

# Alzheimer's Awareness Meeting



World Alzheimer's Day



## Program Schedule

|                |   |
|----------------|---|
| 2:00 - 2:10 PM | <b>Welcome remarks:</b> Prof. Y Narahari  |
| 2:10 - 2:20 PM | <b>Inaugural Address and Release of CBR Currents by Donor:</b> Dr. Kris Gopalakrishnan                  |
| 2:20 - 2:50 PM | <b>Introduction to dementia (English &amp; Kannada):</b> Dr. Prathima / Dr. Palash / Mrs. Sunitha       |
| 2:50 - 3:00 PM | <b>Role of longitudinal studies in dementia from India:</b> Dr. Thomas and Dr. Jonas                    |
| 3:00 - 3:25 PM | <b>Early signs of cognitive impairment and treatment options:</b> Dr. Abhishek M L                      |
| 3:25 - 3:30 PM | <b>Break</b>  |
| 3:30 - 3:55 PM | <b>Role of complementary medicine in treatment of dementia (English &amp; Kannada):</b> Dr. Divya       |
| 3:55 - 4:25 PM | <b>Caregiving and recent updates (English &amp; Kannada):</b> Ms. Meenakshi / Ms. Meghana / Ms. Rajitha |
| 4:25 - 4:30 PM | <b>Vote of thanks:</b> Dr. Prathima   |

**After each session there will be an opportunity for Q&A**

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# Alzheimer's Awareness Meeting



## Introduction to Dementia

Dr. Prathima Arvind  
Dr. Palash Kumar Malo  
Mrs. Sunitha H S



# Alzheimer's Awareness Meeting



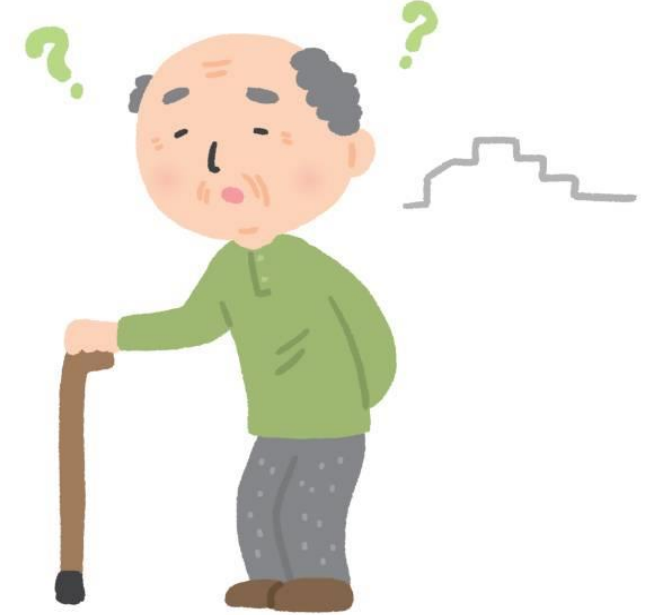
## Introduction to Dementia (English)

Dr. Prathima Arvind



# Introduction to Dementia

- Dementia is a general term for loss of memory and difficulty with
  - Visuo-spatial
  - Decision making
  - Language
  - Planning
- Dementia is NOT a part of normal aging
- It affects the ability to perform normal activities of daily life
- Affected person starts behaving differently
- In the final stage, the patient will be fully dependent





# Still Alice Movie CLIP

[https://www.youtube.com/watch?v=0\\_2Cuy3w7W4&t=5s](https://www.youtube.com/watch?v=0_2Cuy3w7W4&t=5s)



# Dementia is an umbrella term

**Alzheimer's  
disease (~ 60%)**

**Vascular  
dementia (~20%)**

**Mixed dementia  
(~10%)**

**Dementia with  
Lewy bodies  
(~4%)**

**Frontotemporal  
dementia (~2%)**

**Parkinson's  
dementia  
(~2%)**

**Others**

Prion folds into an abnormal  
shape, vitamin B1 deficiency,  
neurons degeneration in  
basal ganglia (~3%)

## Types of Dementia

# Stages of dementia

## ➤ Early-stage (Mild dementia)

- Forgetfulness, losing track of the time
- becoming lost in familiar places



## ➤ Middle-stage (Moderate dementia)

- Difficulty with communication
- Needing help with personal care

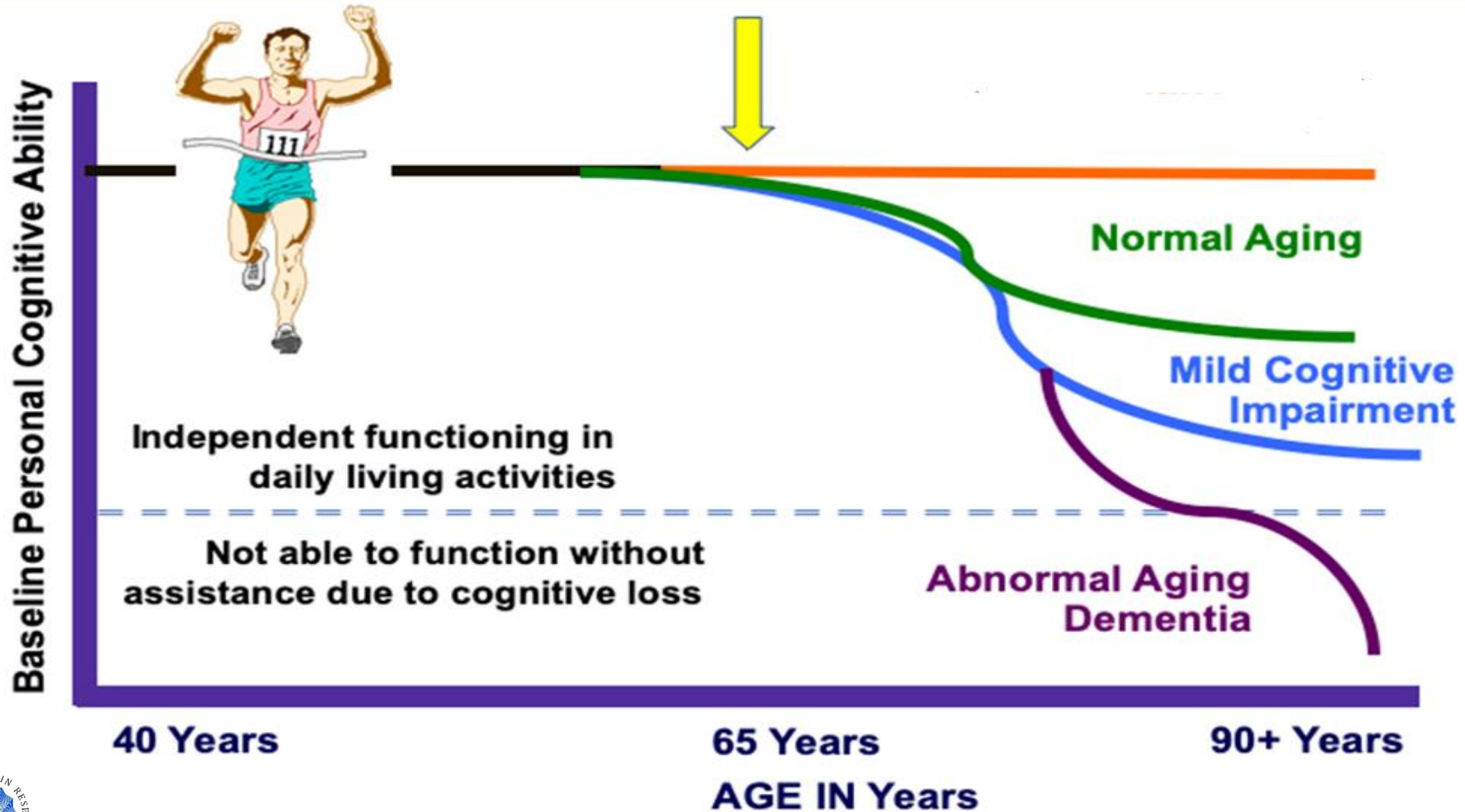


## ➤ Later stage (Severe dementia)

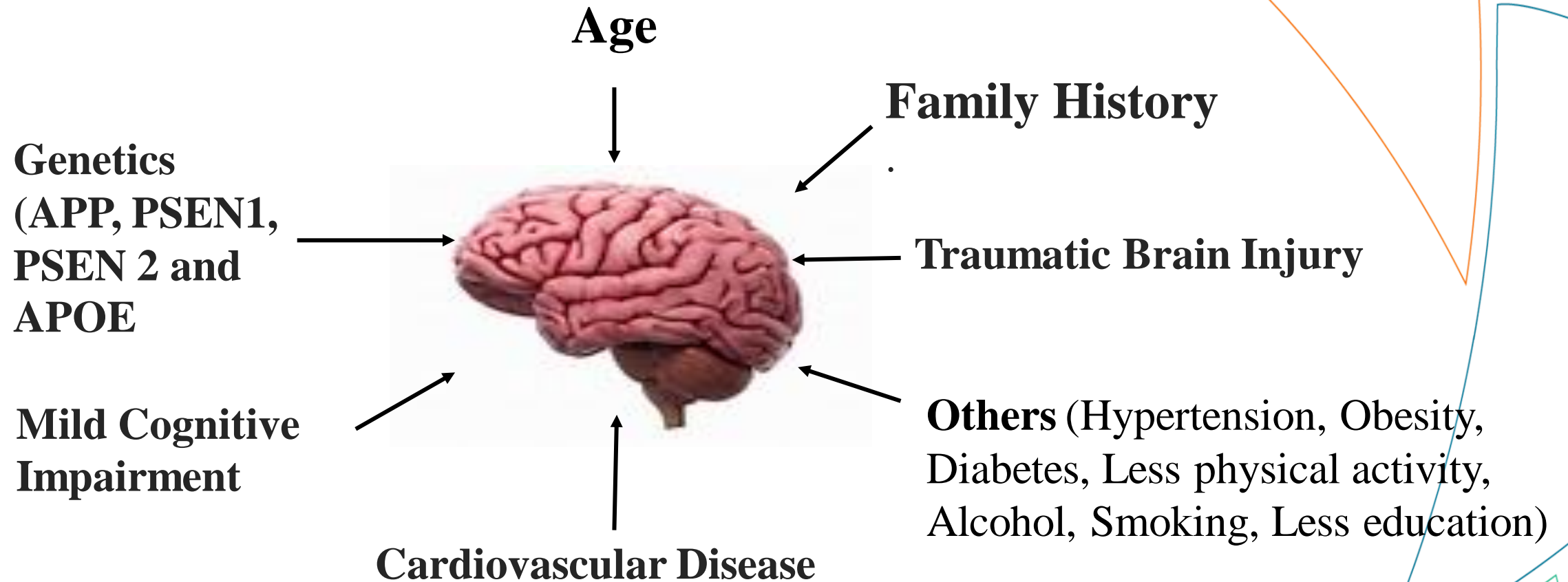
- Difficulty in recognizing relatives and friends
- Increasing need for assisted self-care



# Trajectories of age-related cognitive change



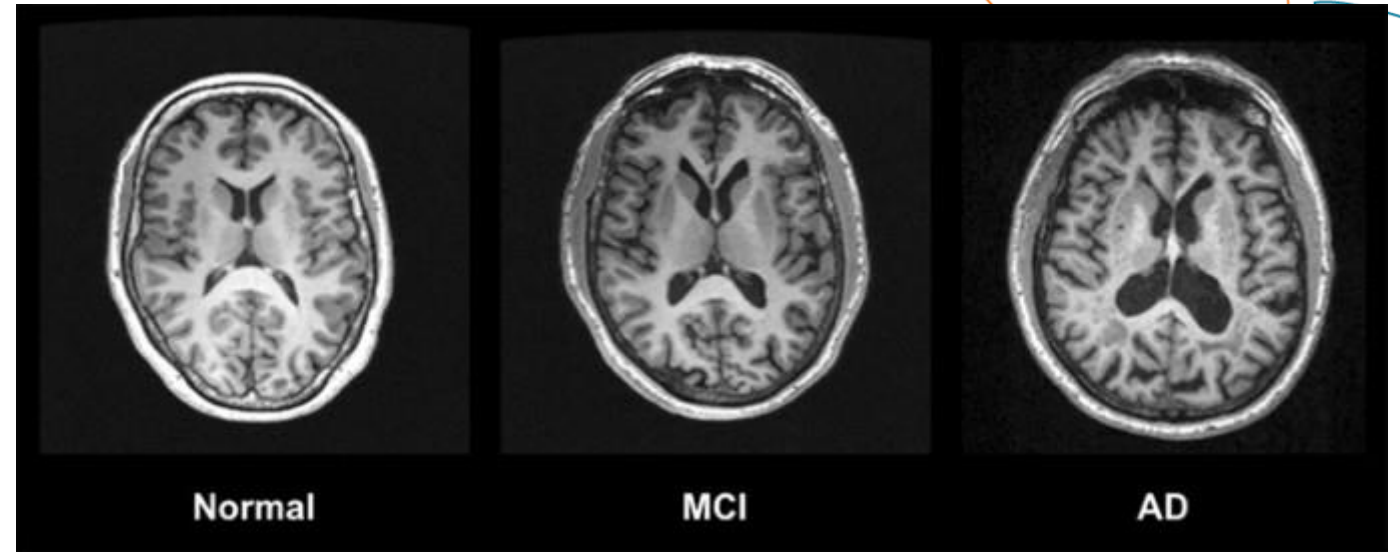
# Risk Factors for dementia



# Why do we need research on dementia?

➤ Few biomarkers are set to diagnose dementia, such as

- Brain imaging (MRI scan and PET scan)
- Cerebrospinal fluid test and blood test ( $\beta$ -amyloid, tau protein levels)
- Genetic testing

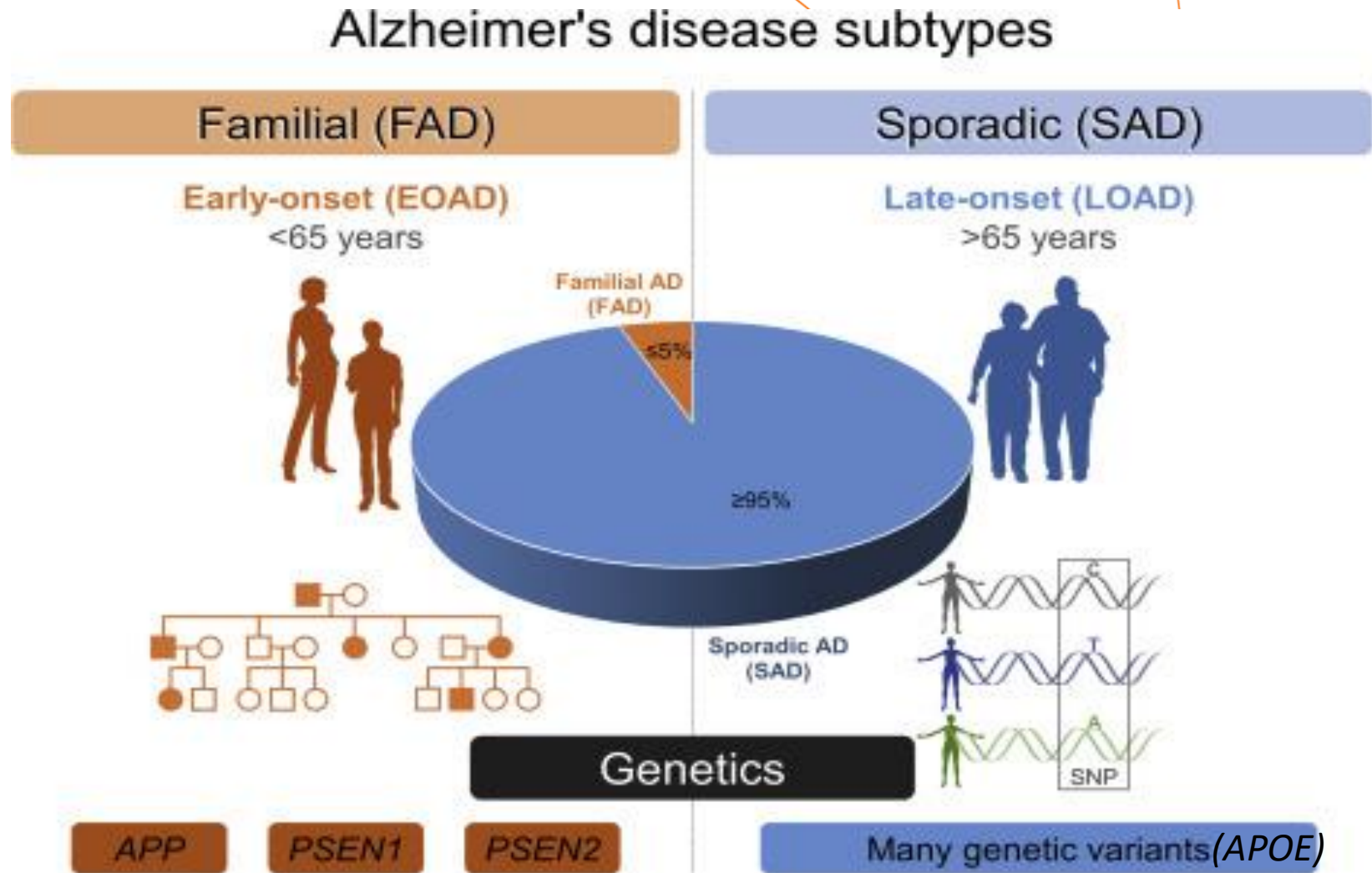


- Identifying new biomarkers is vital to advancing capabilities for prevention, risk reduction, early diagnosis, therapies, and care for people with dementia
- Epidemiological study data will help the national health system in caring for people with dementia



# Genetics

- 5% of disease incidences are due to autosomal dominant mutations.
- 95% of disease is due to sporadic mutation.
- Gene mutations indicate the relative risk of developing a pathological change rather than measuring the pathological change.



# Dementia studies in India

- The awareness about Alzheimer's and other dementia-related diseases in India was extremely low even among health professionals.
- In 1990s, the Alzheimer's & Related Disorders Society of India (ARDSI) started to help with preventive measures.
- Prevalence, impact, costs, services for dementia, risk factors, and policies for improving the quality of life reported in 2010, 2018, and 2020.
- Lack of longitudinal studies which can provide a true trend of the disease.
- Genetic epidemiological study in India has great advantages.

**TATA Longitudinal Study of Aging (TLSA)** is an ongoing aging cohort study at the **Center for Brain Research, IISc**



# Alzheimer's Awareness Meeting



## Salient Statistical Findings

Dr. Palash Kumar Malo



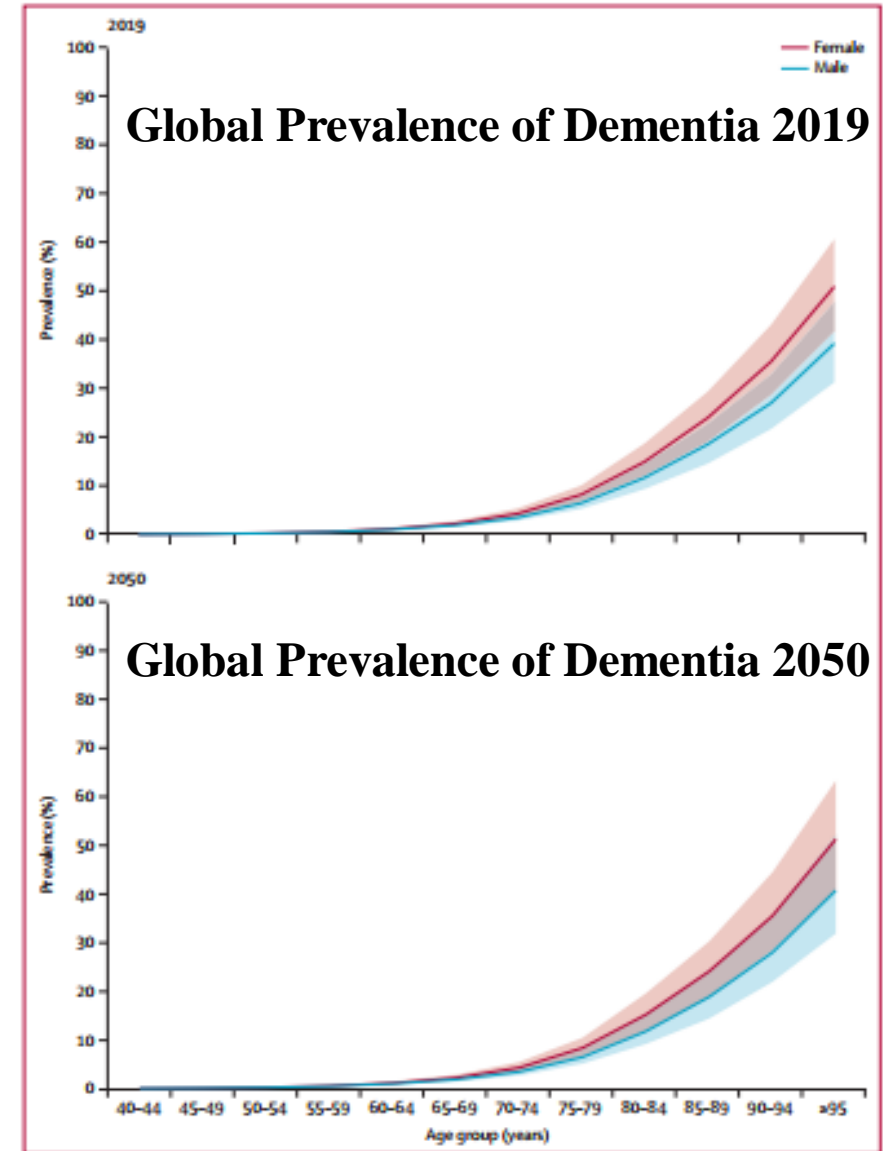
# Prevalence of Dementia & its Projection

## WORLD : *One new case every 3.2 seconds*

- ~ 50 million people have dementia worldwide, with 10 million new diagnoses every year (WHO, Dementia, 2021).
- The global number of individuals with dementia will increase from the current 50 million to 82 million in 2030 and 152 million in 2050 (WHO, Dementia, 2021).

## INDIA : *One in 27 people > 60 years*

- Estimated 5.3 million Indians aged > 60 years had dementia in 2020 (*Dementia in India 2020* report).
- Number of individuals with dementia is projected to exceed 14 million by 2050.

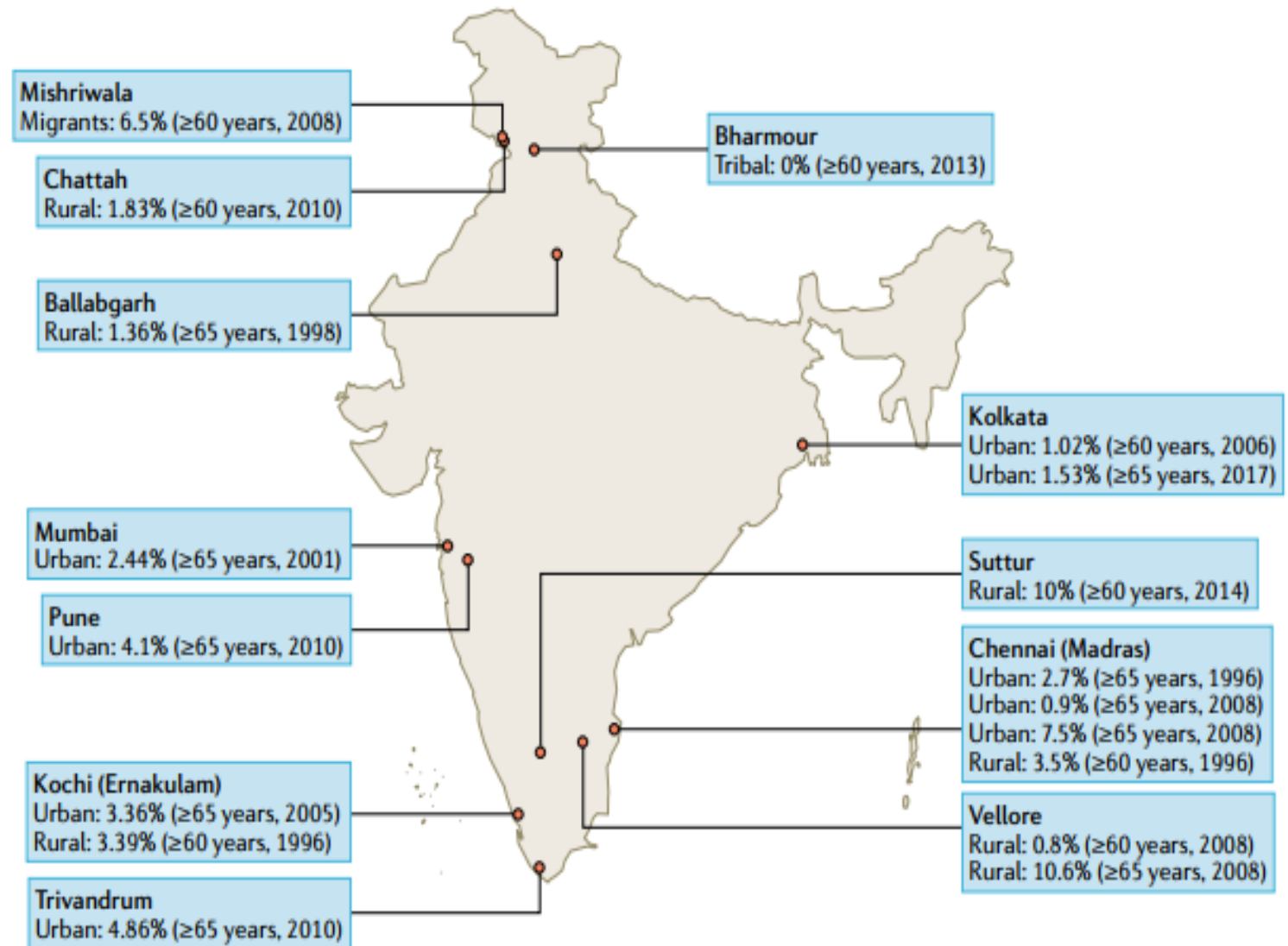


**Sources:** Nichols et al., (2022) [The Lancet Public Health];  
Ravindranath & Sundarakumar, (2021) [Nature Reviews Neurology];

# Estimation of Prevalence: Meta-Analysis

**Meta-analysis of 20 studies conducted in India from 1996 to 2017 (Choudhary et al., 2021)**

- **Prevalence of dementia in India is 20 per 1000 population**
- Prevalence were similar for males & females; rural & urban population
- Prevalence was higher in older age groups (75 years & above) as compared to those below 75 years of age



**Source:** Ravindranath & Sundarakumar, (2021) [Nature Reviews Neurology]

# Prevalence of Mild Cognitive Impairment (MCI)

- **MCI: A transitional phase between normal cognitive functioning & dementia**
- Prevalence of MCI in studies from India widely varies depending upon
  - Study setting
  - Age of the study sample
  - Definition of MCI
  - Instruments used, etc.
- **Annual conversion rate**, that is, the percentage of people with MCI who develop dementia in a year in community samples is reported to be around **3% to 10%** (Michaud et al., 2017).
- Assumptions: 15% prevalence of MCI, 8% annual conversion rate of MCI to dementia then  
**1.7 million people likely to develop dementia in one year**

| Indian studies | Year | MCI Prevalence (%) |
|----------------|------|--------------------|
| Das et al      | 2007 | 14.89              |
| Sosa et al     | 2012 | 4.30               |
| Singh et al    | 2013 | 19.26              |
| Kaur et al     | 2014 | 31.53              |
| Ghose et al    | 2019 | 39.20              |
| Mohan et al    | 2019 | 26.06              |

**Source:** *Dementia in India 2020 report*

# Alzheimer's Awareness Meeting



## Introduction to Dementia (Kannada)

Mrs. Sunitha H S



# ಬುದ್ಧಿಮಾಂದ್ಯತೆ (Dementia)

- ಬುದ್ಧಿಮಾಂದ್ಯತೆ ಮಾನಸಿಕ ಸ್ಥಿತಿಗೆ ಸಂಬಂಧಿಸಿದ ಗಂಭೀರವಾದ ಕಾಯಿಲೆಯಾಗಿದೆ. ವಯಸ್ಕರಲ್ಲಿ ಇದರ ಪ್ರಮಾಣ ಹೆಚ್ಚಾಗಿರುತ್ತದೆ ಹೌದಾದರೂ ಇದು ಸಾಮಾನ್ಯವಾಗಿ ಪ್ರೌಢಾವಸ್ಥೆಯ ಯಾವದೇ ಹಂತದಲ್ಲೂ ಕಾಣಿಸಿಕೊಳ್ಳಬಹುದು.

## ವಿವಿಧ ರೀತಿಯ ಬುದ್ಧಿಮಾಂದ್ಯತೆ

- ಅಲ್ಜೈಮರ್ ಕಾಯಿಲೆ (Alzheimer disease)

- ರೋಗದ ಆರಂಭಿಕ ಚಿಹ್ನೆಗಳು ಯಾವುವೆಂದರೆ ಇತ್ತೀಚಿನ ಘಟನೆಗಳು ಅಥವಾ ಸಂಭಾಷಣೆಗಳನ್ನು ಮರೆತಿಬಿಡುವುದು.
- ಮರೆಗುಳಿತನ ಎಲ್ಲರಲ್ಲಿಯೂ ಇರುವ ಒಂದು ತೊಂದರೆ ಆಗಿದ್ದರೂ ಹೆಚ್ಚಿನವರಲ್ಲಿ ಇದು ಗಂಭೀರ ರೂಪದಲಿರುವುದಿಲ್ಲ.
- ರೋಗವು ಮುಂದುವರೆದಂತೆ ತೀವ್ರ ಸ್ಮರಣಶಕ್ತಿಯ ದುರ್ಬಲತೆ ಉಂಟಾಗುತ್ತದೆ.
- ನಿತ್ಯದ ಕಾರ್ಯಗಳನ್ನು ನಿರ್ವಹಿಸಲು ಮರೆತುಹೋಗುವುದು ಮಾತ್ರವಲ್ಲ ವ್ಯಕ್ತಿತ್ವದ ಮೇಲೂ ಪ್ರಭಾವ ಬೀರುತ್ತದೆ.

# ವಿವಿಧ ರೀತಿಯ ಬುದ್ಧಿಮಾಂದ್ಯತೆ

## ➤ ನಾಳೀಯ ಬುದ್ಧಿಮಾಂದ್ಯತೆ (Vascular dementia)

- ಮೆದುಳಿಗೆ ರಕ್ತ ಸಂಚಾರ ಕಡಿಮೆಯಾಗುತ್ತಾ ಬಂದು ನರ ದೌರ್ಬಲ್ಯ ಕಾಣಿಸಿಕೊಂಡು ಎಲ್ಲವನ್ನೂ ಮರೆಯುವುದು.

## ➤ ಫ್ರಂಟೊ ಟೆಂಪೊರಲ್ ಬುದ್ಧಿಮಾಂದ್ಯತೆ (Frontotemporal lobe dementia)

- ಇದು ಮೆದುಳಿನ ಮುಂಭಾಗ ಅಥವಾ ಹಣೆಯ ಹಿಂದಿನ ಪ್ರದೇಶಗಳು ಅಥವಾ ಕಿವಿಗಳ ಹಿಂದಿನ ಪ್ರದೇಶಗಳ ಪ್ರಗತಿಶೀಲ ನರ ಕೋಶಗಳ ನಷ್ಟದಿಂದ ಉಂಟಾಗುವ ಅಸ್ವಸ್ಥತೆ.

## ➤ ಲೆವಿ ದೇಹ ಬುದ್ಧಿಮಾಂದ್ಯತೆ (Lewy body dementia)

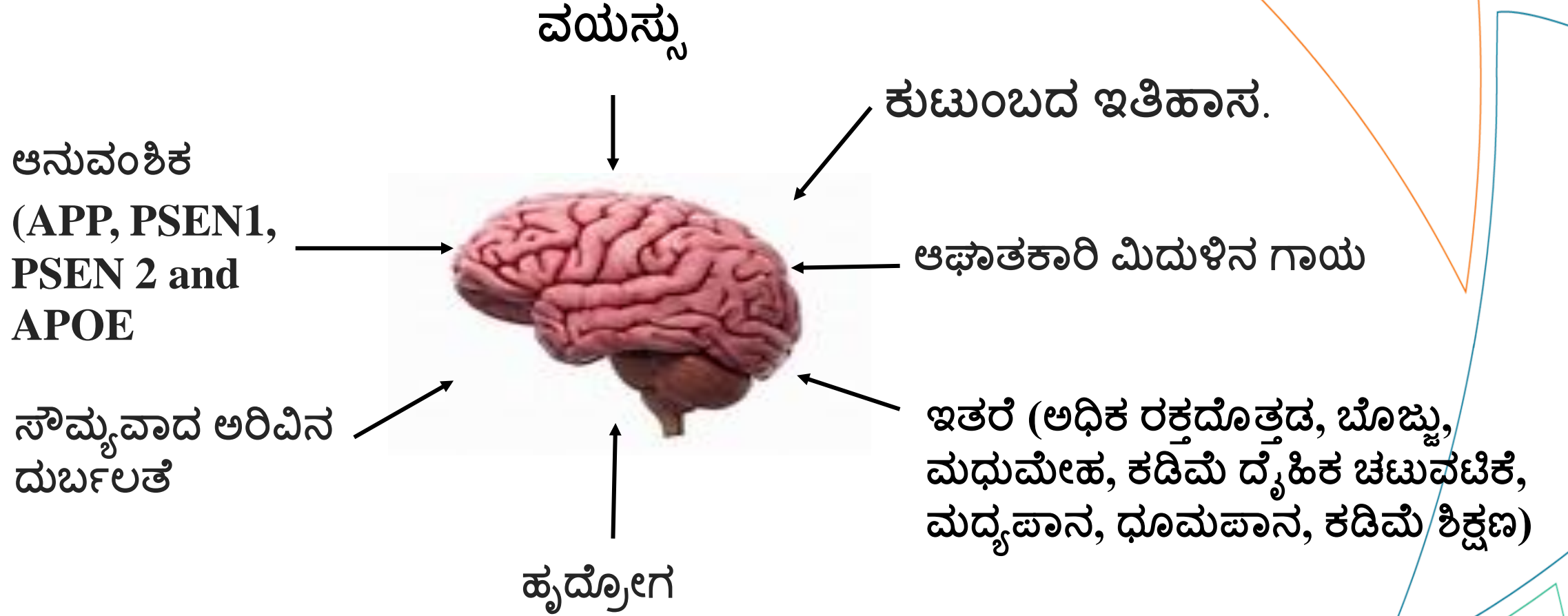
- ಲೆವಿ ದೇಹಗಳು ಎಂದು ಕರೆಯಲ್ಪಡುವ ಪ್ರೋಟೀನ್ ಆಲ್ಫಾ-ಸಿನೂಕ್ಲಿನ್‌ನ ಅಸಹಜ ನಿಕ್ಷೇಪಗಳಿಂದ ಉಂಟಾಗುತ್ತದೆ.

## ➤ ಮಿಶ್ರ ಬುದ್ಧಿಮಾಂದ್ಯತೆ (Mixed dementia)

- ಇದು ಎರಡು ಅಥವಾ ಹೆಚ್ಚಿನ ರೀತಿಯ ಬುದ್ಧಿಮಾಂದ್ಯತೆಯ ಸಂಯೋಜನೆಯಾಗಿದೆ.



# ಬುದ್ಧಿಮಾಂದ್ಯತೆಯ ಅಪಾಯಕಾರಿ ಅಂಶಗಳು





# ಎಷ್ಟು ಜನ ಬುದ್ಧಿಮಾಂದ್ಯತೆಯಿಂದ ಬಳಲುತ್ತಿದ್ದಾರೆ?

- 2010 ರ ಸಂಶೋಧನೆಯ ಪ್ರಕಾರ ಪ್ರಪಂಚದಲ್ಲಿ ಸುಮಾರು 3.5 ಕೋಟಿ ಜನರು ಬಳಲುತ್ತಿದ್ದಾರೆ.
- ಇನ್ನೊಂದು ಅಂಶವೆಂದರೆ ಬುದ್ಧಿಮಾಂದ್ಯತೆಯಿಂದ ಬಳಲುತ್ತಿರುವರಲ್ಲಿ ಶೇ 58 ಜನ ಕೆಳ ಮತ್ತು ಮಾಧ್ಯಮ ಆದಾಯದ ದೇಶಗಳಲ್ಲಿದ್ದಾರೆ. ಈ ಸಂಖ್ಯೆ ೨೦೫೦ ಹೊತ್ತಿಗೆ ಶೇ 71 ರಷ್ಟಾಗುತ್ತದೆ.
- ಇದರ ಬಗ್ಗೆ ಜಾಗೃತಿ ಮೂಡಿಸಲು ಪ್ರತಿ ವರ್ಷ ಸೆಪ್ಟೆಂಬರ್ 21 ನ್ನು “ವಿಶ್ವ ಅಲ್ಟೈಮರ್ಸ್ ದಿನ” ಎಂದು ಆಚರಿಸಲಾಗುತ್ತದೆ.

## ಆಚರಣೆಯ ಮುಖ್ಯ ಗುರಿಗಳೆಂದರೆ

- ಬುದ್ಧಿಮಾಂದ್ಯತೆಯ ಬಗ್ಗೆ ಎಲ್ಲರಿಗೂ ಮಾಹಿತಿ ತಿಳಿಸುವುದು. ಇದರ ಬಗ್ಗೆ ಇರುವ ತಪ್ಪು ನಂಬಿಕೆ , ಭಯ ಮತ್ತು ಕಳಂಕವನ್ನು ಅಳಿಸುವುದು.
- ಇದರಿಂದ ಬಳಲುತ್ತಿರುವವರನ್ನು ಆದಷ್ಟು ಬೇಗ ಚಿಕಿತ್ಸೆಗೆ ಕರೆದುಕೊಂಡು ಹೋಗುವಂತೆ ಪ್ರೋತ್ಸಾಹಿಸುವುದು.

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# Alzheimer's Awareness Meeting



## Role of longitudinal studies in dementia from India

Dr. Jonas Sundarakumar  
Dr. Thomas Gregor Issac





# **Role of Unique, large-scale, longitudinal research initiatives** **to explore risk factors for dementia** **in rural and urban India**

**Srinivaspura Aging, Neuro Senescence and COGnition (SANSCOG) study**

**Tata Longitudinal Study of Aging (TLSA)**

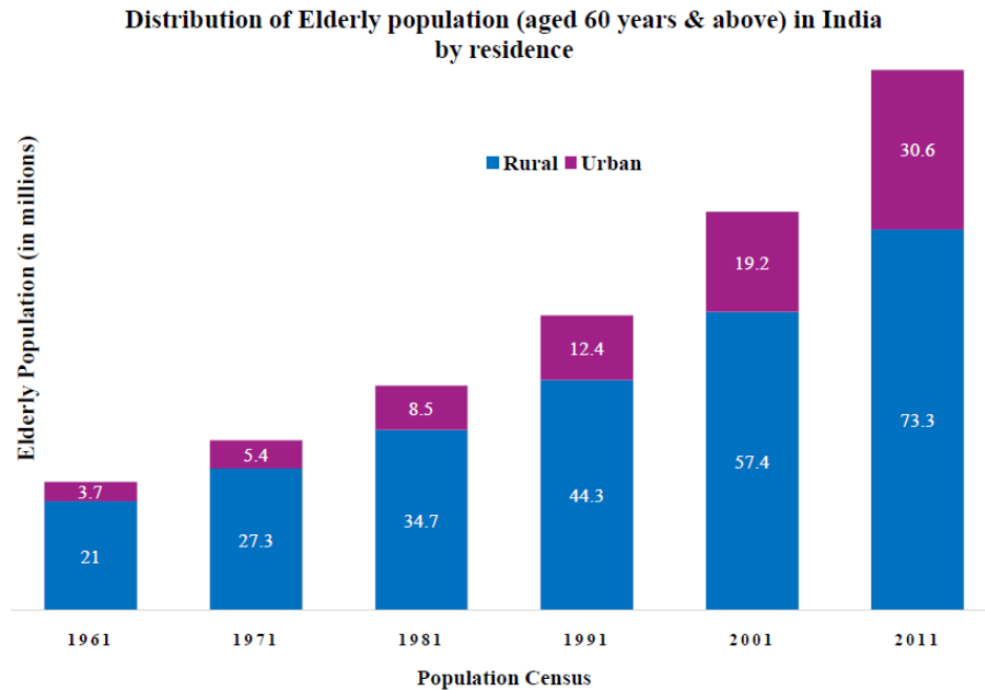
Dr. Jonas Sundarakumar, Asst. Professor, CBR, IISc

# Importance of dementia research

- Increased life expectancy → increase in proportion of aging population  
→ increasing prevalence of dementia
- 50 million dementia cases worldwide
- Expected to rise to 150 million by 2050
- Till date no definitive treatment available for dementia

## Why is dementia a big public health concern for India?

- India's older population is growing rapidly
- Expected to become 19% of total population by 2050



Indians >60 years with dementia

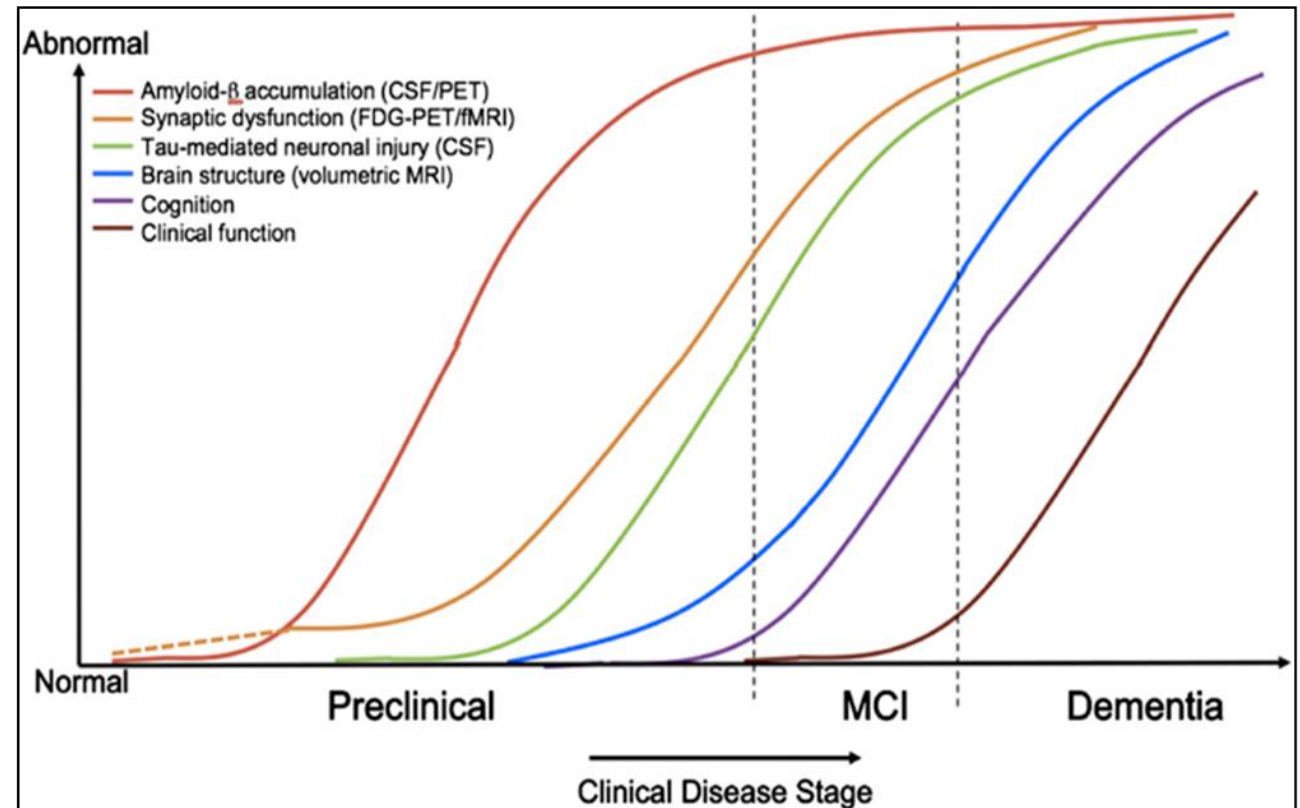
2020  
**5.3 million** → 2050  
**14 million**

# Need for our studies

Can the onset of dementia be prevented or postponed or  
Can its progression / course be slowed down?

Pathogenesis of Dementia  
**starts few decades before**  
clinical disease manifests

Hence, ***risk factors can  
be identified even before  
clinical onset of symptoms***



<http://www.acnr.co.uk/2014>

# Need for our studies

**Population-based, prospective cohort studies on aging individuals  
are an excellent approach to understand risk and protective factors for  
healthy or pathological cognitive aging / dementia**



❖ Identifying risk & protective factors for dementia and related disorders

❖ Through large-scale, prospective, cohort studies in aging individuals

❖ From two distinct, Indian populations

Rural Indians

Urban Indians



# *The Rural Study*

Srinivasapura Aging, Neuro Senescence  
and COGNition study



Target:  
10,000  
participants

**Study site:** Villages of Srinivasapura taluk



# *The Urban Study*

*Tata Longitudinal Study of Aging (TLSA)*

Funded by

**TATA TRUSTS**

Target:  
1,000  
participants

**Study site:** Urban Bangalore





# Contrasting cohort characteristics

## SANSCOG study participants



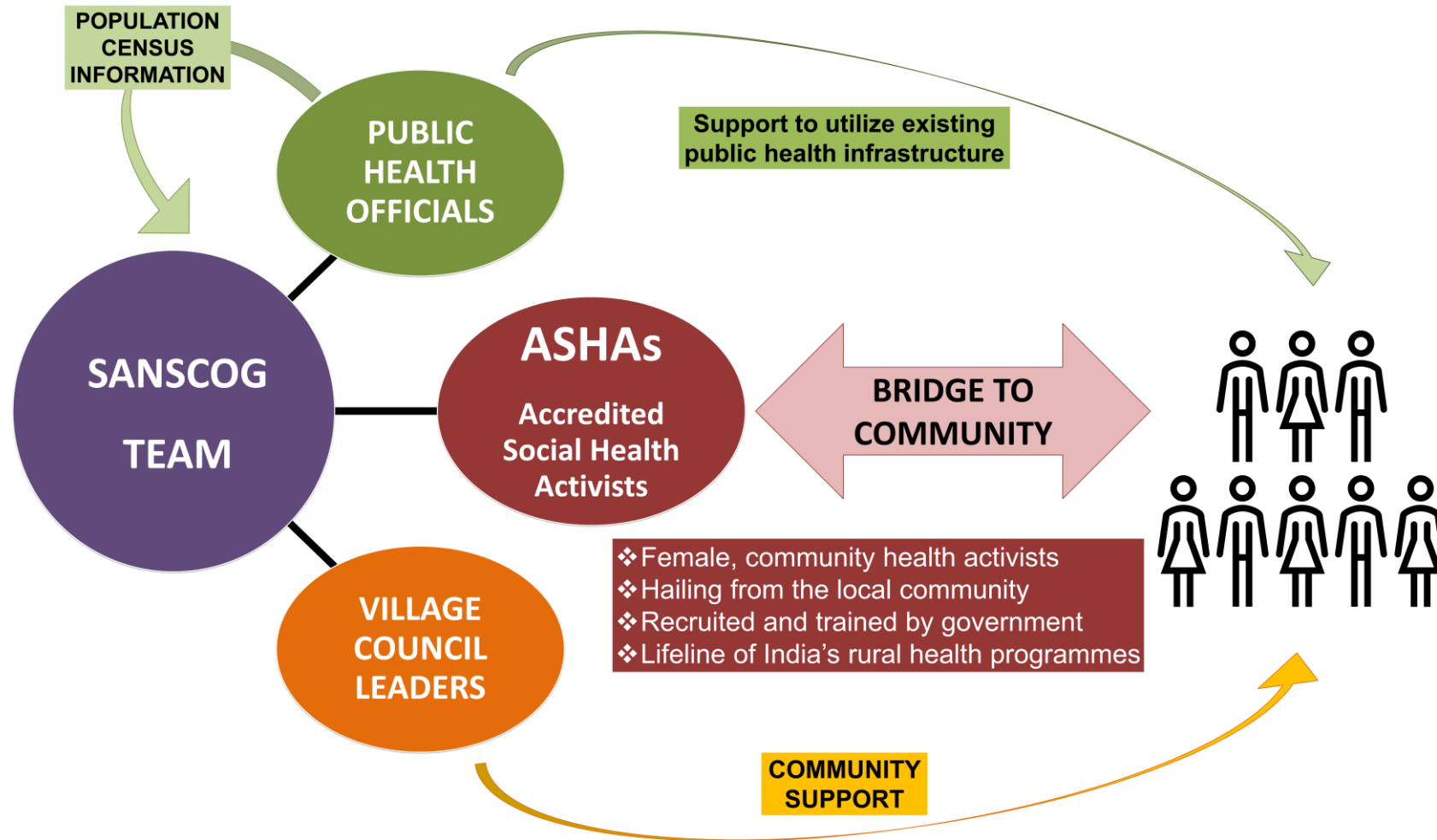
- ✓ Rural
- ✓ Low literacy
- ✓ Agricultural community
- ✓ Mono- / Bi-lingual
- ✓ Low migration

## TLSA study participants

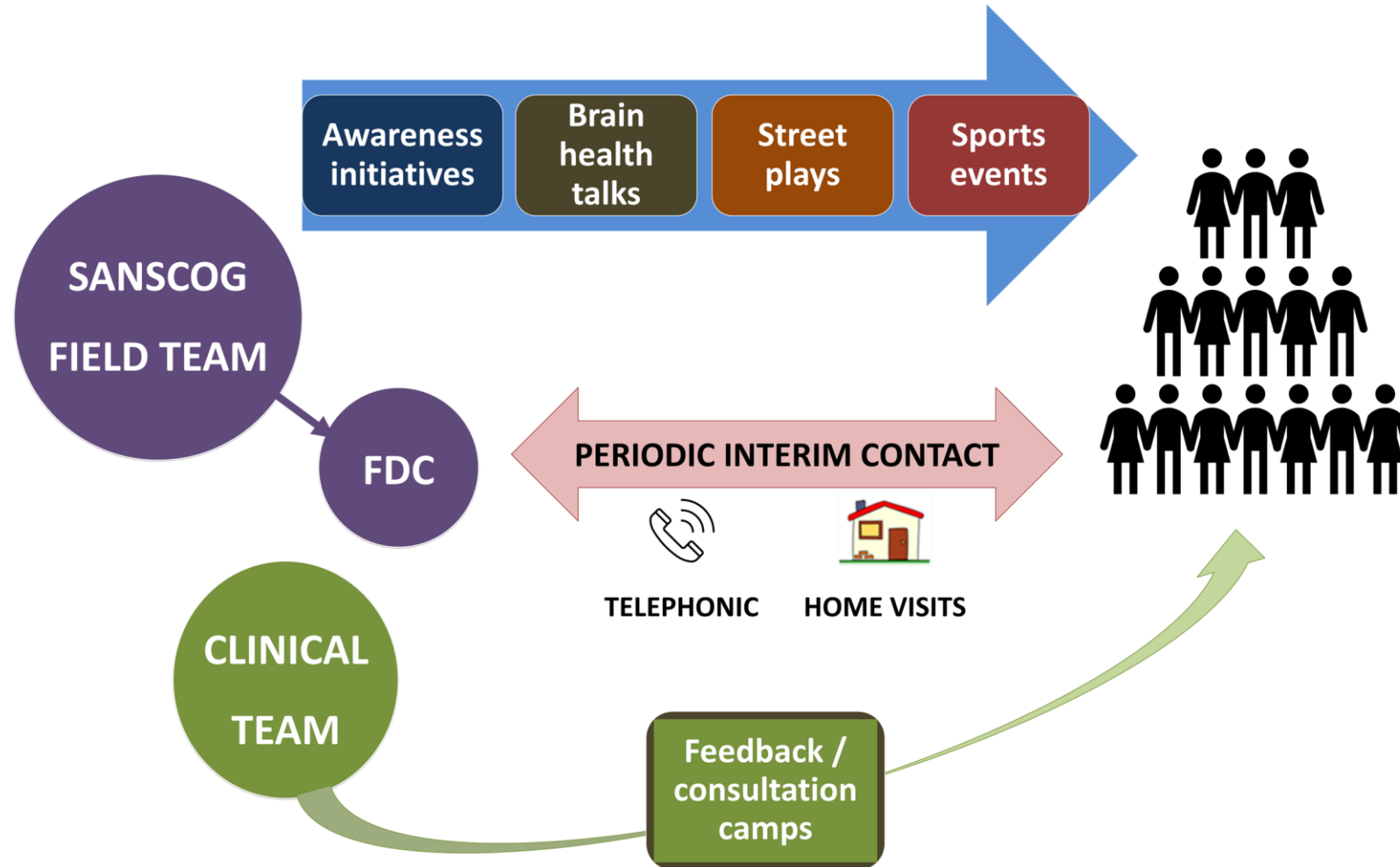


- ✓ Urban / metropolitan
- ✓ Highly educated
- ✓ White collar jobs
- ✓ Multi-lingual
- ✓ High migration

# Unique recruitment strategy in SANSCOG



# Cohort engagement / retention strategies in SANSCOG



# Research at the doorstep - Mobile Unit

- To carry out assessments at the convenience of the participants' doorstep
- Fully-equipped to do entire clinical and cognitive assessments





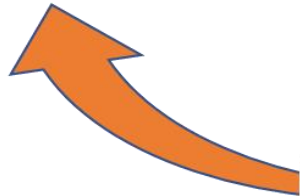
# SANSCOG Study Protocol



**Awareness camp  
@Village**



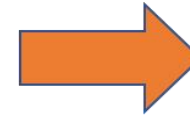
**Home visit**



**Mobile Unit**



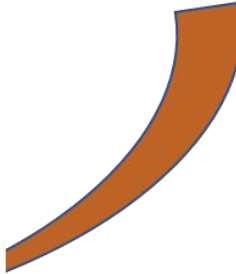
**Assessment Centre  
@Srinivaspura**



**Centre for Brain Research, IISc**



**Blood collection camps  
@Village**



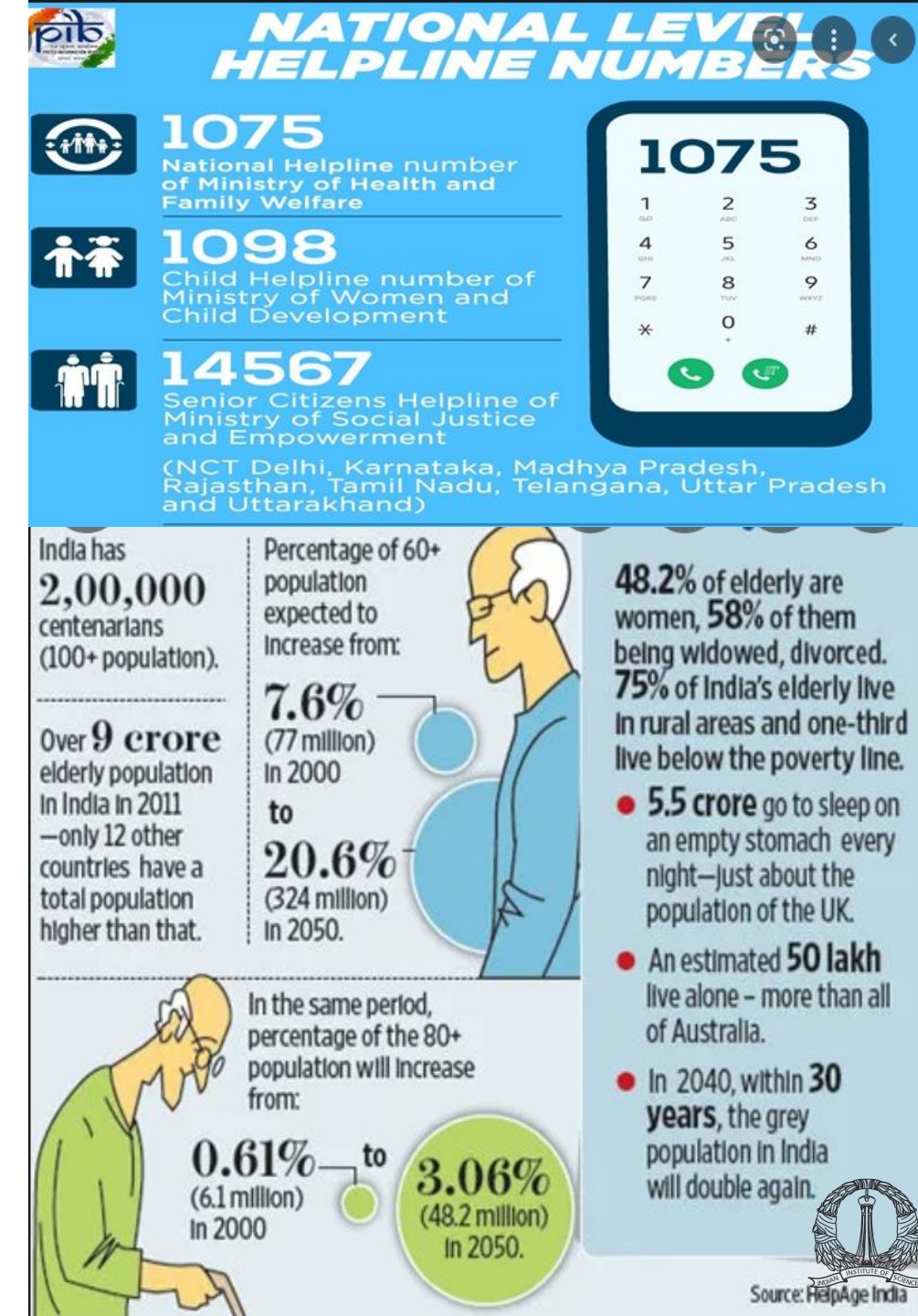
# Tata Longitudinal Study of Aging (TLSA)

Dr. Thomas Gregor Issac  
Associate Professor, CBR, IISc

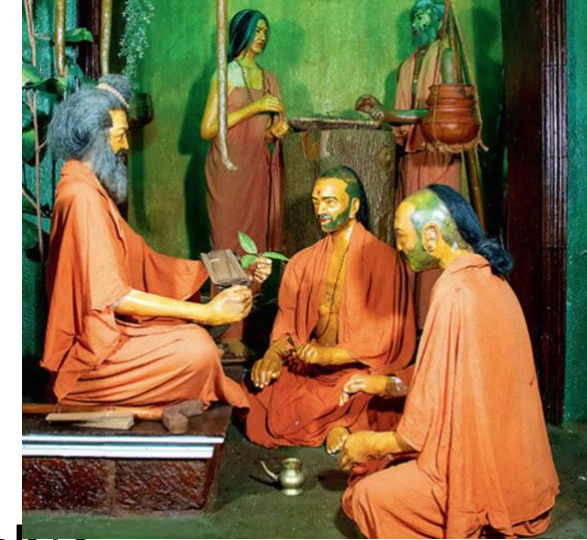


# Measures in India for elderly

- Government of India's National Policy on Older Persons 1999
- Maintenance and Welfare of Parents and Senior Citizens Act, 2007 and
- National Policy for Senior Citizens 2011
- The National Programme for Health Care of Elderly  
Why this hand holding? – Physical and Psychological homeostenosis
- Concept of “Super Agers” and “Healthy Ageing”
- Challenges unique to India.
- **Ultimate aim: to improve quality of life and improve community participation.**



# Concept of “Aging” in India



- **Jara/aging** is influenced by many factors
- *Factors* like *Shareera* (physical), *Indriya* (emotional), *Satwa* (psychic level), *Agni* (metabolism) and *Bala/Ojas* (immunity) influence aging.
- **Ahara, Achara and metabolism influences aging**
- Healthy aging would therefore require for the individual to bring in harmonious impressions, incorporate healthy lifestyle practices and routines that promote good health and well-being,.
- It encourages healthy transformation of the body and mind through harmonious choices and actions.
- **Lack of systematic safety and efficacy studies or proof-of-concept trials with regards to Ayurveda, Yoga, meditation etc.**
- **Hence, relegated these age-old Indian concepts of aging to a conceptual model than a practical one.**

# WHY LONGITUDINAL STUDIES?

- **Prevention is better than cure**
- Understanding the normal ageing and obtaining data of a cohort of people is extremely useful- for risk and protective factors along with understanding resilience.
- Similar landmark studies like the **Framingham heart study**
- **Other longitudinal studies in many countries- like ELSA, TILDA, KLSA, Australian studies.**
- Understanding the influence of “Nature” vs “Nurture” in Aging brain.
- Holistic understanding of the biological processes causing dementia is yet unknown
- Following up a valuable cohort of people over time will help in identifying the underpinnings of age associated disorders especially with respect to that of cognition.
- This data is unique , enormous in both magnitude and value.
- The urban cohort in Bengaluru is unique.

# Studies in India

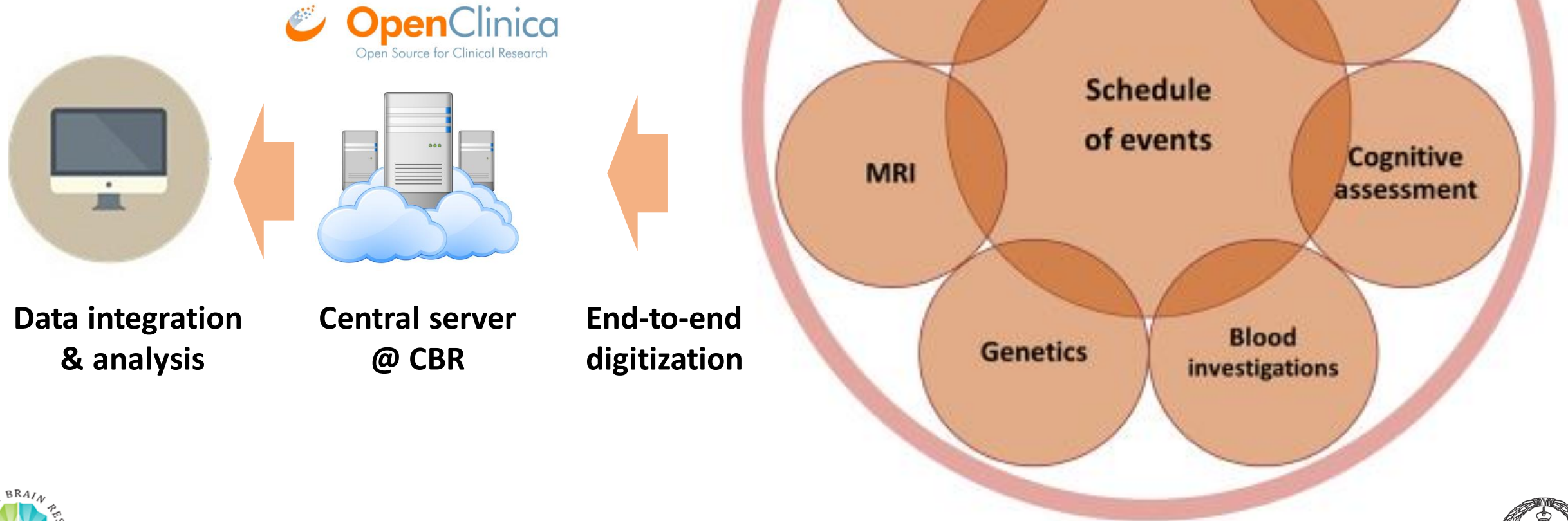
- **NMHS 2016**
- Data from >30,000 individuals
- Mental morbidity – 13.67%
- Treatment gap >80% for all mental health disorders
- **LASI (2021)**
  - Only around 50% of older adults are ‘highly satisfied’ with their lives.
  - health insurance coverage among this cohort is only around 20%.
  - women are more likely to be diagnosed with hypertension, anemia, bronchitis, depression, Alzheimer’s disease
  - Prevalence of dementia at the national level was estimated as 7.4%

# What is TLSA

- Tata Longitudinal Study of Aging, funded by Tata Trusts. Initiated from 2015.
- A longitudinal study assessing cognitive change in the Urban population
- Following up from 45 years of age.
- Baseline visit and annual follow up and reviews in between as well.
- Host of sociodemographic, clinical including cognitive data, neuroimaging and blood biochemistry collected at various time points from healthy volunteers.
- Participant-researcher- clinician team based integrated approach which could improve understanding of several questions of aging and develop appropriate targeted/tailored interventions.



# Multimodal assessments



# **Clinical assessment**

**Diet &  
Lifestyle**

**Physical  
Activity**

**Sleep Quality**

**Medication &  
allergies**

**Substance use**

**Medical history**

**Family history**

**Social  
networking**

**Psychiatric  
assessments**

**Clinical  
Dementia  
Rating**

**Instrumental  
Activities of  
Daily living**

**Neurological  
examination**

**Gait and  
balance  
assessment**

**Hearing  
Screening**

**Ophthalmic  
assessment**

# COGNITO- Computerized Assessment of Information Processing

**Attention**

**Memory**

**Language**

**Visuospatial  
Ability**





# Cognito Tests

## Familiarization Task

### Attention

- Reaction Time
- Auditory Attention
- Visual Attention
- Dual Attention
- Stroop Test

### Memory

- Name List- IR, DR, Recognition
- Name-Face Association Test
- Logical Memory
- Visuospatial Span
- Implicit memory

### Language

- Reading and Syntax comprehension
- Phoneme Comprehension
- Fluency
- Naming and Associations
- Vocabulary

### Visuospatial Ability

- Matrices
- Geometric Figures
- Construction- House and Abstract Drawing

# Brain MRI

**\*Siemens PRISMA 3T MRI  
scanner at IISc, Bangalore**

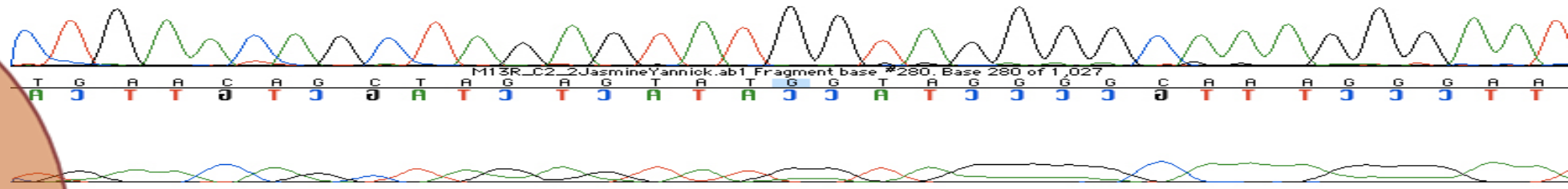
Funded by

**TATA TRUSTS**

- ✓ Structural MRI
- ✓ Resting-state functional MRI
- ✓ Perfusion-weighted MRI
- ✓ Diffusion tractography imaging
- ✓ Magnetic Resonance Spectroscopy



# Genetics



**Genome-wide  
association studies  
(GWAS) array**

**Whole genome  
sequencing\***

**\*Subset in SANSCOG**

**\*All participants in TLSA**

# Data flow setup

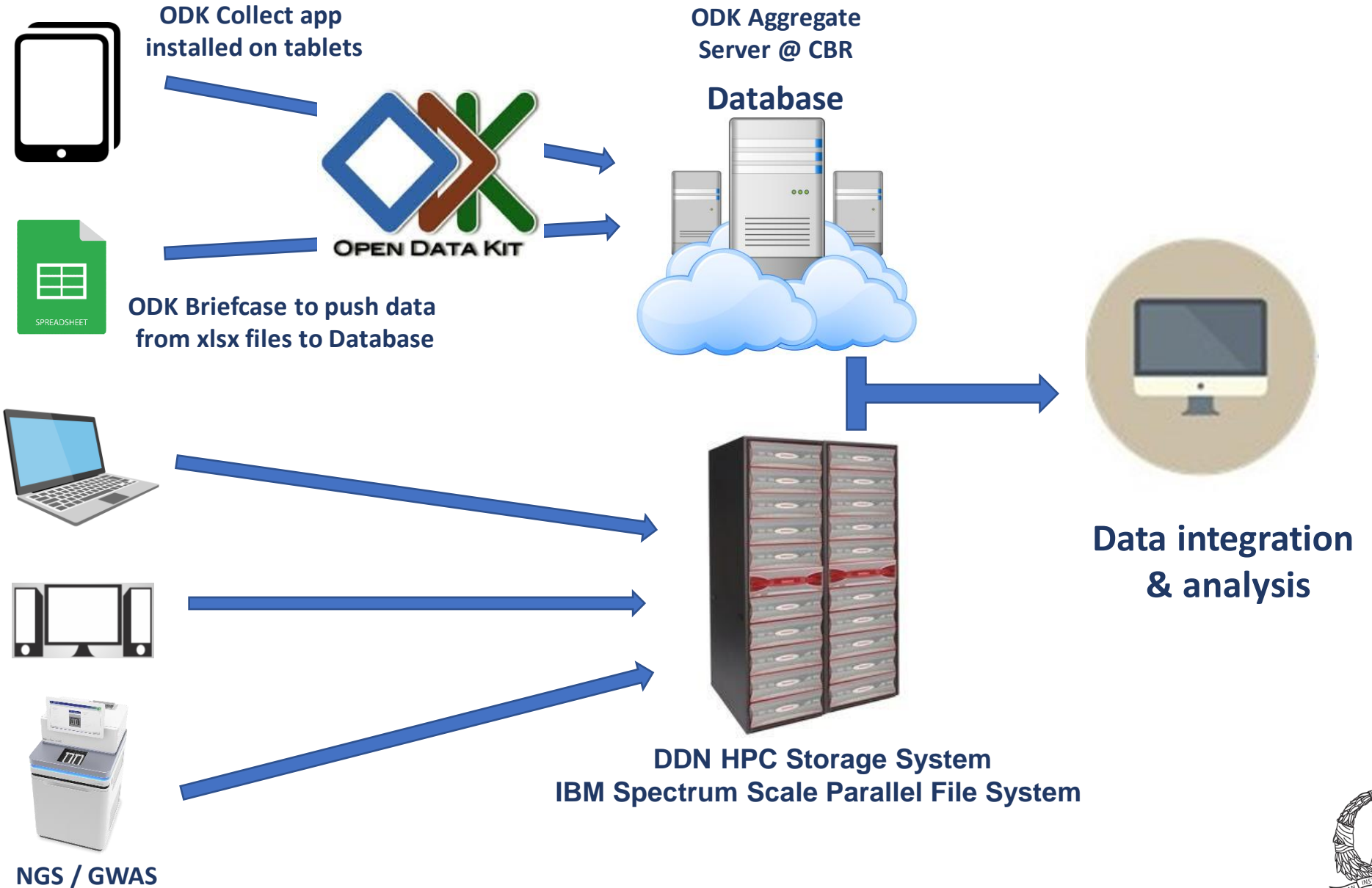
- Home visit
- Clinical assessments

- Blood biochemistry

- Cognitive assessments

- MRI

- Genetic studies

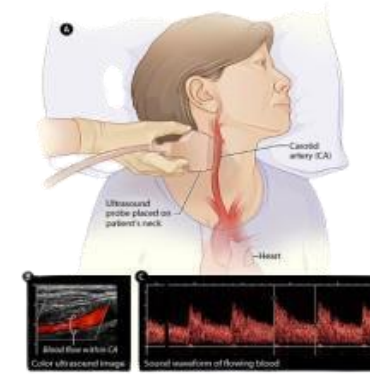


# Recently added specialized assessments

**Eye Biomarkers  
(OCT)**



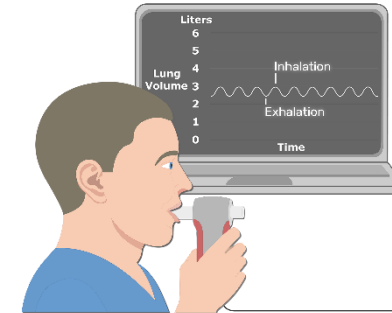
**Cardiovascular  
(Carotid Doppler)**



**Gait &  
Balance**

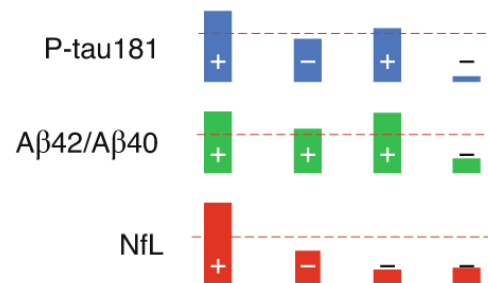


**Pulmonary  
functions  
(Spirometry)**



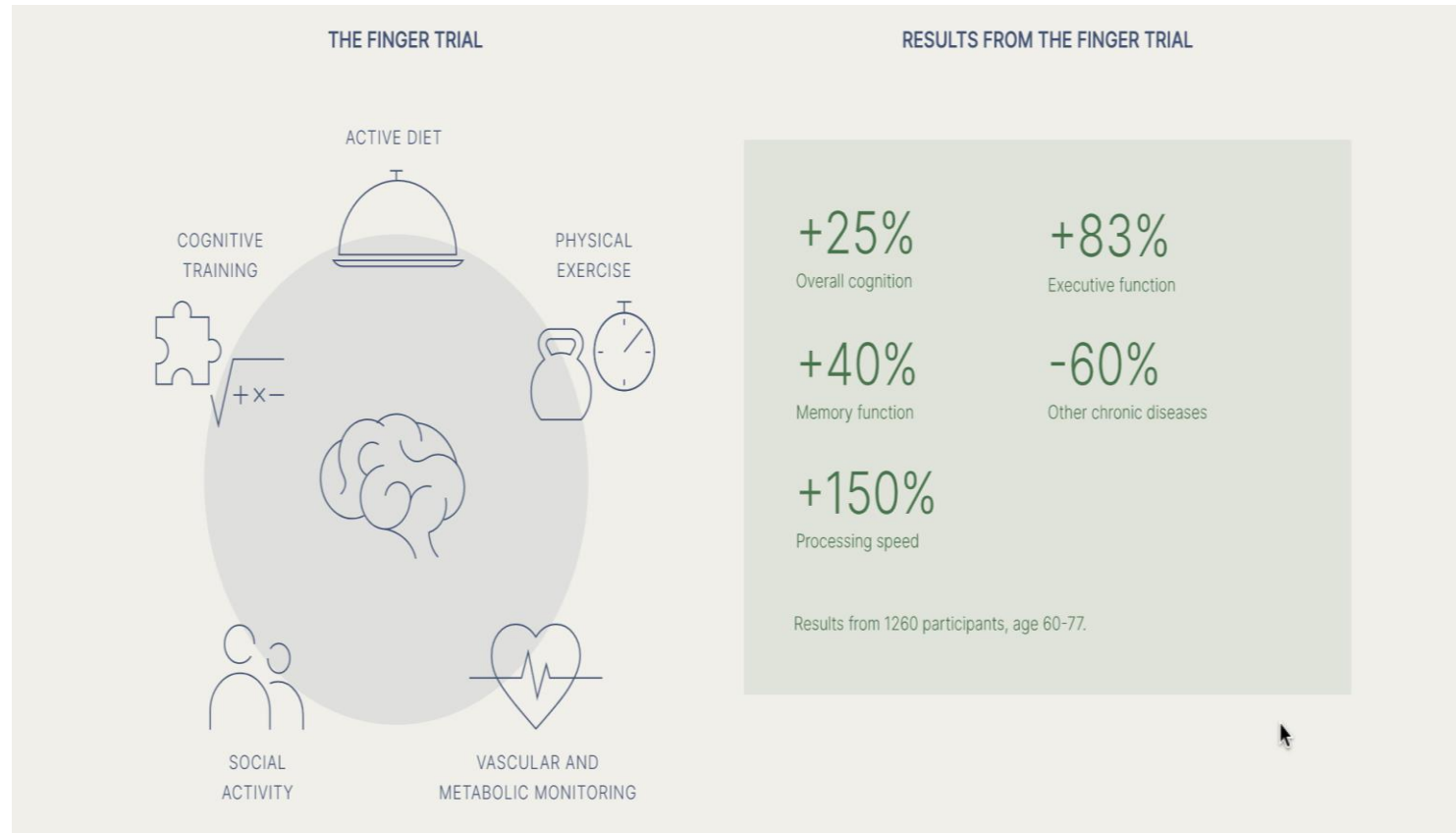
**SANSCOG  
& TLISA**

**Blood  
Biomarkers**



# FINGERS study- 2009 onwards

- **Finnish Geriatric Intervention Study to Prevent Cognitive Impairment and Disability (FINGER)**, a proof-of-concept randomised controlled trial aimed to assess a multidomain approach to prevent cognitive decline in at-risk elderly people from the general population.



# Planned Interventional Study

- Early preventive measures are the way forward as no cure available
- Underlying disease process begins at least 2 to 3 decades prior
- Causation is multifactorial; role of vascular risk factors prominent
- Early lifestyle interventions can prevent or delay onset of dementia

## MULTIMODAL LIFESTYLE INTERVENTION STUDY

### **Dietary intervention**

Customized,  
tailored to local  
culture and region

### **Physical exercise**

Gentle exercises -  
Yoga, walking

### **Cognitive training**

Computer-based  
activities,  
meditation

### **Control of vascular risk factors**

Hypertension,  
Diabetes, Obesity





Thank you



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**After each session there will be an opportunity for Q&A**

# Alzheimer's Awareness Meeting



Early signs of cognitive impairment and treatment options

Dr. Abhishek M L



# Warning signs

1

Memory loss



2

Difficulty performing familiar tasks

3

Problems with language

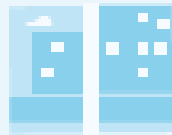
4

Disorientation to time and place



5

Poor or decreased judgement



# Warning signs

6

Problems keeping track of things

7

Misplacing things

8

Changes in mood and behaviour

9

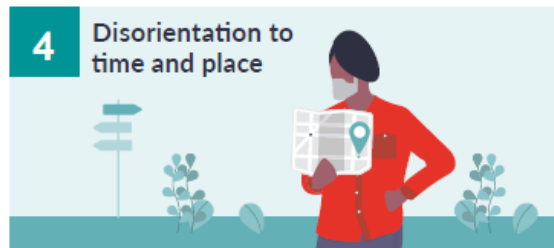
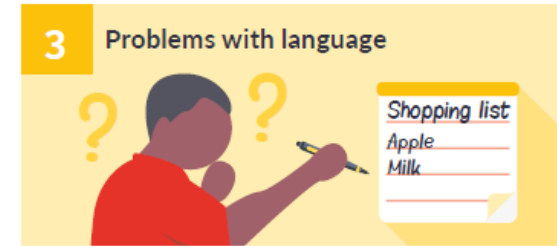
Challenges understanding visual and spatial information

10

Withdrawal from work or social activities



# Warning signs



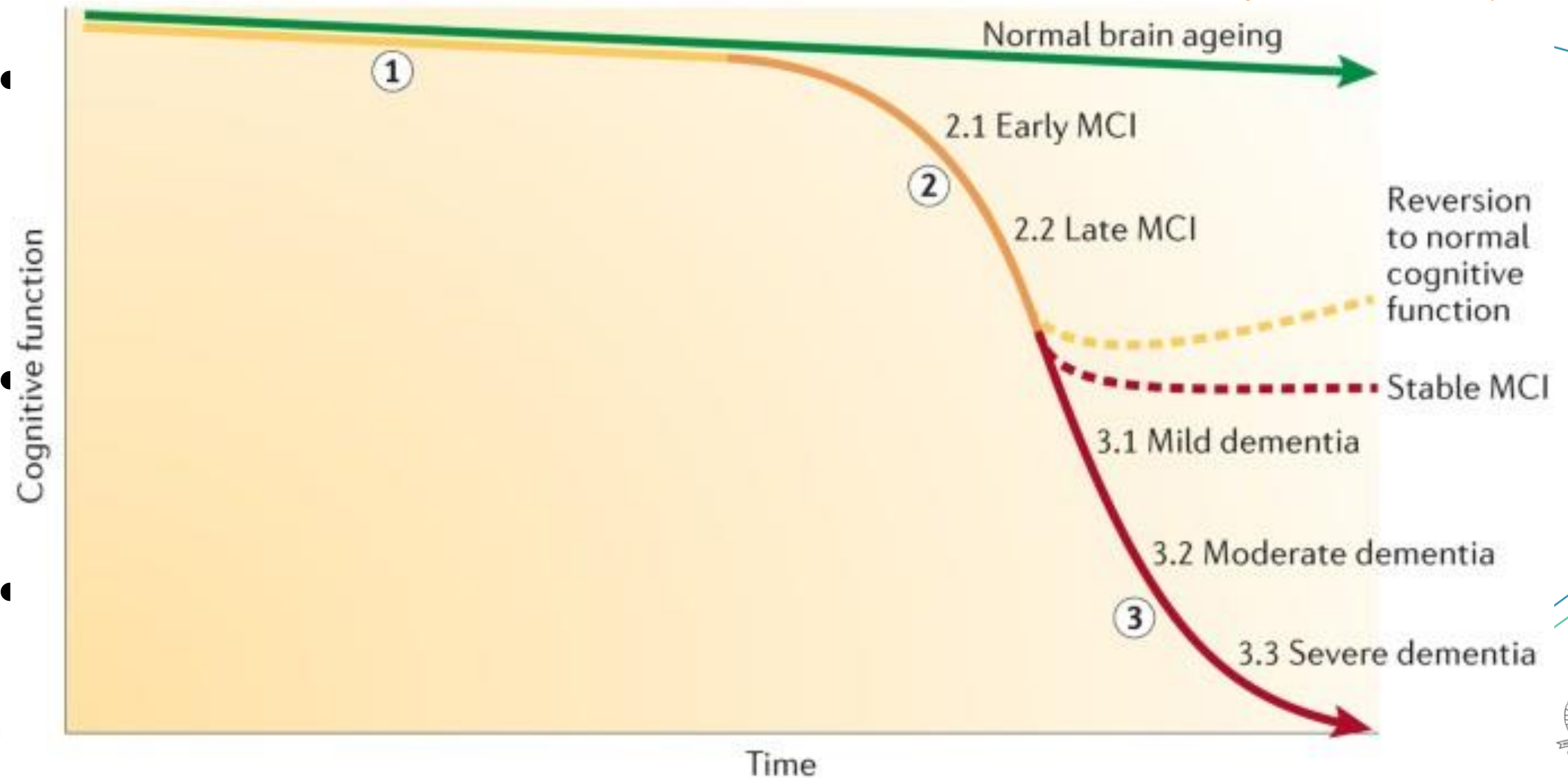
If these signs are new, they may be a sign of dementia.

Dementia is not a normal part of ageing.

Speak to your doctor or contact your dementia and Alzheimer association.

[www.alzint.org](http://www.alzint.org)

# Early signs



# Treatment Options

- No cure or control
- Reversible causes can be identified and treated
- Rate of progression can be reduced
- Behavioural symptoms can be managed

# Treatment Options

- Non pharmacological therapies
- Care giver burden
- Role of dementia village or rehabilitation centres
- Which doctor to consult?
  - Neurologist, Psychiatrist, Geriatrician, Physician



# Early signs and treatment

## Take home message

- Prevention is better
- No cure but some problem symptoms can be managed medically
- Caregiver burden can be addressed

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**After each session there will be an opportunity for Q&A**

# Alzheimer's Awareness Meeting



## Role of complementary medicine in treatment of dementia

Dr. Divya N M



**“Prevention is better than cure”.**  
**Also for Alzheimer's disease!**

**There isn't a cure yet for Alzheimer's disease.**

Identify and controlling risk factors can

- Improve brain health
- Reduce the risk of dementia, or
- Delay its progression if already been diagnosed.

# Healthy lifestyle

- Regular exercise
- Healthy diet
- Mental stimulation
- Quality sleep
- Stress management
- Social engagement
- Vascular health



Certain practices from  
**Complementary and  
Alternative  
Medicine (CAM)** helps to  
maintain healthy lifestyle

# Complementary and Alternative Medicine (CAM)

- Complementary medicine is a group of diagnostic and therapeutic disciplines that are used together with conventional medicine.
- Complementary medicine is different from alternative medicine. Whereas, complementary medicine is used together with conventional medicine.
- Alternative medicine is used in place of conventional medicine.



Complementary and alternative medicine (CAM) includes the following:

- Ayurveda,
- Yoga and naturopathy
- Unani
- Siddha
- Homeopathy

# Regular exercise

Regular physical exercise can reduce the risk of developing Alzheimer's disease by **up to 50%**

- **Moderate intensity exercise - 150 minutes/ week**
- **Vigorous activity – 75 minutes/week**

| Light<br><3.0 METs  | Moderate<br>3.0-6.0 METs   | Vigorous<br>>6.0 METS   |
|---|--|---|
| <ul style="list-style-type: none"><li>•Walking slowly</li><li>•light work (cooking, washing dishes)</li></ul> | <ul style="list-style-type: none"><li>•Walking very brisk (4 mph)</li><li>•Cleaning heavy (washing windows, vacuuming, mopping)</li><li>•Mowing lawn (power mower)</li><li>•Bicycling light effort (10-12 mph)</li><li>•Badminton recreational</li><li>•Tennis</li></ul> | <ul style="list-style-type: none"><li>•Hiking</li><li>•Jogging at 6 mph</li><li>•Carrying heavy loads</li><li>•Bicycling fast (14-16 mph)</li><li>•Basketball game</li><li>•Soccer game</li></ul> |

# Yoga – Moderate intensity activity

**Loosening exercises - 10 Minutes**

**Yogasana 20 Minutes**

Taadasana, Kati-cakrasana, Konasana, Marjari asana,

Vakrasana, Viparitakararini

Bhujangāsana, Ardha shalabhāsana, Pavanamuktāsana,

Setubhandhāsana, shavāsana

**Prānāyāma - 15 Minutes**

Kapālabhāti, Nādishuddhi, Anuloma-viloma

Candrānuloma-viloma, Bhastrikā, Bhrāmari

**Meditation - 15 Minutes**

Indian Journal of Psychiatry

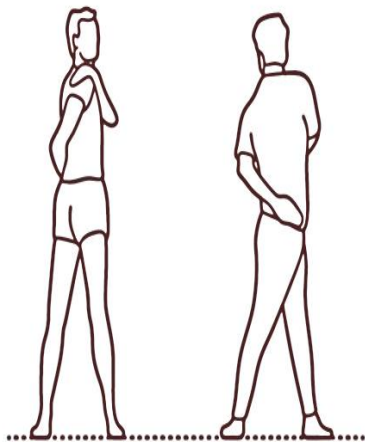
Wolters Kluwer -- Medknow Publications

**Randomized clinical trial of yoga-based intervention in residents from elderly homes: Effects on cognitive function**

V. R. Hariprasad, V. Koparde, [...], and B. N. Gangadhar



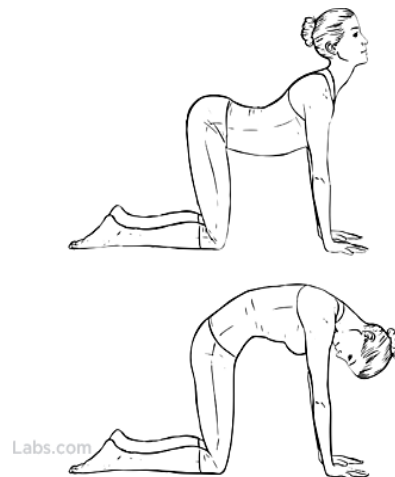
**Katichakrasana**



**Konaasana**



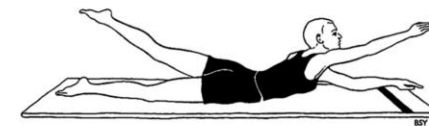
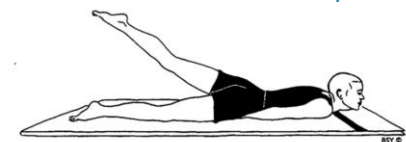
**Marjariasana**



**Vakraasana**



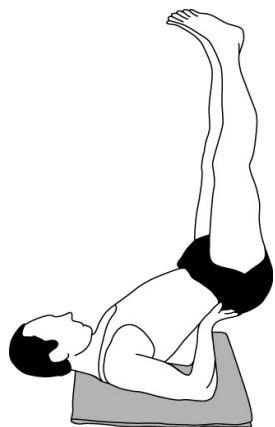
**Ardhashalabhasana**



**Shavasana**



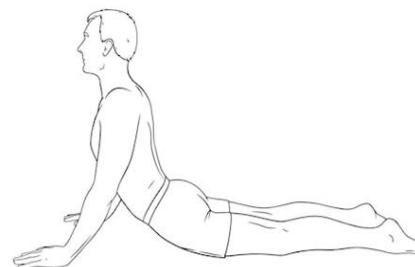
**Viparitakarini**

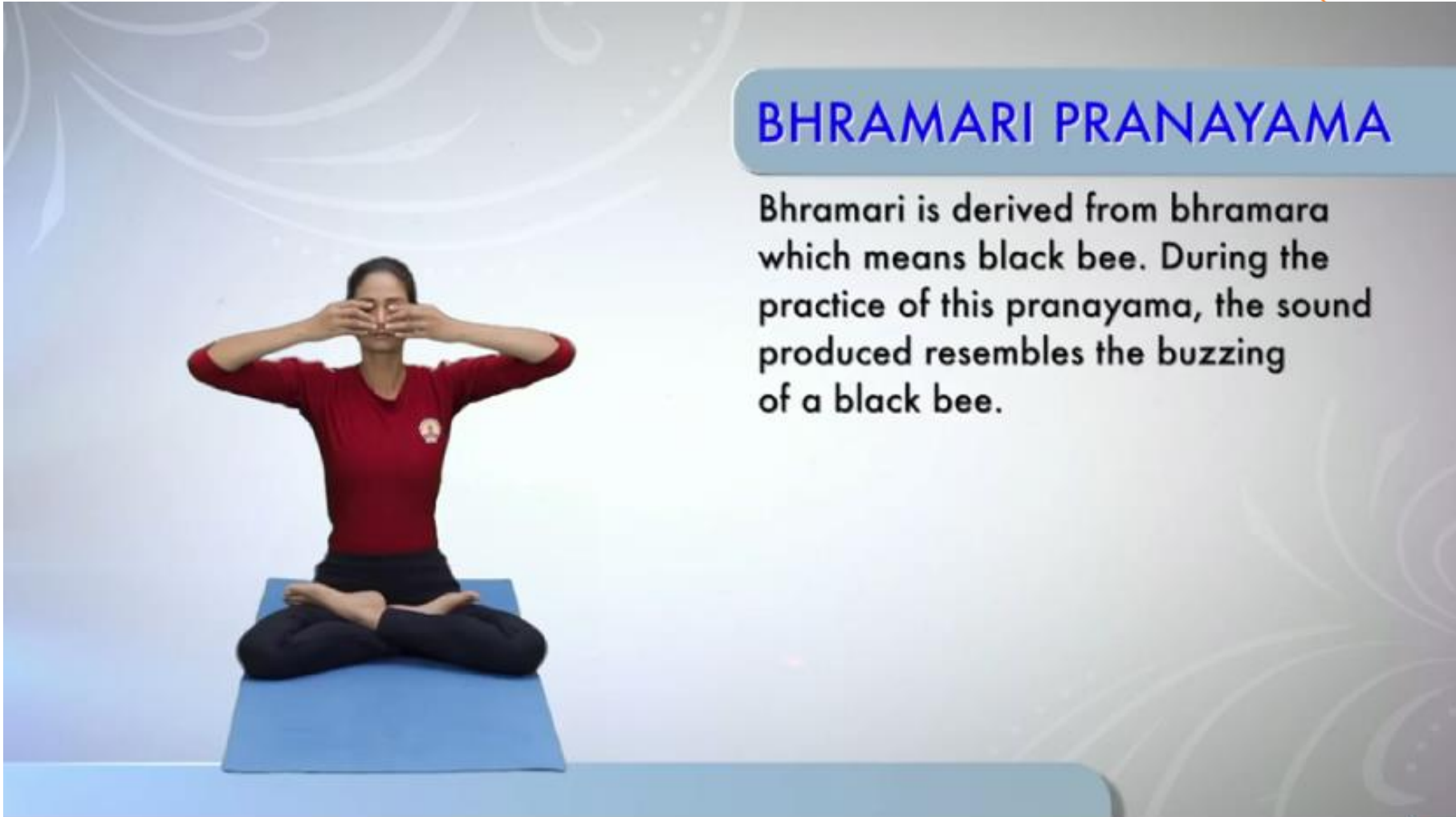


**Pavanamuktasana**



**Bhujangasana**





<https://www.youtube.com/watch?v=hR2ewXJIZSo>

<https://www.youtube.com/watch?v=d324ZzE-uXc>



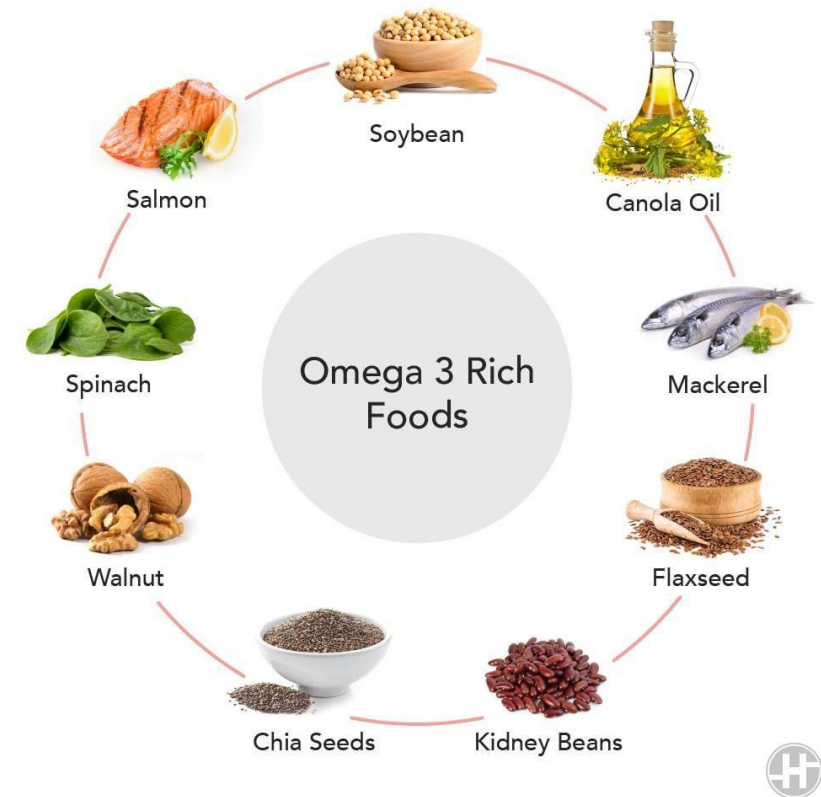
# Healthy diet

## Balanced diet

- Plenty of green leafy vegetables
- Seasonal fruits
- Whole grains
- Pulses
- Low fat dairy products
- Fish, lean meat

Foods rich in Vitamin E, B12 & Omega 3 fatty acids

- **Cut down on sugar.**
- Sugary foods & refined carbs - white flour, white rice, and pasta can lead to dramatic spikes in blood sugar



# Almonds and cognition

Research Article

## **Effects of daily almond consumption for six months on cognitive measures in healthy middle-aged to older adults: a randomized control trial**

Jelena Mustra Rakic, Jirayu Tanprasertsuk ,

Tammy M. Scott, Helen M. Rasmussen, Emily S. Mohn,  
C.-Y. Oliver Chen & ...show all

Pages 1466-1476 | Published online: 15 Jan 2021

# Mental stimulation

Continue learning new things and challenge your brain

- Learn something new
- Raise the bar for an existing activity
- Practice memorization techniques
- Enjoy strategy games, puzzles, and riddles.

**“Use it or lose it.”**

# **Herbs to enhance cognitive function and to alleviate other symptoms of AD**

# Ashwagandha (ಅಶ್ವಗಂಧಾ)

- *Withania somnifera*
- Commonly called Indian ginseng or winter cherry
- Evergreen shrub



J Diet Suppl  
, 14 (6), 599-612  
2017 Nov 2

**Efficacy and Safety of Ashwagandha (Withania Somnifera (L.) Dunal) Root Extract in Improving Memory and Cognitive Functions**

[Dnyanraj Choudhary](#)<sup>1</sup>, [Sauvik Bhattacharyya](#)<sup>2</sup>, [Sekhar Bose](#)<sup>2</sup>

# Brahmi (ಬ್ರಹ್ಮಿ)

- *Bacopa monnieri*
- Perennial creeper
- Found in the damp and marshy wetlands



Indian Journal of Psychiatry

Wolters Kluwer -- Medknow Publications

**Randomized controlled trial of  
standardized *Bacopa monniera*  
extract in age-associated memory  
impairment**

Sangeeta Raghav, Harjeet Singh, [...], and O.P.  
Asthana



# *Ginkgo Biloba* (ಗಿಂಕ್ಕೊ ಬಿಲೋಬ)

- Large tree with fan-shaped leaves



 **frontiers**  
in Pharmacology

MINI REVIEW  
published: 21 February 2020  
doi: 10.3389/fphar.2019.01688



## An Updated Review of Randomized Clinical Trials Testing the Improvement of Cognitive Function of *Ginkgo biloba* Extract in Healthy People and Alzheimer's Patients

Haolong Liu<sup>1,2</sup>, Min Ye<sup>1\*</sup> and Hongzhu Guo<sup>2\*</sup>

<sup>1</sup> School of Pharmaceutical Sciences, Peking University, Beijing, China, <sup>2</sup> Beijing Institute for Drug Control, NMPA Key Laboratory for Quality Evaluation of Traditional Chinese Medicine (Traditional Chinese Patent Medicine), Beijing Key Laboratory of Analysis and Evaluation on Chinese Medicine, Beijing, China



# Shankhpushpi (ಶಂಖಪುಷ್ಪಿ)

- *Convolvulus pluricaulis*



Effect of Convolvulus pluricaulis Choisy.  
and Asparagus racemosus Willd on  
learning and memory in young and old  
mice: A comparative evaluation

May 2010 · Indian Journal of Experimental Biology 48(5):479-85

# Turmeric (ಅರಿಶಿನ)

- *Curcuma longa*



OPEN ACCESS Freely available online



## Formulation of a Medical Food Cocktail for Alzheimer's Disease: Beneficial Effects on Cognition and Neuropathology in a Mouse Model of the Disease

Anna Parachikova<sup>1</sup>, Kim N. Green<sup>1</sup>, Curt Hendrix<sup>2</sup>, Frank M. LaFerla<sup>1\*</sup>

<sup>1</sup> Department of Neurobiology and Behavior, Institute for Memory Impairments and Neurological Disorders, University of California Irvine, Irvine, California, United States of America, <sup>2</sup> Akeso Health Sciences LLC, Westlake Village, California, United States of America

# Quality sleep

- Establish a regular sleep schedule
- Create a relaxing bedtime ritual
- Avoid taking naps if you can
- Avoid large meals, caffeine, and alcohol before bedtime
- Exercise daily.



# Certain procedures which helps to get proper sleep

## Foot massage



## Oil pouring



## Brahmari pranayama



# Stress management

- **Breathing exercises or pranayama**



Alternate Nostril Breathing ·  
Nadi Shodhana Pranayama

- Relaxation techniques - meditation, progressive muscle relaxation, or yoga
- Relaxing/soothing music
- Engaging in hobbies





# Social engagement

Human beings are highly social creatures. We don't thrive in isolation, and neither do our brains.

- Volunteer.
- Join a club or social group.
- Visit local community center or senior center.
- Take group classes (such as at the gym).
- Get to know your neighbors.
- Get out (go to the park, museums, and other public places).

# Vascular health

**“What’s good for your heart is also good for your brain”**

Take care of your vascular health

- Diabetes
- Hypertension
- Control cholesterol
- Stop smoking

**“Get regular check up”**

# Conclusion

- Numerous alternative medicines are touted as being beneficial for Alzheimer's disease.
- Further research need to be done in this regard
- Avoid taking any of these medicines over the counter

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# Alzheimer's Awareness Meeting



## Caregiving and recent updates in dementia care

Ms. Meenakshi Menon

Ms. Meghana R

Ms. Rajitha Narayanasamy



# Alzheimer's Awareness Meeting



## Caring for Persons with Dementia

Ms. Meenakshi Menon





# The Challenges and Rewards of Dementia Care

- **Experiences of caregiving for someone with dementia:**  
Feelings of overwhelm, stress, anxiety etc
- **Family caregiving:** Role of women, family members as hands on health providers
- **Caregiver's journey:** Not only huge challenges, but also many rich, life-affirming rewards: **Caregiving as a pure expression of love, changed perspective on life.**
- Assessing the impact of caregiving: **Caregiver Burden Scale**



# Signs of Caregiver Burnout

- **Caregiver burnout:**

Fatigue, stress, anxiety when caregivers don't get the help they need or if they are doing more than they are able, physically or financially

- **Signs of caregiver burnout:**

- ❑ Emotional and physical exhaustion
- ❑ Loss of interest in activities
- ❑ Withdrawal from social interactions
- ❑ Disturbed sleep and/or appetite
- ❑ Getting sick more often
- ❑ Feeling blue, irritable, hopeless and helpless



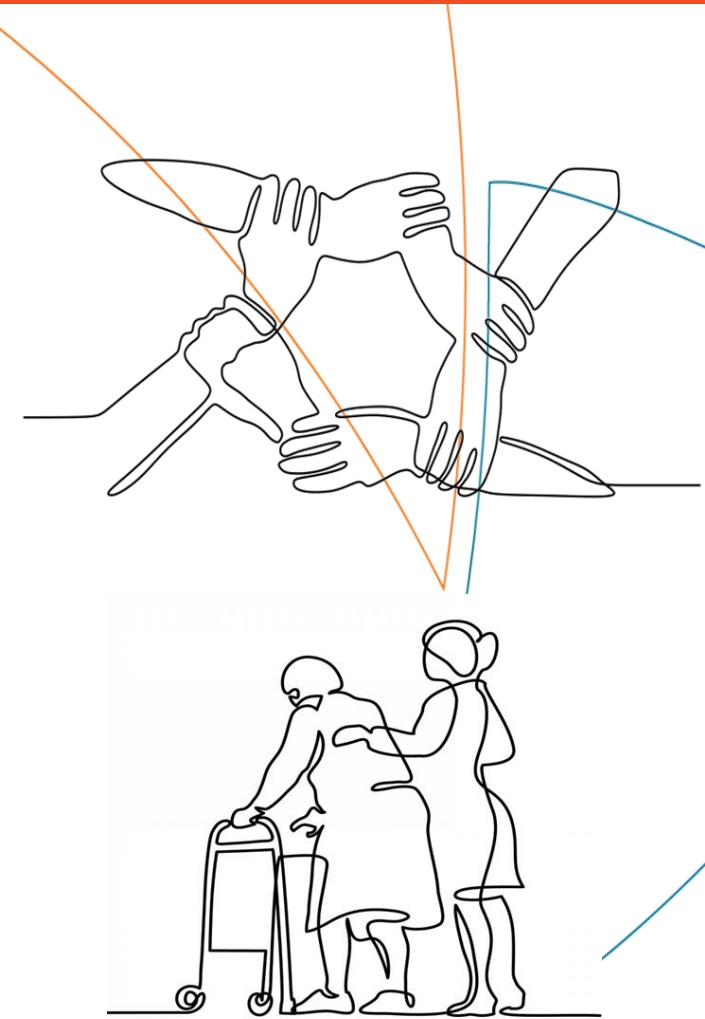
# Preventing Caregiver Burnout

- **Preventing caregiver burnout:**
  - ❑ Self care (taking breaks, spending time with friends, engaging in relaxation, setting limits for what you can do)
  - ❑ Setting realistic goals (SMART- Specific, Measurable, Attainable, Relevant, Time-based)
  - ❑ Availing additional help if needed
  - ❑ Talking to a professional



# Support and Resources for caregivers

- **Dementia Support Groups:** Dementia support groups in Bangalore: Samvedna Senior Care, Nightingales Medical Trust, NIMHANS (iSupport Programme for caregivers of people with Dementia)
- **Dementia day care and residential centres:** Nightingales Medical Trust, NIKISA Dementia Village
- **ARDSI Bangalore chapter dementia helpline:** 96634 26565
- **Dementia caregiver resources across India:**  
<https://dementiacarenotes.in/resources/india/>



# Alzheimer's Awareness Meeting



## Cognitive Stimulation and other Interventions

Ms. Meghana R





# Interventions for People with Dementia



<https://www.youtube.com/watch?v=5T93S9a1IBM>

Source: My Moment Of Joy - MHA Music Therapy (2019, September 26). YouTube.



# Music Therapy

- In music therapy, therapists work with individuals or groups using musical expression to evoke memories, feelings, and sensations.
- Improves mood and promotes well being.
- Improves social interactions with caregivers and may also decrease caregiver distress.



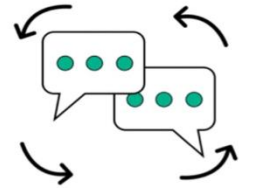
# Cognitive stimulation

- Visualization.
- Playing card games or board games
- Crossword and jigsaw puzzle
- Sudoku and chess
- Social Engagement
- Learning new skills

Cognitive training



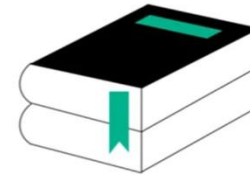
Social networks



Board games



Reading books



Solving puzzles



Few brain training apps available out there:

- Lumosity, Peak , Elevate and Cognifit Brain Fitness

# Reminiscence Therapy

- Encourages people to revisit moments from their past.
- Revisiting previous family holidays, weddings etc with the help of photos and videos.
- Improves behavior, well-being, motivation, social interaction and self-care.



# Alzheimer's Awareness Meeting



## Legal Frameworks and Recent Updates in Dementia Care

Ms. Rajitha Narayanasamy



# Legal frameworks related to dementia – An Indian Scenario

## **The National Trust Act (1999)**

Guardianship – managing investments, banking transactions

## **Rights of persons with disabilities act (2016)**

Guardianship, Disability welfare and social benefits provision

## **Mental Healthcare Act (2017)**

Nominate representative, Advance directive

## **Section 80DDB of Income-tax Act**

Tax deduction for medical expenditures

## **Pradhan Mantri Jan Arogya Yojana (PM-JAY)**

5 lakh Insurance coverage benefits every year

# Legal frameworks related to dementia – An Indian Scenario



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## **National Social Assistance Program (NSAP)**

- National Old Age Pension Scheme (NOAP)
- IGNOPS

## **Maintenance and Welfare of Parents and Senior Citizens Act**

## **National Policy on Older Persons**

## **National Policy for senior citizens**

## **Health Insurance**

- Critical Illness Insurance for Alzheimer's Disease
- Covers hospitalization expenses



# Recent updates in dementia



Blood test for detection of AD  
( Li et al, 2022 )



New drugs approved by FDA- Aducanumab  
(Alzheimer's association, 2021)



Occular markers – promising diagnostic target for AD  
(Klyucherev et al, 2022)

# Recent updates in dementia



Antibody-based therapy  
(Cedernaes, J. et al., 2014)



New type of dementia – LATE (Limbic-predominant age-related TDP-43 encephalopathy)

# Quick Recap

ಬುದ್ಧಿಮಾಂದ್ಯತೆ (Dementia) ರೋಗಿಗಳ ಆರೈಕೆದಾರರ ಪಾತ್ರ

- ಕುಟುಂಬ ಸದಸ್ಯರಿಂದ ಆರೈಕೆ
- ಆರೈಕೆ ನೀಡುವವರಿಗೆ ಆಗುವಂತಹ ಒತ್ತಡಗಳು

ಬುದ್ಧಿಮಾಂದ್ಯತೆ (Dementia) ಕಾಯಿಲೆಗೆ ಸಂಬಂಧಿಸಿದ ಕೆಲವು ಥರಪಿಗಳು

- ಸಂಗೀತ ಚಿಕಿತ್ಸೆ
- ಅರಿವಿನ ಪ್ರಚೋದನೆ
- ನೆನಪಿನ ಚಿಕಿತ್ಸೆ

ಬುದ್ಧಿಮಾಂದ್ಯತೆಗೆ (Dementia) ಸಂಬಂಧಿಸಿದ ಕೆಲವು ಕಾನೂನು ಚೌಕಟ್ಟುಗಳು

- ರಾಷ್ಟ್ರೀಯ ಯೋಜನೆಗಳು : ಹಿರಿಯ ನಾಗರಿಕರಿಗೆ
- ಆಲ್ಫ್ರೆಡ್ ಮರ್ ಪೀಡಿತ ವ್ಯಕ್ತಿಗಳಿಗೆ

## Program Schedule

|                |   |
|----------------|---|
| 2:00 - 2:10 PM | <b>Welcome remarks:</b> Prof. Y Narahari  |
| 2:10 - 2:20 PM | <b>Inaugural Address and Release of CBR Currents by Donor:</b> Dr. Kris Gopalakrishnan                  |
| 2:20 - 2:50 PM | <b>Introduction to dementia (English &amp; Kannada):</b> Dr. Prathima / Dr. Palash / Mrs. Sunitha       |
| 2:50 - 3:00 PM | <b>Role of longitudinal studies in dementia from India:</b> Dr. Thomas and Dr. Jonas                    |
| 3:00 - 3:25 PM | <b>Early signs of cognitive impairment and treatment options:</b> Dr. Abhishek M L                      |
| 3:25 - 3:30 PM | <b>Break</b>  |
| 3:30 - 3:55 PM | <b>Role of complementary medicine in treatment of dementia (English &amp; Kannada):</b> Dr. Divya       |
| 3:55 - 4:25 PM | <b>Caregiving and recent updates (English &amp; Kannada):</b> Ms. Meenakshi / Ms. Meghana / Ms. Rajitha |
| 4:25 - 4:30 PM | <b>Vote of thanks:</b> Dr. Prathima   |

**After each session there will be an opportunity for Q&A**