

Dementia in Africa



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Dementia: Atypical presentations of Alzheimer's disease

Disclosure

None

Learning Objectives

- At the end of this course, attendees should:
 1. Know the range of prevalence estimates in Africa and reasons for the variations
 2. Understand the factors responsible for rising dementia prevalence in Africa
 3. Understand the Be able to describe peculiar hanging association of APOE with AD in Africa
 4. Be able to describe preventive strategies for overcoming dementia burden

Outline

- Introduction
- Epidemiology of Degenerative Dementias
- Atypical presentations in Africa
- HIV Dementia
- Preventive strategies
- Conclusion

Dementia/Major Neurocognitive Disorder

- Severe impairment in cognitive function
- The cognitive deficit is acquired and not developmental (not present at birth or shortly thereafter)
- Impairment in activities of daily living
- Need for supervision in the advanced stages
- Represents a decline from a previous level of performance
- There is no impairment of consciousness

Dementia in Africa

- Neurodegenerative causes
- Complication of HIV infection

Dementia Prevalence in Africa

27 community-based studies

- Age-adjusted prevalence: 2.29 – 21.60%

14 hospital-based studies

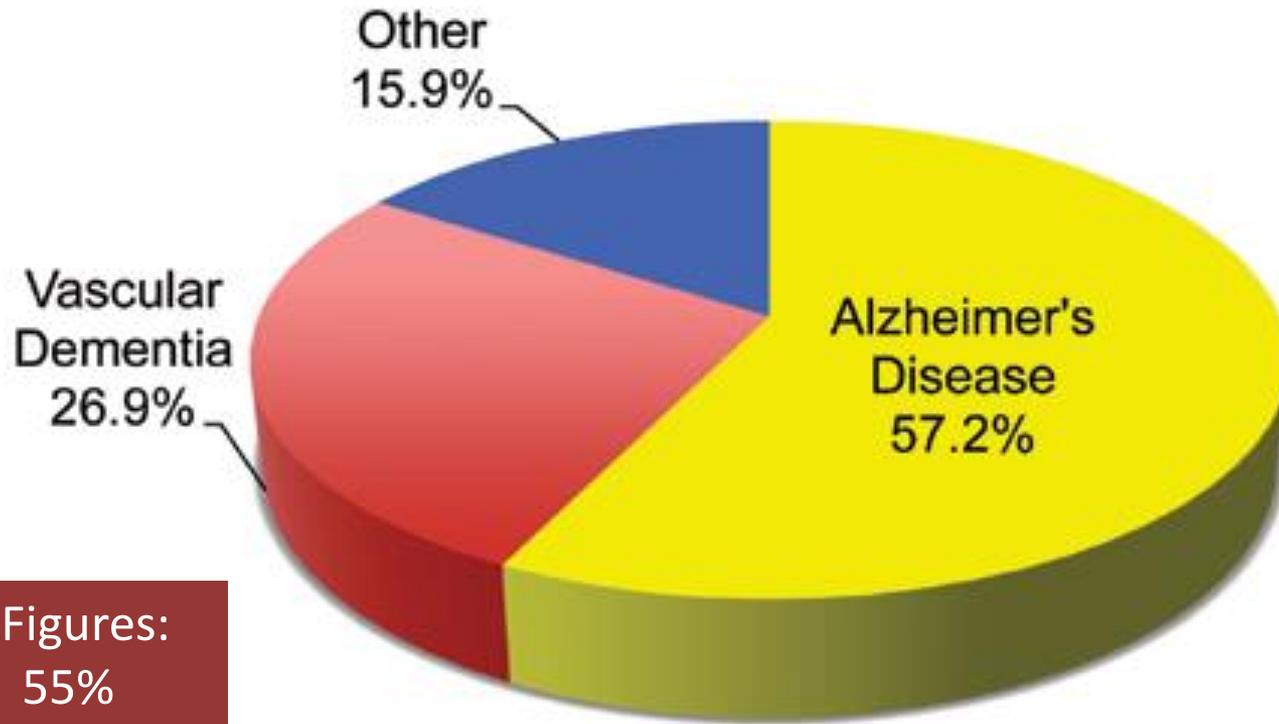
- Prevalence rate: 0.05 – 8.87%

Estimates of dementia prevalence (%) in sub-Saharan Africa

Sub-Saharan Africa		60-64	65-69	70-74	75-79	80-84	85+	Age-standardised prevalence for all those aged 60 years and over
All studies (n=12)	Male	1.34	2.02	3.09	5.05	7.77	17.22	7.23*
	Female	2.43	3.68	5.66	9.30	14.35	32.07	
	All	1.74	2.64	4.07	6.71	10.38	23.31	6.38
DSM criteria only (n=10)	Male	1.16	1.70	2.51	3.95	5.86	12.20	5.50*
	Female	1.74	2.66	4.16	6.94	10.86	24.90	
	All	1.23	1.89	2.94	4.91	7.68	17.60	4.71

*2 studies were not included in the meta-analysis because they did not provide age- and sex- specific prevalence

Dementia subtypes in Africa



Western Figures:

AD/DLB	55%
VD	15%
Mixed	12%
PD	8%
Trauma	4%
Rare	6%

George-Carey R et al. J Glob Health 2012 Dec.

Proportionate Increase in number of dementia cases by world region*

GBD Region	Prevalence rate (2010)	# of cases 2010 (m)	# of cases 2030 (m)	% increase 2010-2030
World	4.7%	35.56	65.69	85
The Americas	6.5	7.62	14.78	89
Europe	6.2	9.95	13.95	40
Asia	3.9	15.94	33.04	107
AFRICA	2.6	1.86	3.92	111
North Africa	3.7	1.15	2.59	125
Central	1.8	0.07	0.12	71
East	2.3	0.36	0.69	92
Southern	2.1	0.10	0.17	70
West	1.2	0.18	0.35	94

Dementia increase in Nigeria

- Pooled crude prevalence of dementia in Nigeria: 4.9% (95% confidence interval (CI) 3.0-6.9)
- Prevalence significantly higher in women (6.7%, 3.6-9.9) compared to men (3.1%, 1.2-5.0).
- Risk factors: Age 80+ (OR 1.6, 1.3-1.9), female sex (OR 2.2, 1.4-3.4) and BMI ≤ 18.5 (OR 3.5, 1.2-10.1)
- Using epidemiologic model, we estimated that the number of dementia cases **increased by over 400% over a 20-year period**, increasing from 63,512 to 318,011 (1995-2015) among persons aged ≥ 60 years.

Conclusion

- Our findings suggest the prevalence and cases of dementia have increased in Nigeria over the last two decades. Population-wide response to dementia is lacking.

Risk Factors for Dementia*

- From field studies:

Age

Female gender

Social isolation

Vascular Factors – Hypertension*; Diet, BMI

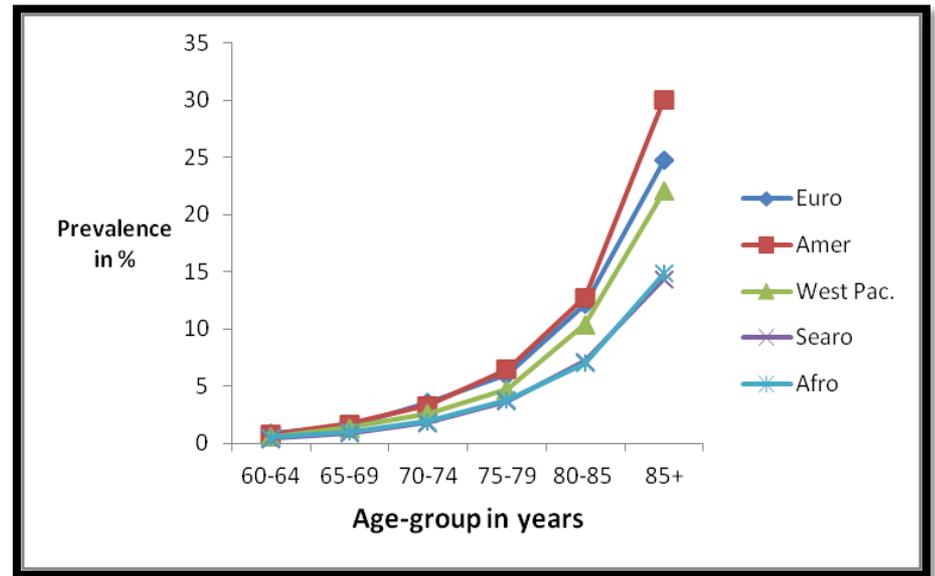
Stress, Bereavement, Personality change

Alcohol, Low education

- From the Bench:

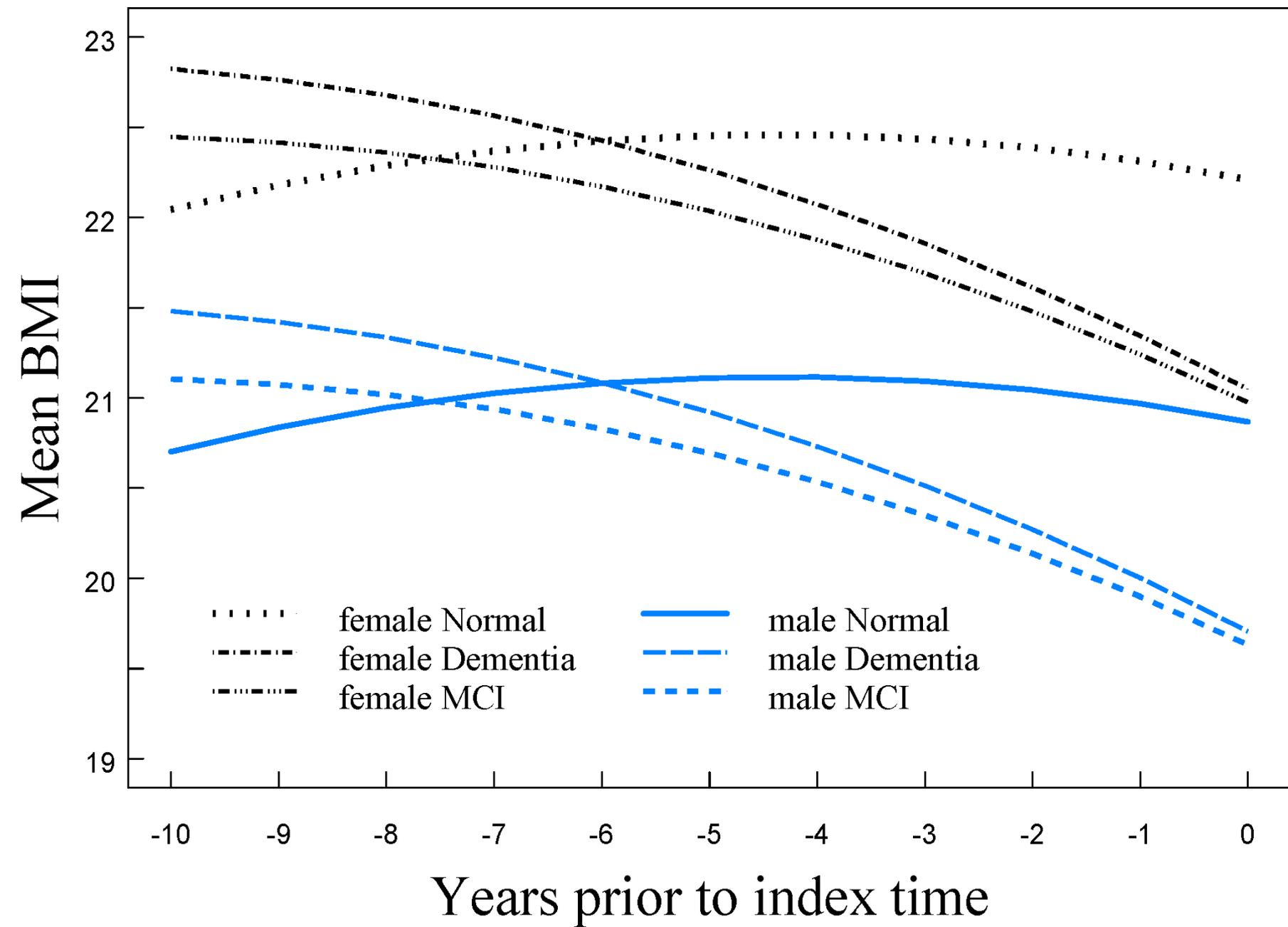
APOE ϵ 4 allele now emerging + Cholesterol

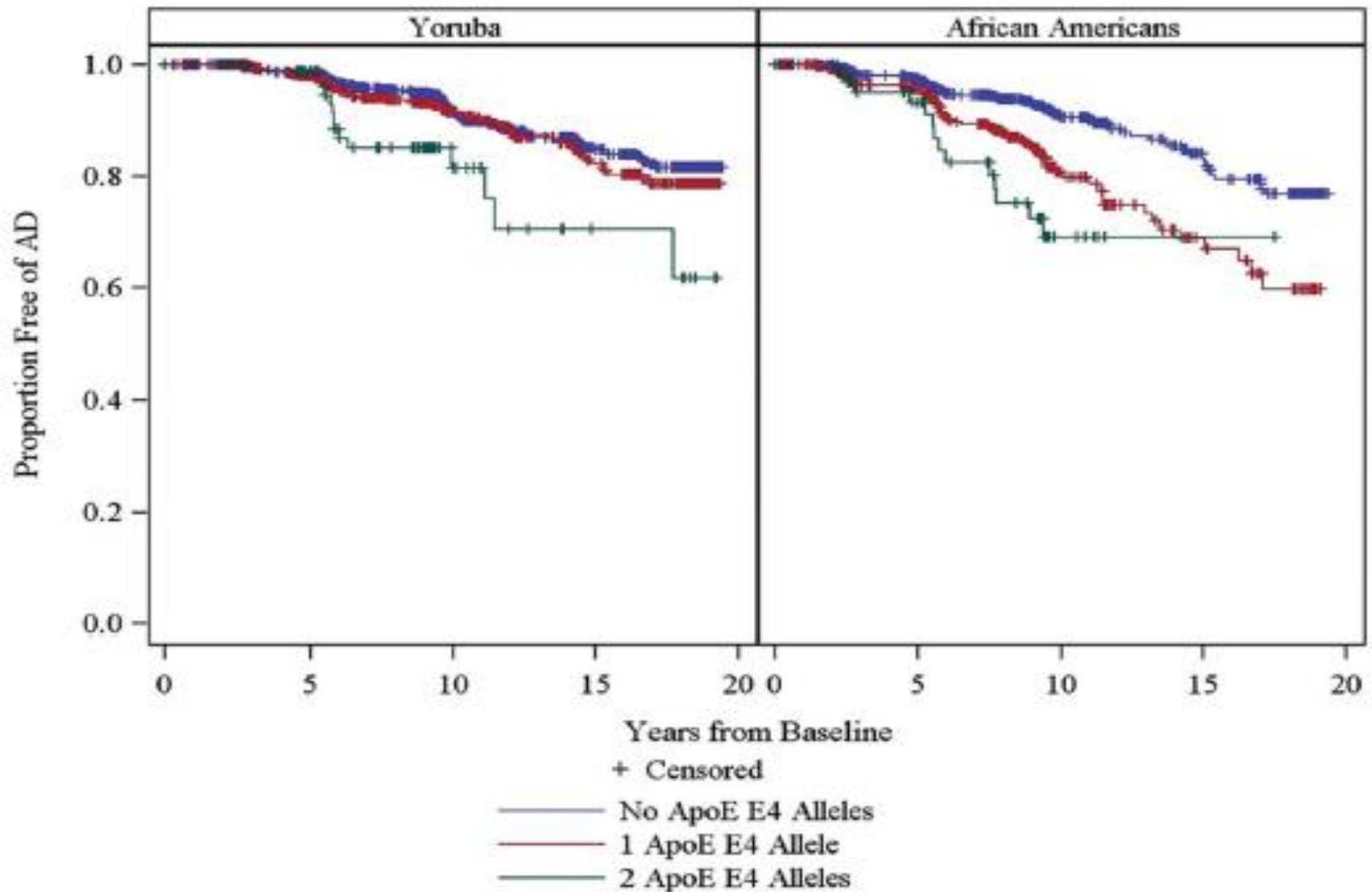
Others (probable)



Hypertension and Incident dementia risk

Effect	Odds Ratio	95% CI
Hypertension	1.52	1.01- 2.30
Systolic BP, X 10 mm Hg	1.09	1.03 – 1.16
Diastolic BP, X 10 mm Hg	1.22	1.07 – 1.38
Pulse Pressure, X 10 mm Hg	1.10	1.01 – 1.21





Kaplan-Meier survival estimates for time to incident AD.

Novel PS1 mutation with profound
neurofibrillary pathology in an indigenous
African Family

Brain 127: 133, 2003



***J Heckmann, R Low, CM
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Burden of HIV Neurocognitive Disorders in SSA

Authors/Country	Sample size	HAND	HIV- Dem	Comments
Joska et al. SA (2019)	1150	-	18.2%	HIV Neg: 10.7%
Debalkie_Animut M. Ethiopia (2019)	684	67.1%		low BMI; Married; Advanced dis
Saktor N, Uganda (2019)	399	56%	13% to 5% in 2 yrs of ART	Clade D > A; Old age, Depression, Load
Mogambery JL; SA 2017	146	53%		Age
Hakkers CS; SA 2018	117	66%		MoCA not useful
Belete T, Ethiopia 2017	234	33.3%	9.8%	Late disease stage
Tsegaw M, Ethiopia 2017	-	36.4%		Low CD4; Age, educ, Poor adherence
Yusuf AJ; Nigeria 2017	418	21.5%		9.6% asymptomatic; duration, severity
Kelly CM 2014; Malawi	106	15%	3%	55% asymptomatic
Habib AG 2013 – syst review of 16 studies/7 countries	-	42.4%		Dropped to 30.4% in 6 months of ART

Cognitive Stimulation Therapy (CST) for dementia

- Psychological and social treatment.
- Group based
- Aims to improve function and slow deterioration.
- 14 sessions over 7 weeks
- Can be delivered by non specialist staff after training.
- Recommended by World Alzheimer Report 2012 to be given routinely in mild/moderate dementia.
<http://www.alz.co.uk/research/WorldAlzheimerReport2011.pdf>

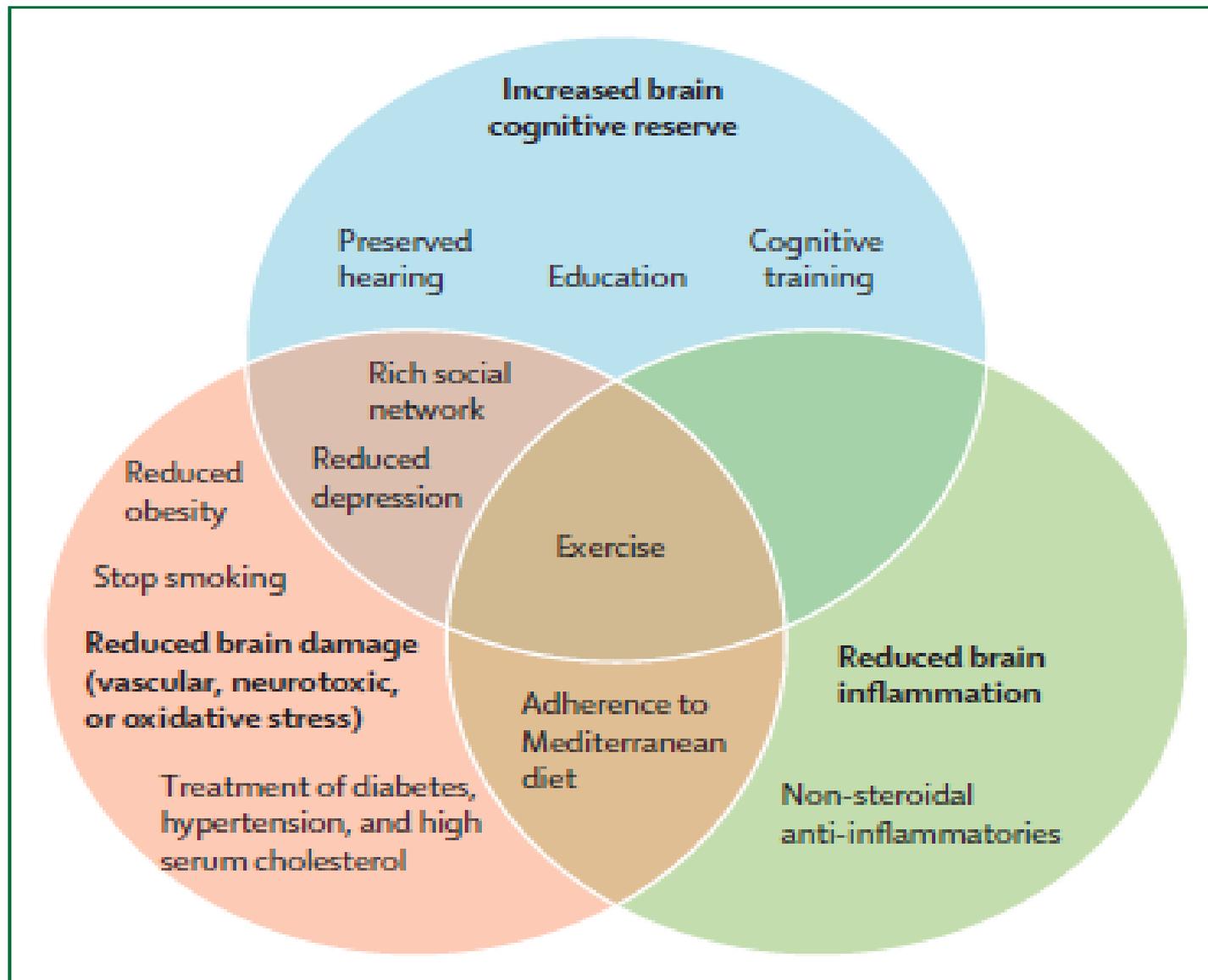


Figure 5: Potential brain mechanisms for preventive strategies in dementia

Justification for Dementia Studies in Africa

- Demographic transition
- Changing life styles
- Opportunity for identification of novel risk factors that may be environmental
- Investigation of gene-environmental interactions
- Opportunity to improve awareness and offer cost-effective management

Key Message

- Africa currently has the lowest burden of dementia
- Prevalence estimates range between 2.3% and 11%
- Between 200 and 400% increase is projected to occur in the next 30 years
- Alzheimer's disease is the most common type as in the rest of the world; atypical cases do occur
- Vascular risk factors are of important consideration
- Cost of care is enormous
- Focus should be on implementing preventive strategies

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