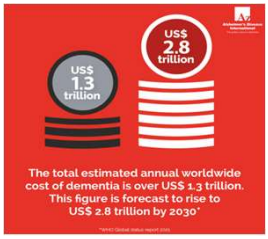
OBJECTIVES FOR TODAY

- Describe the risk factors for dementia
- Describe the opportunity of prevention interventions for reducing the risk and burden of dementia
- Describe the evidence based for dementia prevention interventions
- Discus the role of faith-based communities as opportunities for dementia prevention interventions
- Present strengths, limitations and future directions

3

DEMENTIA AND ITS IMPACT





PERSON LIVING WITH DEMENTIA

CAREGIVERS OF PERSONS WITH DEMENTIA

PERSON-CAREGIVER DYADS

FAMILY SYSTEMS/SOCIAL NETWORDS

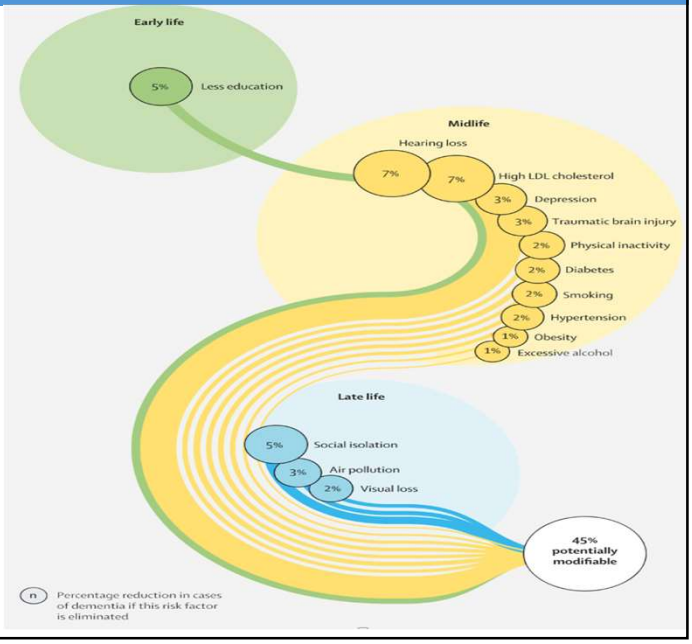
Hypothesized mechanisms in spouses:
1. The chronic stress associated with caregiving
2. Assortative mating
3. Shared environment and lifestyle factors

Meng H, Lv X, Zhang R, et al. Occurrence and risk factors for cognitive decline shared by couples: a systematic review and meta-analysis. *J Alzheimers Dis* 2024; 100: 29–40.
Vranceanu AM, Szapary C. The partner paradox: How can we better understand the shared cognitive decline in couples?

4

RISK FACTORS FOR DEMENTIA

- ✓ Non-modifiable risk factors:
  - ❑ Age
  - ❑ Genetics:
    - ❑ APOE- strongest risk gene known
    - ❑ Deterministic genes – account for <1% cases
- ✓ 45% dementia cases could be delayed or reduced.
- ✓ Life course approach to risk:
  - ❑ Age 0-18: low education
  - ❑ Age 18-65: most risk factors
  - ❑ Age 65+: social isolation, air pollution and vision loss
- ✓ Low SES: most risk, highest gain from interventions



Livingston et al, 2024. Dementia prevention, intervention, and care: 2024 report of the Lancet Standing Commission; vol. 404 (10452), p 572-628

5

ADDRESSING RISK FACTORS- INTERVENTIONS

POLICY
- ✓ **Reduce air pollution**
- ✓ **Head injury**

ENGAGEMENT WITH MEDICAL CARE
- ✓ **Regular check ups**
- ✓ **Hearing aids**
- ✓ **Treat vision loss conditions**
- ✓ **Decrease LDL**
- ✓ **Treat diabetes**
- ✓ **Treat hypertension**
- ✓ **Treat obesity**

LIFESTYLE/BEHAVIORAL INTERVENTIONS
- ✓ **Physical activity**
- ✓ **Diet**
- ✓ **Smoking cessation**
- ✓ **Alcohol reduction**
- ✓ **Increase social contact**
- ✓ **Depression**
- ✓ **Stress Management**

6

EVIDENCE BASE FOR LIFESTYLE INTERVENTIONS FOR DEMENTIA PREVENTION (systematic reviews)

Multicomponent interventions

Individual, Group In person, Virtual Digital platforms

40 ongoing trials[1]

Preliminary evidence for benefit

N=9 RCTs/18452[2]	N=28 RCTs/2711[3]	N=79 RCTs[4]
Prevention of cognitive decline or dementia	MCI	Dementia risk factors
*Small benefit on cognitions up to 36 months *Highest for APOE *High variability dementia incidence	*Moderate improvement in global cognition (memory; executive functioning	*Moderate improvement in lifestyle factors

1. Coley N, Giulioli C, Aisen PS, Vellas B, Andrieu S. Randomised controlled trials for the prevention of cognitive decline or dementia: a systematic review. *Ageing Res Rev* 2022; 82: 101777.
2. Hafdi M, Hoevenaar-Blom MP, Richard E. Multi-domain interventions for the prevention of dementia and cognitive decline. *Cochrane Database Syst Rev* 2021; 11: CD013572.
3. Salzman T, Sarquis-Adamson Y, Son S, Montero-Odasso M, Fraser S. Associations of multidomain interventions with improvements in cognition in mild cognitive impairment: a systematic review and meta-analysis. *JAMA Netw Open* 2022; 5: e226744.
4. Mace R, Stauder M, Hopkins SW, Cohen J, Pietrzykowski MO, Philpotts LL, Luberto CM, Vranceanu AM. Modifiable lifestyle bebaviors associated with brain health: A systematic review and metaanalysis. Am J Lifestyle Med. 2024.

7

EVIDENCE BASE FOR DEMENTIA PREVENTION-summary

- Engagement in lifestyle behaviors is HARD[1].
- Maintaining lifestyle change is HARD[1].
- Trials have methodological limitations:
  - Variability in effectiveness due to heterogeneity – improvements differ based on individual differences (health condition, SES, genetic predisposition).
  - Adherence challenges[1] - changing multiple lifestyle behaviors and maintaining these behaviors is HARD.
  - Limited long-term evidence – paucity of long-term studies assessing sustained impact.
  - Limited attention to diversity and inclusion despite highest risk[2]

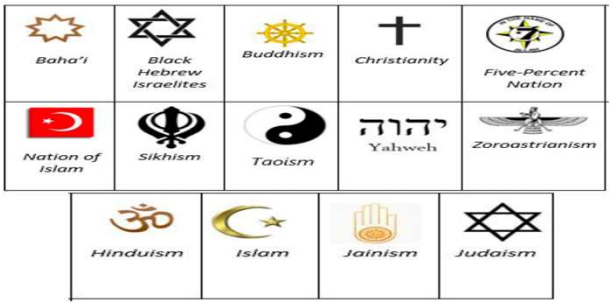
Dementia risk prevention intervention require life-long changes and must reach all individuals including those from marginalized communities who are at the highest risk.

1. Greaves CJ, Sheppard KE, Abraham C, Hardeman W, Roden M, Evans PH, Schwarz P; IMAGE Study Group. Systematic review of reviews of intervention components associated with increased effectiveness in dietary and physical activity interventions. *BMC Public Health*. 2011;11:119. doi: 10.1186/1471-2458-11-119
2. Shaw AR, Perales-Puchalt J, Johnson E, et al. Representation of racial and ethnic minority populations in dementia prevention trials: a systematic review. *J Prev Alzheimers Dis* 2022; 9: 113–18.

8

INTERVENTIONS IN FAITH BASED COMMUNITIES- an opportunity

- ❑Trust and credibility[1]
- ❑Cultural relevance[2]
- ❑ Accessibility[3]
- ❑Community Support[4]
- ❑Cost-effectiveness[5]
- ❑ Broad reach[6]
- ❑ Holistic approach[7]
- ❑ Opportunity to reduce risk for families through ripple effects



1. Levin, J. (2014). Faith-Based Initiatives in Health Promotion: History, Challenges, and Current Partnerships. American Journal of Health Promotion, 28(3), 139–151
2. Campbell, M. K., et al. (2007). Tailoring and Recruiting for Health Promotion Interventions in African-American Churches. *Health Education Research, 22*(5), 651–663.
3. DeHaven, M. J., et al. (2004). Health Programs in Faith-Based Organizations: Are They Effective? *American Journal of Public Health, 94*(6), 1030–1036. DOI:10.2105/AJPH.94.6.1030
4. Ravenell, J., et al. (2011). Effectiveness of a Faith-Based Community Outreach Program on Reducing Hypertension in Black Adults. *American Journal of Hypertension, 24*(12), 1311–1315. DOI:10.1038/ajh.2011.104
5. Thomas, S. B., et al. (2011). Sustaining Community-Engaged Health Programs: Lessons from the African American Health Program. *Preventing Chronic Disease, 8*(6), A132. PMC:3221586
6. Bopp, M., & Fallon, E. A. (2008). Health and Physical Activity Promotion in Faith-Based Organizations: A Systematic Review. *American Journal of Lifestyle Medicine, 2*(5), 409–418. DOI:10.1177/1559827608317459
7. Baruth, M., et al. (2013). The Role of Pastors in Promoting Health Among African American Adults: A Qualitative Exploration. *Journal of Religion and Health, 52*(4), 1093–1107. DOI:10.1007/s10943-011-9529-5

9

HYPERTENSION MANAGEMENT IN FAITH-BASED SETTINGS[1]

Studies and population:
- ❖ 29 studies
- ❖ 39,500 people
- ❖ Black and African American Christian Adults

Interventions:
- ❖ Education
- ❖ Physical Activity
- ❖ Nutrition
- ❖ Body Measurement
- ❖ Blood Pressure Checks

Primary outcome:
- ❖ Blood pressure reduction

Results:
- ❖ Significant reduction in systolic blood pressure
  - * 3 months
  - * 12 months
- ❖ No assessment on impact on cognitions

Lessons Learned:
- ❖Engaging trusted faith leaders and aligning health messages with religious teachings increased adherence
- ❖Cultural contextualization and community involvement are crucial for success

[1] Sanusi A, Elsey H, Golder S, Sanusi O, Oluyase A. Cardiovascular health promotion: A systematic review involving effectiveness of faith-based institutions in facilitating maintenance of normal blood pressure.

10

PHYSICAL ACTIVITY AND HEALTHY EATING INTERVENTIONS[1,2]

Impact of religion and spirituality on physical activity[1]

Studies and population:
- 13 studies
- Underserved, primarily African American

Interventions:
- Religion
- Spirituality

Results:
- Improvement in physical activity
- Reduction in sedentary time
- No assessment on impact on cognitions

Healthy eating and physical activity[2]

Studies and population:
- 46 studies
- African American

Interventions:
- Healthy eating
- Educational workshops
- cooking demonstrations
- exercise classes
- faith based themes (stewardship of the body)

Results:
- Improvement in diet; weight loss
- Improvement in physical activity
- No assessment on impact on cognitions

Lessons Learned:
- Incorporating spiritual beliefs and practices into health interventions increases adherence and effectiveness
- Community support within faith-based settings fosters a supportive environment for behavior change

1.Kruk J, Aboul-Enein BH. Religion-and Spirituality based effects on health-related components with special reference to physical activity: A systematic review. Religions, 2024; 15)7), 835
2. Dunn, CG, Wilcox S, Saunders RP, Kaczynski AT, Blake CE, Turner-McGrievy GM. Systematic review using the Reach, Effectiveness/efficacy, Adoption, Implementation, Maintenance Framework. American Journal of Preventive Medicine, 2020.

11

OBESITY AND DIABETES PREVENTION[1]

Studies and population:
- 13 studies
- XXX people
- African American

Interventions:
- Weight loss

Results:
- 70% studies reduced weight
- 60% increased fruit and vegetable intake
- 38% increased physical activity
- No assessment of cognition

Lessons Learned:
- Tailoring interventions to the cultural and spiritual context of the target population enhances engagement and effectiveness.
- Active involvement of church members in program planning and implementation increases likelihood of success.

1.Lancaster KJ, Carter-Edwards L, Grilo S, Shen C, Schoenthaler AM. Obesity interventions in African American faith-based organizations: a systematic review. Obesity Reviews 2014; 15, 1590176.

12

COGNITIVE HEALTH AND DEMENTIA-SPECIFIC INTERVENTIONS

Studies and population:
- ❖ 27 studies
- ❖ 10,645 people
- ❖ Older adults

Interventions:
- ❖ Religion and Spirituality

Outcomes:
- ❖Global cognitive functioning
- ❖ Memory
- ❖Executive functioning.

Results:
- ❖religion and spirituality are protective against cognitive decline
- ❖social support may explain these associations.

Lessons Learned:
- ❖Faith based settings can serve as effective platforms for delivering cognitive health educations and interventions
- ❖Integrating spiritual practices with cognitive activities may enhance engagement and outcomes

1.Hosseini S, Chaurasia A, Oremus M. The effect of religion and spirituality in cognitive function: A systematic review. The Gerontologist, 2019, 59 (2), 76-85

13

SUMMARY OF EVIDENCE – DEMENTIA PREVENTION INTERVENTIONS IN FAITH BASED COMMUNITIES

- ❖Most evidence for dementia prevention is relatively small due to lack of studies directly addressing cognition.
- ❖Most evidence comes from broader lifestyle interventions that target dementia-related behaviors like hypertension, physical activity and diet.
- ❖Modest improvement in health behaviors and clinical outcomes (e.g., blood pressure)

14

LIMITATIONS

STUDY TYPE: Heterogeneity
- Quasi experimental
- Pilot
- Longitudinal
- RCTs

METHODOLOGY:
- Variability in intervention design, delivery modality, outcomes
- Short intervention duration
- Little attention to sustainability
- Broad criteria

POPULATION:
- Significant focus on African American versus other groups
- Underrepresentation of older adults including those with dementia risk

RESULTS:
- While interventions show improvement in risk factors, the direct impact on cognitive outcomes or dementia incidence is rarely assessed
- Limited data on cost-effectiveness and scalability

15

STRENGTHS/LESSONS LEARNED

- Trusted leadership matters
- Tailored approaches work
- Integration with faith bolsters effects
- Social support/fellowship is important
- Integration with regular activities can support maintenance/sustainability
- Addressing socio-ecological barriers is key
- Targeting multi-level behavior change
- Peer delivery can bolster effects
- Theory guided interventions and methods

16

FUTURE DIRECTIONS

- Focus on dementia specific outcomes
- Increase methodological rigor
- Expand populations/settings
- Focus on sustainability, relapse prevention and cost-effectiveness
- Integrate technology
- Address couples, dyads, social networks
- Strengthen Community partnerships
- Consider Innovations: Health Ambassadors
- Employ a lifespan approach

17

THANK YOU!

18