

Establishing a Dementia Prevention Framework in Rural India: The SMRUTHI Cohort’s Baseline View

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- In a cohort of 3000 cognitively normal older adults (age ≥ 55 years), CAIDE ≥ 6, residing in rural India, we found a high prevalence of low education and vascular risk factors.
- Hearing loss (OR: 6.55), lower education (OR: 6.20), poor sleep quality (OR: 3.51), alcohol use (OR: 3.20), and low social network index (OR: 2.43) were significant independent predictors of cognitive impairment (p < 0.05) in this cohort where all strokes, systemic and neurological diseases were excluded at baseline.

INTRODUCTION

- Dementia prevention in rural India is challenged by lack of high-quality data, low-literacy, and lifestyle factors.

- Objectives: To describe risk associations of **cognitively healthy** participants **aged ≥55 years**, having Cardiovascular Risk Factors, Aging and Incidence of Dementia (**CAIDE**) **score ≥ 6** from four diverse rural Indian regions. We have excluded participants diagnosed with dementia, significant medical and psychiatric illnesses, vision, hearing or communication problems, and types of stroke.
- We have established a cohort of 3000 cognitively normal (CDR sum of boxes score zero) participants (Gupta et al., 2025).

Figure 1: Geographical location of four zones

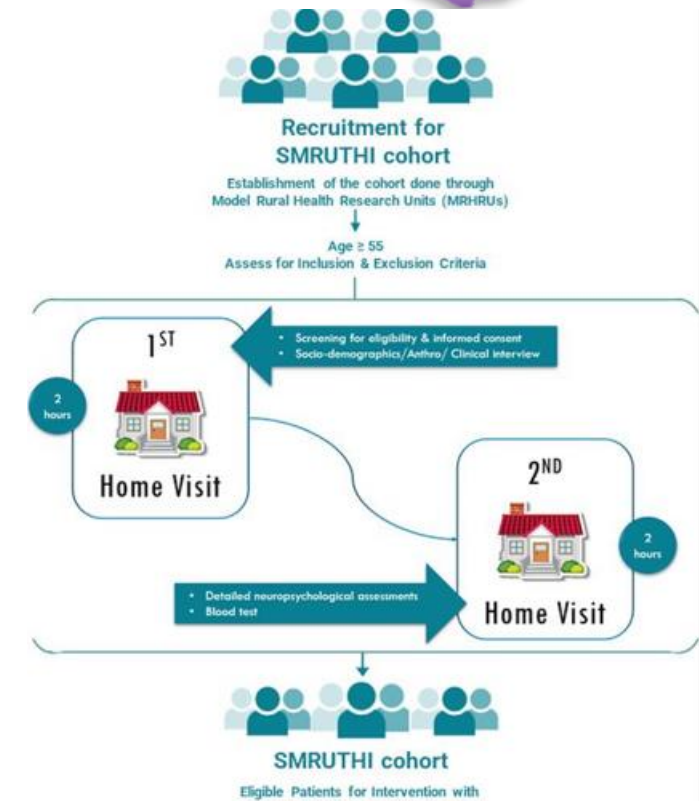
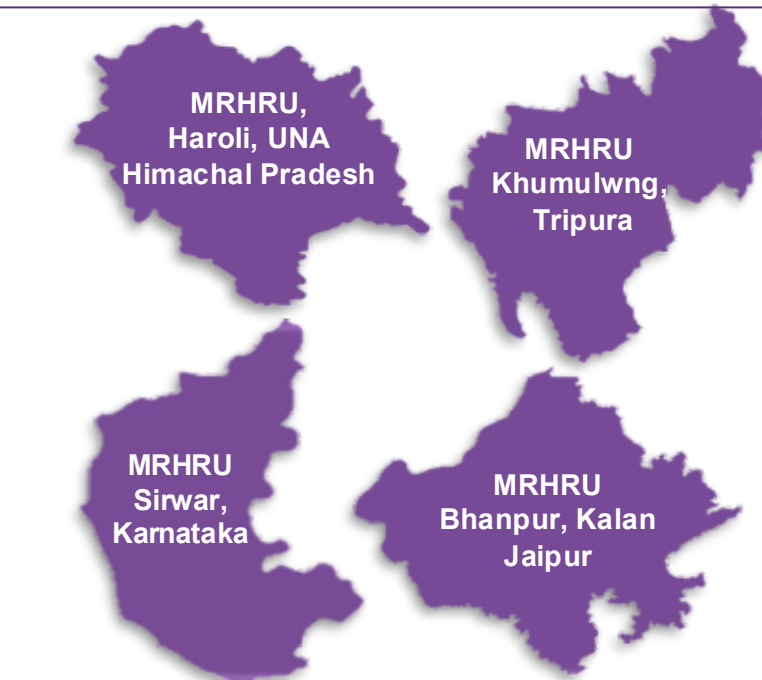
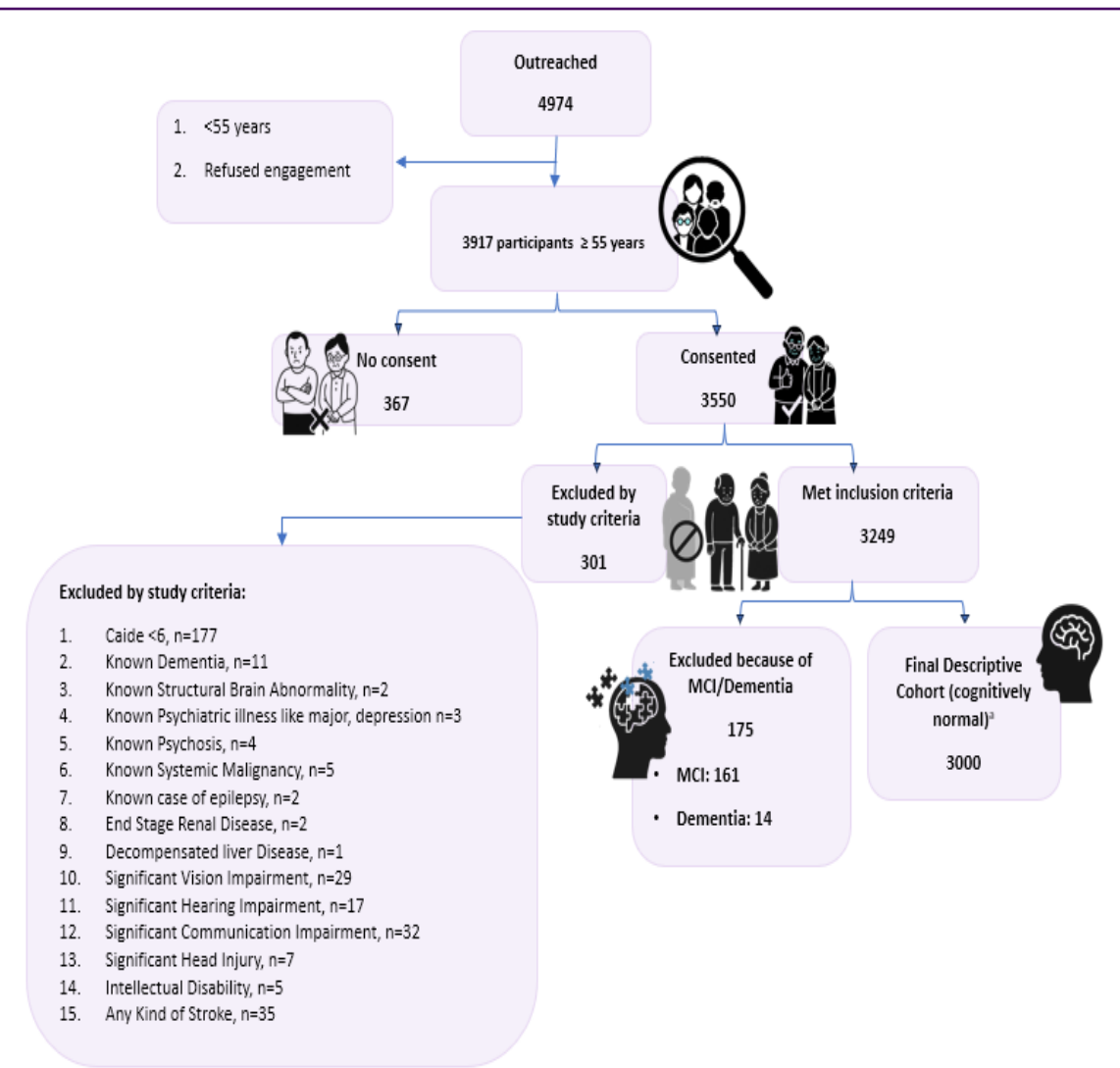


Figure 2: Strategy followed for recruitment of SMRUTHI Cohort

Figure 3: Study flow diagram for SMRUTHI Cohort Recruitment



Note: 74 missing data

Variables	Measurement
Known hypertension	Self-reported and measured
Known diabetes	Self-reported and measured
Blood investigations	Random/fasting blood glucose, total cholesterol
Obesity	Body mass index>30
Smoking	Fagerstrom Test for Nicotine Dependence
Alcohol consumption	Cut Annoyed Guilty and Eye
Coronary artery disease	Self-reported
Cerebrovascular disease	Self-reported
Head injury	Self-reported
Social support	Social Networking Index (SNI)
Nutrition	Mediterranean-DASH Diet intervention for Neurodegenerative Delay (MIND) Diet
Physical activity	Global Physical Activity Questionnaire
Sleep quality	Pittsburgh Sleep Quality Index
Depression	Patient Health Questionnaire - 9
Quality of Life	36-Item Short Form Health Survey (SF-36)
Cognitive assessments	Addenbrooke’s cognitive examination III (literate and illiterate version), Informant Questionnaire on Cognitive Decline in Elderly, Subjective cognitive decline interview, Instrumental activities of daily living – Elderly, Verbal Learning Test, Category Fluency Test, Trail Making Test, Picture Naming Test, Indian Stick Design Test, Clinical Dementia Rating

Table 1: Percentage Distribution of Participants according to their Socio-Demographic Characteristics

Risk factors	Frequency (Percentage) and Mean± SD or Median (IQR)
Age	65.1 ± 7.7
Literates (Completed middle school: ≥ 8 years of formal school education)	437 (14.6)
Occupation (skilled)	525 (21.2)
Currently Married	2064 (68.8)
Homemaker	1646 (54.9)
Non-nuclear family	2101 (70)
BMI < 18.5	487 (16.3)
Normal (18.5-22.9)	1040 (34.8)
Overweight (23-24.9)	502 (16.8)
Grade I Obese (25-29.9)	705 (23.6)
Grade II Obese (≥ 30)	256 (8.6)
Median (IQR)	22 (20, 26)
Known Hypertension	974 (32.5)
Participants with SBP ≥ 140 or DBP ≥ 90 after 2 separate readings (excludes known cases)	734 (36.3)
Known Diabetes	355 (11.8)
Participants with FPG ≥ 126 or RBG ≥ 200 (excludes known cases)	131 (7.9)
Coronary Artery Disease	61 (2)
Vision impairment Yes, but not corrected	150 (5)
Hearing impairment Present	18 (0.6)
Alcohol Consumption Yes, within the last 12 months	377 (12.6)
Smoking (cig/bidi) Current (within last 12 months)	827 (27.6)
Other Substances Yes	523 (17.4)
PHQ 9	2 (1, 4)

Note: *<8 years of formal education

CONCLUSION

The SMRUTHI cohort highlights low literacy, high vascular and lifestyle risks, emphasizing the need for studies representing the diversity of India and tailored multidomain dementia prevention interventions.

REFERENCES

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