

Frailty among middle-aged and older women and men in India: Findings from Wave 1 of the Longitudinal Aging Study in India

Supplementary Table & Figure legends

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S10 Table. Distribution of frailty deficit scores in middle-aged and older adults, frail and overall.

S1 Fig. Flowchart presenting selection of participants for analyses.

S2 Fig. Distribution of frailty index and cognition score among 45-plus participants. A) Frailty index had a mean value of 0.18 and standard deviation (SD) of 0.13, with values ranging from 0-0.83 and a median (IQR) of 0.14 (0.08, 0.25). The dotted line presents the cut-off 0.25. **B)** Composite cognition score value ranges from 4 to 43, with a mean of 27.01 (SD=6.36) and a median of 27 (IQR = 22,32). Poor cognition is defined as cognition score \leq 18 (10th percentile marked as dotted line in the graph).

S3 Fig. Missingness in deficit scores. Mobility1:Walking 100 yards; Mobility2:Sitting for 2 hours or more; Mobility3:Getting up from a chair after sitting for long period; Mobility4:Climbing one flight of stairs without resting ; Mobility5:Stooping, kneeling or crouching; Mobility6:Reaching or extending arms above shoulder level (either arm); Mobility7:Pulling or pushing large objects; Mobility8:Lifting or carrying weights over 5 kilos, like a heavy bag of groceries; Mobility9:Picking up a coin from a table; Activities of Daily Living (ADL) 1:Dressing, including putting on chappals, shoes, etc.; ADL2:Walking across a room; ADL3:Bathing; ADL4:Eating; ADL5:Getting in or out of bed; ADL6:Using the toilet, including getting up and down; ADL7:Preparing a hot meal (cooking and serving); ADL8:Shopping for groceries; ADL9:Making telephone calls; ADL10:Taking medications; ADL11:Doing work around the house or garden; ADL12:Managing money, such as paying

bills and keeping track of expenses; ADL13: Getting around or finding address in unfamiliar place.

S4 Fig. Prevalence of frailty across states, in middle-aged and elderly men and women. Individuals with frailty index > 0.21 were considered as frail. Prevalence estimates are weighted, using state-level individual sampling weights provided in data.

S5 Fig. Forest plot of adjusted odds ratios (95% CI) for frailty, by participants' background characteristics, using income as the economic indicator. Annual per capita household income is used as the economic indicator, instead of monthly per capita consumption expenditure. Per capita household income is computed by aggregating income from all sources (agricultural and non-agricultural business, wage/salary, pension and transfers) and dividing by the number of household members.

S1 Table. Construction of deficits-based frailty index and distribution of deficit scores.

Domain/variable	Coding criteria	Questions	Distribution in adults 45 years or older* (N=65562)	
			Value	N (%)
General Health (Self-reported health) (1 deficit)	Very good = 0, Good = 0.25, Fair = 0.50, Poor = 0.75, Very poor = 1	1. Now I want to ask you about your general health. Overall, how is your health in general? Would you say it is very good, good, fair, poor, or very poor? 1. Very good 2. Good 3. Fair 4. Poor 5. Very poor	Value	N (%)
			0	3050 (4.65)
			0.25	23628 (36.04)
			0.5	26924 (41.07)
			0.75	9811 (14.96)
			1	1242 (1.89)
Missing	7 (1.38)			
Self-reported medically diagnosed conditions (9 deficits)				
(1) Arthritis	1 if Yes to 1. and selected a. in 2. 0 otherwise	1. Has any health professional ever diagnosed you with the following chronic conditions or diseases? Arthritis or rheumatism, Osteoporosis or other bone/joint diseases. 1. Yes 2. No 2. Have you ever been diagnosed with the following bone/joint diseases/problems? a. Arthritis b. Rheumatism c. Osteoporosis d. Other, please specify	Value	N (%)
			0	60065 (91.62)
			1	5327 (8.13)
			Missing	170 (0.26)
(2) Stroke	1 if Yes to 1. 0 otherwise	1. Has any health professional ever diagnosed you with the following chronic conditions or diseases? Stroke 1. Yes 2. No	Value	N (%)
			0	64195 (97.91)
			1	1195 (1.82)
			Missing	172 (0.26)

(3) Angina	Angina is defined based on symptoms.	Rose angina questionnaire: ¹	Value	N (%)
			0	61336 (93.55)
			1	4005 (6.11)
			Missing	221 (0.34)
	Individuals classified as having angina were those who had a history of chest pain (answer "Yes" to question 1), set off by physical exertion (answer "Yes" to questions 2 or 3), forcing them to stop or slow down (question 4), with subsequent relief ("Yes" to question 5), within 10 minutes (question 6), and located in the sternum or the left anterior chest and left arm	<p>1. Do you ever have any pain or discomfort in your chest?</p> <p>1. Yes 2. No</p> <p>2. Do you get this pain or discomfort when you walk uphill or hurry?</p> <p>1. Yes 2. No 3. Unable to walk</p> <p>3. Do you get it when you walk at an ordinary pace on the level?</p> <p>1. Yes 2. No</p> <p>4. When you get any pain or discomfort in your chest while walking or moving, what do you do?</p> <p>1. Stop 2. Slow down 3. Continue at the same pace</p> <p>5. Does it go away when you stop moving?</p> <p>1. Yes 2. No</p> <p>6. How quickly the pain subsides when it occurs?</p> <p>1. 10 minutes or less 2. More than 10 minutes</p> <p>7. Where do you get this pain or discomfort? (figure)</p>		

	(quadrants 4, 8, or 5 and 6 in question 7). 1 if Yes to above conditions specified. 0 otherwise										
(4) Diabetes	1 if Yes to 1. 0 otherwise	1. Has any health professional ever diagnosed you with the following chronic conditions or diseases? Diabetes 1. Yes 2. No	<table border="1"> <thead> <tr> <th>Value</th> <th>N (%)</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>56952 (86.87)</td> </tr> <tr> <td>1</td> <td>8429 (12.86)</td> </tr> <tr> <td>Missing</td> <td>181 (0.28)</td> </tr> </tbody> </table>	Value	N (%)	0	56952 (86.87)	1	8429 (12.86)	Missing	181 (0.28)
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(5) COPD	1 if Yes to 1. and selected a. in 2. 0 otherwise	1. Has any health professional ever diagnosed you with the following chronic conditions or diseases? Chronic lung disease such as asthma, chronic obstructive pulmonary disease/Chronic bronchitis or other chronic lung problems. 1. Yes 2. No 2. Which type of chronic lung disease do you have? a. Chronic obstructive pulmonary disease (COPD) b. Chronic Bronchitis c. Asthma d. Other, please specify	<table border="1"> <thead> <tr> <th>Value</th> <th>N (%)</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>64667 (98.63)</td> </tr> <tr> <td>1</td> <td>724 (1.10)</td> </tr> <tr> <td>Missing</td> <td>171 (0.26)</td> </tr> </tbody> </table>	Value	N (%)	0	64667 (98.63)	1	724 (1.10)	Missing	171 (0.26)
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(6) Asthma	1 if Yes to 1. and selected c. in 2. 0 otherwise	1. Has any health professional ever diagnosed you with the following chronic conditions or diseases? Chronic lung disease such as asthma, chronic obstructive pulmonary disease/Chronic bronchitis or other chronic lung problems. 1. Yes 2. No 2. Which type of chronic lung disease do you have?	<table border="1"> <thead> <tr> <th>Value</th> <th>N (%)</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>62830 (95.83)</td> </tr> <tr> <td>1</td> <td>2561 (3.91)</td> </tr> <tr> <td>Missing</td> <td>171 (0.26)</td> </tr> </tbody> </table>	Value	N (%)	0	62830 (95.83)	1	2561 (3.91)	Missing	171 (0.26)
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		<p>a. Chronic obstructive pulmonary disease (COPD)</p> <p>b. Chronic Bronchitis</p> <p>c. Asthma</p> <p>d. Other, please specify</p>									
(7) Depression	<p>Depression is defined based on symptoms using CIDI scale.</p> <p>a) Calculated appetite status: 1 if Yes to either 6. or 7. 0 otherwise</p> <p>b) Calculated CIDI score: 1 is summation of 4, 5, appetite status, 8, 9, 10, 11</p> <p>c) Finally, depression status: 1 if 1. is Yes & selected either 1. or 2. category from 2. & selected either 1. or 2.</p>	<p>1. During the last 12 months, was there ever a time when you felt sad, blue, or depressed for two weeks or more in a row?</p> <p>1. Yes 2. No</p> <p>2. Please think of the two-week period during the last 12 months when these feelings were worst. During that time did the feelings of being sad, blue, or depressed usually last all day long, most of the day, about half the day, or less than half the day?</p> <p>1. All day long 2. Most of the day 3. About half the day 4. Less than half the day</p> <p>3. During those two weeks, did you feel this way every day, almost every day, or less often than that?</p> <p>1. Every day 2. Almost every day 3. Less often</p> <p>Thinking about those same two weeks,</p> <p>4. Did you lose interest in most things?</p> <p>1. Yes 2. No</p> <p>5. Did you ever feel more tired out or low in energy than is usual for you?</p> <p>1. Yes 2. No</p> <p>6. Did you lose your appetite?</p>	<table border="1"> <thead> <tr> <th>Value</th> <th>N (%)</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>60228 (91.86)</td> </tr> <tr> <td>1</td> <td>4058 (6.19)</td> </tr> <tr> <td>Missing</td> <td>1276 (1.95)</td> </tr> </tbody> </table>	Value	N (%)	0	60228 (91.86)	1	4058 (6.19)	Missing	1276 (1.95)
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	category from 3. & CIDI score is ≥ 3 . 0 otherwise	<p>1. Yes 2. No</p> <p>7. Did your appetite increase during those same two weeks? 1. Yes 2. No</p> <p>8. During the same two-week period did you have a lot more trouble concentrating than usual? 1. Yes 2. No</p> <p>9. People sometimes feel down on themselves, and no good or worthless. During that two-week period, did you feel this way? 1. Yes 2. No</p> <p>10. Did you think a lot about death – either your own, someone else’s, or death in general – during those two weeks? 1. Yes 2. No</p> <p>11. Did you have more trouble falling asleep than you usually do during those two weeks? 1. Yes 2. No</p>									
(8) Hypertension	<p>Hypertension is defined as either self-reported or BP $\geq 140/90$</p> <p>1 if Yes to 1. or 2. is ≥ 140 or 3. is ≥ 90,</p>	<p>1. Has any health professional ever diagnosed you with the following chronic conditions or diseases? Hypertension or high blood pressure. 1. Yes 2. No</p> <p>When the device is in the correct position and the R is relaxed, press the button to Start. Measure blood pressure and pulse three times with one minute gap between each of the measurements. No need to</p>	<table border="1"> <thead> <tr> <th>Value</th> <th>N (%)</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>34246 (52.23)</td> </tr> <tr> <td>1</td> <td>31143 (47.50)</td> </tr> <tr> <td>Missing</td> <td>173 (0.26)</td> </tr> </tbody> </table>	Value	N (%)	0	34246 (52.23)	1	31143 (47.50)	Missing	173 (0.26)
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	0 otherwise	remove the cuffs and the device between the measurements. Record measurements in CAPI. Enter 993 in systolic, diastolic and pulse reading if an unresolvable equipment problem occurs. If the average systolic reading obtained is greater than 180 and average diastolic reading is greater than 110 or either of it, fill the referral letter and give to respondent and stop the test immediately. 2. Systolic readings: average of last two readings. 3. Diastolic readings: average of last two readings.									
(9) Cataract	1 if Yes to 1. and selected b. in 2. 0 otherwise	1. Now I have some questions about your eyesight. Have you ever been diagnosed with any eye or vision problem or condition, including ordinary near sightedness or farsightedness? 1. Yes 2. No 2. With which problem or condition were you diagnosed? a. Presbyopia b. Cataract c. Glaucoma d. Myopia (Nearsightedness) e. Hypermetropia (Farsightedness) f. Other, please specify	<table border="1"> <thead> <tr> <th>Value</th> <th>N (%)</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>57291 (87.38)</td> </tr> <tr> <td>1</td> <td>8088 (12.34)</td> </tr> <tr> <td>Missing</td> <td>183 (0.28)</td> </tr> </tbody> </table>	Value	N (%)	0	57291 (87.38)	1	8088 (12.34)	Missing	183 (0.28)
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Medical symptoms (4 deficits)											
1) Bodily aches or pains did you have?	1 if Yes to 1. & Either a., b., c. in 2. 0 otherwise	1. Are you often troubled with pain? 1. Yes 2. No 2. Do you take any medication or therapy to get relief from the pain [Multiple answers are allowed]? a. Yes, analgesics (Oral/ Injectable)	<table border="1"> <thead> <tr> <th>Value</th> <th>N (%)</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>48290 (73.66)</td> </tr> <tr> <td>1</td> <td>17042 (25.99)</td> </tr> <tr> <td>Missing</td> <td>230 (0.35)</td> </tr> </tbody> </table>	Value	N (%)	0	48290 (73.66)	1	17042 (25.99)	Missing	230 (0.35)
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		<p>b. Yes, therapy(ies)</p> <p>c. Local/external application (Ointment, cream, gel, balm, spray, oil, etc.)</p> <p>d. None</p>															
2) Problem did you have with sleeping?	<p>1 if responded 4. Frequently (5 or more nights per week), for answering any of the 4 questions listed.</p> <p>0 otherwise.</p>	<p>Now I would like to ask you a few questions about your sleep during the past 1 month.</p> <p>How often do you...? Would you say Never, Rarely (1-2 nights per week), Occasionally (3-4 nights per week), or Frequently (5 or more nights per week)?</p> <p>1. Never</p> <p>2. Rarely (1-2 nights per week)</p> <p>3. Occasionally (3-4 nights per week)</p> <p>4. Frequently (5 or more nights per week)</p> <p>1. How often do you have trouble falling asleep?</p> <p>2. How often did you wake up during the night and had trouble getting back to sleep?</p> <p>3. How often did you wake up too early in the morning and were not being able to fall asleep again?</p> <p>4. How often did you feel unrested during the day, no matter how many hours of sleep you had?</p>	<table border="1"> <thead> <tr> <th>Value</th> <th>N (%)</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>57554 (87.79)</td> </tr> <tr> <td>1</td> <td>7786 (11.88)</td> </tr> <tr> <td>Missing</td> <td>222 (0.34)</td> </tr> </tbody> </table>	Value	N (%)	0	57554 (87.79)	1	7786 (11.88)	Missing	222 (0.34)						
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3) Difficulty did you have in seeing (person or object) across the road?	<p>Very good = 0, Good = 0.25, Fair = 0.50, Poor = 0.75, Very poor = 1</p>	<p>1. How good is your eyesight for seeing things at a distance, like recognizing a person across the street (or 20 meters away) whether or not you wear glasses, contacts, or corrective lenses?</p> <p>1. Very good</p> <p>2. Good</p> <p>3. Fair</p> <p>4. Poor</p> <p>5. Very poor</p>	<table border="1"> <thead> <tr> <th>Value</th> <th>N (%)</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>4142 (6.32)</td> </tr> <tr> <td>0.25</td> <td>25786 (39.33)</td> </tr> <tr> <td>0.5</td> <td>25991 (39.64)</td> </tr> <tr> <td>0.75</td> <td>8472 (12.92)</td> </tr> <tr> <td>1</td> <td>966 (1.47)</td> </tr> <tr> <td>Missing</td> <td>205 (0.31)</td> </tr> </tbody> </table>	Value	N (%)	0	4142 (6.32)	0.25	25786 (39.33)	0.5	25991 (39.64)	0.75	8472 (12.92)	1	966 (1.47)	Missing	205 (0.31)
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4) Difficulty did you have in seeing	<p>Very good = 0, Good = 0.25,</p>	<p>1. How good is your eyesight for seeing things up close, like reading ordinary newspaper print whether or not you wear glasses, contacts, or corrective lenses</p> <p>1. Very good</p>	<table border="1"> <thead> <tr> <th>Value</th> <th>N (%)</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>3262 (4.98)</td> </tr> <tr> <td>0.25</td> <td>22743 (34.69)</td> </tr> <tr> <td>0.5</td> <td>28024 (42.74)</td> </tr> </tbody> </table>	Value	N (%)	0	3262 (4.98)	0.25	22743 (34.69)	0.5	28024 (42.74)						
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an object at arm's length?	Fair = 0.50, Poor = 0.75, Very poor = 1	2. Good 3. Fair 4. Poor 5. Very poor	0.75	10198 (15.55)
			1	1072 (1.64)
			Missing	263 (0.4)
Functional assessment (9 deficits)	1 = Yes, 0 = No	1. Because of physical or health problems, do you have difficulty doing any of the activities? Exclude any difficulties that you expect to last less than three months. 1. Yes 2. No		
1) Walking 100 yards			Value	N (%)
			0	50503 (77.03)
			1	14782 (22.55)
			Missing	277 (0.42)
2) Sitting for 2 hours or more			Value	N (%)
			0	46098 (70.31)
			1	19187 (29.27)
			Missing	277 (0.42)
3) Getting up from a chair after sitting for long period			Value	N (%)
			0	44358 (67.66)
			1	20927 (31.92)
			Missing	277 (0.42)
4) Climbing one flight of stairs without resting			Value	N (%)
			0	37857 (57.74)
			1	27428 (41.84)
			Missing	277 (0.42)
5) Stooping, kneeling or crouching			Value	N (%)
			0	36375 (55.48)
			1	28910 (44.10)
			Missing	277 (0.42)
6) Reaching or extending arms			Value	N (%)
			0	56168 (85.67)
			1	9117 (13.91)

above shoulder level (either arm)			Missing	277 (0.42)
7) Pulling or pushing large objects			Value	N (%)
			0	40486 (61.75)
			1	24798 (37.82)
			Missing	278 (0.42)
8) Lifting or carrying weights over 5 kilos, like a heavy bag of groceries			Value	N (%)
			0	48469 (73.93)
			1	16815 (25.65)
			Missing	278 (0.42)
9) Picking up a coin from a table			Value	N (%)
			0	61255 (93.43)
			1	4029 (6.15)
			Missing	278 (0.42)
ADL/IADL[†] limitations (13 deficits)	1 = Yes, 0 = No	Now, I will ask you about a few everyday activities. Please tell me if you have any difficulty with these because of a physical, mental, emotional, or memory problem. Please exclude any difficulties you expect to last less than three months. Because of a health or memory problem, do you have any difficulty with...? 1. Yes 2. No		
1) Dressing, including putting on chappals, shoes, etc.			Value	N (%)
			0	62376 (95.14)
			1	2905 (4.43)
			Missing	281 (0.43)
2) Walking across a room			Value	N (%)
			0	62466 (95.28)
			1	2815 (4.29)

			Missing	281 (0.43)
3) Bathing			Value	N (%)
			0	62462 (95.27)
			1	2819 (4.30)
			Missing	281 (0.43)
4) Eating			Value	N (%)
			0	62336 (95.08)
			1	2945 (4.49)
			Missing	281 (0.43)
5) Getting in or out of bed			Value	N (%)
			0	60712 (92.60)
			1	4569 (6.97)
			Missing	281 (0.43)
6) Using the toilet, including getting up and down			Value	N (%)
			0	58531 (89.28)
			1	6750 (10.30)
			Missing	281 (0.43)
7) Preparing a hot meal (cooking and serving)			Value	N (%)
			0	58627 (89.42)
			1	6654 (10.15)
			Missing	281 (0.43)
8) Shopping for groceries			Value	N (%)
			0	56411 (86.04)
			1	8865 (13.52)
			Missing	286 (0.44)
9) Making telephone calls			Value	N (%)
			0	53181 (81.12)
			1	12043 (18.37)
			Missing	338 (0.52)
10) Taking medications			Value	N (%)
			0	59283 (90.42)
			1	5998 (9.15)

			Missing	281 (0.43)
11) Doing work around the house or garden			Value	N (%)
			0	55490 (84.64)
			1	9791 (14.93)
			Missing	281 (0.43)
12) Managing money, such as paying bills and keeping track of expenses			Value	N (%)
			0	54799 (83.58)
			1	10482 (15.99)
			Missing	281 (0.43)
13) Getting around or finding address in unfamiliar place			Value	N (%)
			0	53400 (81.45)
			1	11881 (18.12)
			Missing	281 (0.43)
Any form of mental impairment (1) (Proxy variable used for mental health status)	1 if Yes to 1. & Selected b. in 2. 0 otherwise	1. Do you have any form of physical or mental impairment? 1. Yes 2. No 2. Which form of impairment do you have? a. Physical impairment such as lower body or upper body b. Mental impairment such as intellectual, cognition, or learning impairment c. Hearing impairment d. Visual impairment e. Speech impairment such as speech production, language comprehension	Value	N (%)
			0	64046 (97.69)
			1	1222 (1.86)
			Missing	294 (0.45)
Body mass index (BMI) (1 deficit)	BMI \geq 18.5 - <25 = 0 (Normal) BMI \geq 25 - <30 = 0.5 (Overweight)	BMI is weight in kilograms divided by height in meters squared.	Value	N (%)
			0	30872 (47.09)
			0.5	12852 (19.60)
			1	15349 (23.41)
			Missing	6489 (9.90)

	BMI < 18.5 = 1 (Underweight) BMI >= 30 = 1 (Obese)										
Grip strength (1 deficit)	<p>Grip (in kg), (Left+Right hand)/2</p> <p>Men: (0<BMI<=24 and grip<=29) or (24<BMI<=26 and grip <=30) or (26<BMI<=28 and grip<=30) or (28<BMI<=40 and grip<=32) = 1 (Weak grip)</p> <p>Women: (0<BMI<=23 and grip<=17) or (23<BMI<=26 and grip <=17.3) or (26<BMI<=29 and grip<=18) or</p>	The LASI measured grip strength in kilograms using a handheld dynamometer (Smedley's Hand Dynamometer). Health investigators collected two readings of grip strength for both hands (dominant and non-dominant).	<table border="1"> <thead> <tr> <th>Value</th> <th>N (%)</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>23368 (35.64)</td> </tr> <tr> <td>1</td> <td>35313 (53.86)</td> </tr> <tr> <td>Missing</td> <td>6881 (10.50)</td> </tr> </tbody> </table>	Value	N (%)	0	23368 (35.64)	1	35313 (53.86)	Missing	6881 (10.50)
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Missing	6881 (10.50)										

	(29<BMI<=40 and grip<=21) = 1 (Weak grip) 1 = weak grip if fulfilled above specified conditions, 0 otherwise										
Timed walk (gait speed) (1 deficit)	Gait speed = 1 if timed walk > 10 (Slow) Gait speed = 0 if timed walk <=10 (Normal)	LASI, respondents were asked to walk 4 metres twice. The time taken to walk was recorded in seconds. Each time, and the mean time was calculated.	<table border="1"> <thead> <tr> <th>Value</th> <th>N (%)</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>57032 (86.99)</td> </tr> <tr> <td>1</td> <td>1289 (1.97)</td> </tr> <tr> <td>Missing</td> <td>7241 (11.04)</td> </tr> </tbody> </table>	Value	N (%)	0	57032 (86.99)	1	1289 (1.97)	Missing	7241 (11.04)
Value	N (%)										
0	57032 (86.99)										
1	1289 (1.97)										
Missing	7241 (11.04)										
Frailty Index Scoring: $\sum(\text{variables})/40$ Score range: 0 – 1 Cut points: Robust = 0 to < 0.25, Frail = 0.25 – 1.0			<table border="1"> <thead> <tr> <th>Value</th> <th>N (%)</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>42767 (65.23)</td> </tr> <tr> <td>1</td> <td>14882 (22.70)</td> </tr> <tr> <td>Missing</td> <td>7913 (.07)</td> </tr> </tbody> </table>	Value	N (%)	0	42767 (65.23)	1	14882 (22.70)	Missing	7913 (.07)
Value	N (%)										
0	42767 (65.23)										
1	14882 (22.70)										
Missing	7913 (.07)										

* Unweighted figures.

† ADL: Activities of Daily Living; IADL: Instrumental Activities of Daily Living

S2 Table. Definition of outcomes – hospitalization in last 12 months and any fall in past 2 years.

Survey questions	Outcome definition
<p>Q1. In the past 12 months, have you visited any health care facility, or any health professional has visited you? <i>[Please identify ALL the facilities that you have visited]</i> <i>[Instruction: If response is ‘p’ freeze all other options]</i></p> <p>Public facility:</p> <ul style="list-style-type: none"> a. Health post/sub centers b. Primary health center/Urban Health Center c. Community health center d. District / Sub-district hospital e. Government/tertiary hospital f. Govt. AYUSH hospital <p>Private facility:</p> <ul style="list-style-type: none"> g. Private hospital/nursing home h. Private clinic (OPD based services) i. NGO/Charity/Trust/Church-run hospital j. Private AYUSH hospital <p>Others:</p> <ul style="list-style-type: none"> k. Health camp l. Mobile healthcare unit m. Pharmacy/drugstore n. Home visit o. Other, please specify _____ p. None <p>Q2. Over the last 12 months, how many times you were admitted as patient to a hospital/long-term care facility for at least one night? <i>[Instruction for the interviewer: If respondent did not stay at hospital, enter ‘0’]</i> _____ Times</p>	<p>Number of hospitalizations in past 12 months was defined as response to Q2. Respondents who said ‘None’ to Q1 were also coded as ‘0’.</p> <p>The variable ever hospitalised in past 12 months was coded as ‘yes’ if the number of hospitalizations was 1 or more and ‘no’ if 0.</p> <p>Respondents with a non-zero response to Q2 were then asked Q3. The maximum of the responses to the two questions, Q2 and Q3, was used to construct the count variable number of nights in hospital in past 12 months. In addition, respondents who said ‘None’ to Q1 were coded as ‘0’.</p>

<p>Q3. [Ask only if Q2 ≥ 1] How many nights have you spent in the hospital during the past 12 months? Number of nights _____</p>	
<p>Q1. In the past two years, have you sustained any major injury? 1. Yes 2. No</p> <p>Q2. [Ask only if Q1=1] What was the cause of that injury? [Multiple answers are allowed] a. Traffic accident b. Struck by person or object c. Fire, flames, burn, electric Shock d. Drowning e. Poisoning f. Animal attack or bite g. Fall h. Other, please specify _____</p> <p>Q3. [Ask only if Q2≠ g] In the past two years, have you fallen down? 1. Yes 2. No</p>	<p>Individuals having any fall in last 2 years were identified as those who responded 'Yes' to Q1 and identified 'Fall' in response to Q2, or those who said 'Yes' to Q3.</p>

S3 Table. Construction of cognition score and distribution of its components.

Domain	Item	Measurement	Questions	Range	Distribution in 45-plus participants (n=65,562)	
Memory	Immediate word recall	Interviewer read out a list of 10 words and respondents were asked to repeat the words.	I will read a set of 10 words and ask you to recall as many as you can. 1. Number of words respondent (R) correctly recalls _____	0-10	0	538 (0.8)
					1	1057 (1.7)
					2	3159 (4.9)
					3	6899 (10.8)
					4	11872 (18.6)
					5	14183 (22.2)
					6	12298 (19.2)
					7	8243 (12.9)
					8	3884 (6.1)
					9	1238 (1.9)
					10	595 (0.9)
					Missing	1596
	Delayed word recall	Respondents were asked to recall the same words read out for immediate recall after some time.	1. Number of words respondent (R) correctly recalls _____	0-10	1	4399 (7.3)
					2	8068 (13.5)
					3	12022 (20)
					4	12800 (21.3)
					5	9970 (16.6)
					6	6505 (10.8)
					7	3541 (5.9)
					8	1662 (2.8)
					9	609 (1)
					10	393 (0.7)
					Missing	5593
Orientation	Time	Respondents were asked to state today's date, month and year and day of the week. For each question, the score was 0	Date 1. Correct 2. Incorrect Month	0-4	0	1345 (2.1)
					1	7306 (11.4)
					2	10485 (16.4)

		(incorrect responses) or 1 (correct responses).	<p>1. Correct 2. Incorrect</p> <p>Year</p> <p>1. Correct 2. Incorrect</p> <p>Please tell me which day of week is today. Is it Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, or Sunday?</p> <p>1. Correct 2. Incorrect</p>		<table border="1"> <tbody> <tr> <td>3</td> <td>10599 (16.6)</td> </tr> <tr> <td>4</td> <td>34209 (53.5)</td> </tr> <tr> <td>Missing</td> <td>1618</td> </tr> </tbody> </table>	3	10599 (16.6)	4	34209 (53.5)	Missing	1618						
3	10599 (16.6)																
4	34209 (53.5)																
Missing	1618																
	Place	Orientation towards place was captured based on place of interview, name of the village, street number/colony name/landmark/neighbourhood and name of the district. For each question, the score was 0 (incorrect responses) or 1 (correct responses).	<p>What is this place used for? [plausible answers are specific answers such as living room, house, apartment, hospital, market, etc.]</p> <p>1. Correct 2. Incorrect</p> <p>What is your address? Name of village/town/city</p> <p>1. Correct 2. Incorrect</p> <p>Street number/ colony name/landmark/neighbourhood</p> <p>1. Correct 2. Incorrect</p> <p>What is name of your district?</p> <p>1. Correct 2. Incorrect</p>	0-4	<table border="1"> <tbody> <tr> <td>0</td> <td>125 (0.2)</td> </tr> <tr> <td>1</td> <td>419 (0.7)</td> </tr> <tr> <td>2</td> <td>1429 (2.2)</td> </tr> <tr> <td>3</td> <td>6775 (10.7)</td> </tr> <tr> <td>4</td> <td>54818 (86.2)</td> </tr> <tr> <td>Missing</td> <td>1996</td> </tr> </tbody> </table>	0	125 (0.2)	1	419 (0.7)	2	1429 (2.2)	3	6775 (10.7)	4	54818 (86.2)	Missing	1996
0	125 (0.2)																
1	419 (0.7)																
2	1429 (2.2)																
3	6775 (10.7)																
4	54818 (86.2)																
Missing	1996																
Arithmetic function	Backward counting	Respondents were asked to count backward as quickly as possible from the number 20. The respondents were asked to stop after correctly counting backward from 20 to 11 or from 19 to 10. Correct counting	<p>Please try to count backward as quickly as you can from the number, I will give you. I will tell you when to stop. Please start with 20.</p> <p>1. R correctly counted (e.g., 19 – 10; 20 – 11) without error 2. R made an error(s)</p>	0-2	<table border="1"> <tbody> <tr> <td>0</td> <td>19815 (31)</td> </tr> <tr> <td>1</td> <td>12274 (19.2)</td> </tr> <tr> <td>2</td> <td>31867 (49.8)</td> </tr> <tr> <td>Missing</td> <td>1606</td> </tr> </tbody> </table>	0	19815 (31)	1	12274 (19.2)	2	31867 (49.8)	Missing	1606				
0	19815 (31)																
1	12274 (19.2)																
2	31867 (49.8)																
Missing	1606																

		received 2 points; counts with a mistake received 1 point. Those who could not count received 0 points.	3. R cannot count															
Serial	Respondents were asked to subtract seven from 100 in the first step and asked to continue subtracting seven from the previous number in each subsequent step for five times. Each correct response received 1 point.	Now let's try some subtraction of numbers. One hundred minus 7 equals what? Enter the answer R gave: 1. _____ 2. R cannot count, skip next questions, and go to 'computation' And 7 from that equals what? [Interviewer: enter the answer R gave] _____ And 7 from that equals what? [Interviewer: enter the answer R gave] _____ And 7 from that equals what? [Interviewer: enter the answer R gave] _____ And 7 from that equals what? [Interviewer: enter the answer R gave]	0-5	<table border="1"> <tr><td>0</td><td>21325 (36.5)</td></tr> <tr><td>1</td><td>5131 (8.8)</td></tr> <tr><td>2</td><td>5791 (9.9)</td></tr> <tr><td>3</td><td>7776 (13.3)</td></tr> <tr><td>4</td><td>5778 (9.9)</td></tr> <tr><td>5</td><td>12599 (21.6)</td></tr> <tr><td>Missing</td><td>7162</td></tr> </table>	0	21325 (36.5)	1	5131 (8.8)	2	5791 (9.9)	3	7776 (13.3)	4	5778 (9.9)	5	12599 (21.6)	Missing	7162
0	21325 (36.5)																	
1	5131 (8.8)																	
2	5791 (9.9)																	
3	7776 (13.3)																	
4	5778 (9.9)																	
5	12599 (21.6)																	
Missing	7162																	
Computation	This test involved the mathematical operation of division. Respondents were asked to compute the net sale price of a product after considering a discount sale of half of the original price.	A shop is having a sale and selling all items at half price. Before the sale, a sari cost 300 Rs. How much will it cost in the sale? 1. R gave the correct answer of 150 Rs 2. R gave incorrect answer If 5 people all have the winning numbers in the lottery and the prize is 1,000 Rs, how much will each of them get? 1. R gave the correct answer of 200 Rs 2. R gave incorrect answer	0-2	<table border="1"> <tr><td>0</td><td>5758 (9.3)</td></tr> <tr><td>1</td><td>9856 (15.9)</td></tr> <tr><td>2</td><td>46414 (74.8)</td></tr> <tr><td>Missing</td><td>3534</td></tr> </table>	0	5758 (9.3)	1	9856 (15.9)	2	46414 (74.8)	Missing	3534						
0	5758 (9.3)																	
1	9856 (15.9)																	
2	46414 (74.8)																	
Missing	3534																	

Executive function	Executive (paper folding)	This is a three-stage command task. The respondents were instructed to take a piece of paper from the interviewer, turn it over, fold it in half, and give it back to the interviewer. Three points were given if each task was completed successfully.	When I give you a piece of paper, please turn it over, fold it in half, and give it back to me. 1. One of the tasks – turning/folding/returning actions is completed successfully 2. Two of the tasks – turning/folding/returning actions are completed successfully 3. All of the tasks – turning/folding/returning actions are completed successfully 4. None of the tasks – turning/folding/returning actions is completed successfully.	0-3	0	3197 (5)
					1	12511 (19.5)
					2	25640 (40)
					3	22757 (35.5)
					Missing	1457
	Pentagon drawing	Visio-construction is the ability to coordinate fine motor skills with visuospatial abilities, usually by reproducing geometric figures. Respondents were asked to copy two overlapping pentagons and scored 1 point for a correct drawing.	Do you see this picture? Please draw that picture on this paper. [Show the picture of two pentagons overlapped] 1. Drew picture 2. Failed to draw picture 3. Not applicable.	0-1	0	31187 (55.5)
					1	25051 (44.5)
					Missing	9324
Object naming		The interviewer points to a specific object and asks the respondent to name it. Two objects were pointed out and 1 point was given for each correct response.	What is this? [Items can be anything from cell phones, gloves, hats, rings, and umbrella that can be within close reach.] 1. Correct 2. Incorrect What is this? 1. Correct 2. Incorrect	0-2	0	646 (1)
					1	2509 (3.9)
					2	61158 (95.1)
					Missing	1249

Composite cognition score is the combined score of memory, orientation, arithmetic function, executive function, and object naming and is obtained by summing up the responses for all these items. It ranges from 0-43.

S4 Table. Characteristics of excluded participants and participants included in various analyses.

Characteristic	Frailty index based on 40 deficits					Frailty index defined based on non-missing deficits [#]	
	45-plus adults with frailty index missing	Study participants (45-plus adults with frailty index non-missing)	Study participants with non-missing hospitalization status	Study participants with non-missing fall status	Study participants with non-missing cognition score	Frailty index missing	45-plus adults with frailty index non-missing
	N = 7,913	N = 57,649	N = 56,790	N = 57,642	N = 42,015	N = 1,231	N = 64,331
Sex							
<i>Female</i>	4,209 (53%)	30,874 (54%)	30,422 (54%)	30,871 (54%)	20,767 (49%)	622 (51%)	34,461 (54%)
<i>Male</i>	3,704 (47%)	26,775 (46%)	26,368 (46%)	26,771 (46%)	21,248 (51%)	609 (49%)	29,870 (46%)
Age, Median (Q1 – Q3)*	61 (52, 70)	58 (50, 66)	58 (50, 66)	58 (50, 66)	57 (50, 65)	65 (55, 76)	59 (51, 67)
Place of residence							
<i>Rural</i>	4,619 (58%)	37,805 (66%)	37,202 (66%)	37,799 (66%)	26,212 (62%)	739 (60%)	41,685 (65%)
<i>Urban</i>	3,294 (42%)	19,844 (34%)	19,588 (34%)	19,843 (34%)	15,803 (38%)	492 (40%)	22,646 (35%)
Educational status							
<i>No schooling</i>	3,857 (49%)	26,961 (47%)	26,488 (47%)	26,958 (47%)	16,083 (38%)	665 (54%)	30,153 (47%)
<i>Less than 5 years</i>	740 (9.4%)	6,738 (12%)	6,653 (12%)	6,736 (12%)	4,952 (12%)	137 (11%)	7,341 (11%)
<i>5 to 9 years</i>	1,579 (20%)	13,280 (23%)	13,125 (23%)	13,279 (23%)	11,155 (27%)	211 (17%)	14,648 (23%)
<i>10 years or more</i>	1,734 (22%)	10,670 (19%)	10,524 (19%)	10,669 (19%)	9,825 (23%)	216 (18%)	12,188 (19%)
Missing	3					2	1
MPCE quintile[†]							
<i>Poorest</i>	1,583 (20%)	11,358 (20%)	11,174 (20%)	11,356 (20%)	7,923 (19%)	289 (23%)	12,652 (20%)
<i>Poorer</i>	1,517 (19%)	11,673 (20%)	11,487 (20%)	11,673 (20%)	8,336 (20%)	258 (21%)	12,932 (20%)
<i>Middle</i>	1,487 (19%)	11,676 (20%)	11,500 (20%)	11,674 (20%)	8,405 (20%)	235 (19%)	12,928 (20%)
<i>Richer</i>	1,577 (20%)	11,633 (20%)	11,451 (20%)	11,631 (20%)	8,727 (21%)	222 (18%)	12,988 (20%)
<i>Richest</i>	1,749 (22%)	11,309 (20%)	11,178 (20%)	11,308 (20%)	8,624 (21%)	227 (18%)	12,831 (20%)
Living arrangement							
<i>Living alone</i>	279 (3.5%)	2,034 (3.5%)	2,008 (3.5%)	2,034 (3.5%)	1,302 (3.1%)	40 (3.2%)	2,273 (3.5%)

<i>Living with spouse with or without children</i>	5,270 (67%)	42,607 (74%)	41,988 (74%)	42,604 (74%)	32,345 (77%)	689 (56%)	47,188 (73%)
<i>Living with children and others</i>	1,732 (22%)	10,709 (19%)	10,527 (19%)	10,706 (19%)	6,786 (16%)	272 (22%)	12,169 (19%)
<i>Living with others only</i>	632 (8.0%)	2,299 (4.0%)	2,267 (4.0%)	2,298 (4.0%)	1,582 (3.8%)	230 (19%)	2,701 (4.2%)
Employment							
<i>Currently working[§]</i>	3,340 (42%)	28,939 (50%)	28,526 (50%)	28,935 (50%)	22,168 (53%)	377 (31%)	31,902 (50%)
<i>Worked in the past</i>	2,236 (28%)	13,045 (23%)	12,819 (23%)	13,043 (23%)	9,069 (22%)	481 (39%)	14,800 (23%)
<i>Never worked</i>	2,327 (29%)	15,665 (27%)	15,445 (27%)	15,664 (27%)	10,778 (26%)	365 (30%)	17,627 (27%)
Missing	10					8	2
Food constraint[¶]							
<i>No</i>	7,360 (93%)	53,801 (93%)	53,018 (93%)	53,797 (93%)	39,582 (94%)	1,178 (96%)	59,983 (93%)
<i>Yes</i>	553 (7.0%)	3,848 (6.7%)	3,772 (6.6%)	3,845 (6.7%)	2,433 (5.8%)	53 (4.3%)	4,348 (6.8%)
Tobacco use							
<i>Never used tobacco</i>	4,894 (66%)	36,252 (63%)	35,747 (63%)	36,249 (63%)	26,313 (63%)	451 (61%)	40,695 (63%)
<i>Current/past user</i>	2,469 (34%)	21,373 (37%)	21,023 (37%)	21,369 (37%)	15,681 (37%)	285 (39%)	23,557 (37%)
Missing	550	24	20	24	21	495	79
Alcohol							
<i>Never consumed</i>	6,072 (82%)	47,218 (82%)	46,516 (82%)	47,216 (82%)	34,223 (81%)	620 (84%)	52,670 (82%)
<i>Less than once a month in past 3 months</i>	738 (10%)	6,024 (10%)	5,914 (10%)	6,020 (10%)	4,642 (11%)	96 (13%)	6,666 (10%)
<i>One to three days per month or more frequently</i>	559 (7.6%)	4,397 (7.6%)	4,354 (7.7%)	4,396 (7.6%)	3,145 (7.5%)	21 (2.8%)	4,935 (7.7%)
Missing	544	10	6	10	5	494	60
Caste							
<i>Scheduled caste</i>	1,264 (16%)	9,695 (17%)	9,515 (17%)	9,695 (17%)	6,854 (16%)	195 (16%)	10,764 (17%)
<i>Scheduled tribe</i>	1,225 (15%)	10,140 (18%)	10,041 (18%)	10,137 (18%)	6,514 (16%)	211 (17%)	11,154 (17%)

<i>Other backward class</i>	2,816 (36%)	21,813 (38%)	21,448 (38%)	21,810 (38%)	16,190 (39%)	432 (35%)	24,197 (38%)
<i>None of the above/No caste or tribe/Don't know/Missing</i>	2,608 (33%)	16,001 (28%)	15,786 (28%)	16,000 (28%)	12,457 (30%)	393 (32%)	18,216 (28%)
Religion							
<i>Hindu</i>	5,777 (73%)	42,322 (73%)	41,579 (73%)	42,320 (73%)	31,313 (75%)	870 (71%)	47,229 (73%)
<i>Muslim</i>	997 (13%)	6,806 (12%)	6,724 (12%)	6,805 (12%)	4,834 (12%)	166 (13%)	7,637 (12%)
<i>Christian</i>	734 (9.3%)	5,802 (10%)	5,787 (10%)	5,800 (10%)	3,831 (9.1%)	140 (11%)	6,396 (9.9%)
<i>Other</i>	405 (5.1%)	2,719 (4.7%)	2,700 (4.8%)	2,717 (4.7%)	2,037 (4.8%)	55 (4.5%)	3,069 (4.8%)
Region							
<i>North</i>	1,429 (18%)	10,537 (18%)	10,222 (18%)	10,535 (18%)	8,015 (19%)	186 (15%)	11,780 (18%)
<i>Central</i>	932 (12%)	7,975 (14%)	7,654 (13%)	7,975 (14%)	5,940 (14%)	167 (14%)	8,740 (14%)
<i>East</i>	1,137 (14%)	10,443 (18%)	10,443 (18%)	10,441 (18%)	7,979 (19%)	189 (15%)	11,391 (18%)
<i>Northeast</i>	962 (12%)	7,551 (13%)	7,546 (13%)	7,550 (13%)	5,191 (12%)	150 (12%)	8,363 (13%)
<i>West</i>	1,314 (17%)	7,580 (13%)	7,449 (13%)	7,579 (13%)	5,231 (12%)	223 (18%)	8,671 (13%)
<i>South</i>	2,139 (27%)	13,563 (24%)	13,476 (24%)	13,562 (24%)	9,659 (23%)	316 (26%)	15,386 (24%)

Numbers presented in table are unweighted.

* Q1: first quartile, Q3: third quartile.

† MPCE: monthly per capita expenditure which is defined as total monthly household consumption expenditure divided by household size. It includes household's per capita spending on food and non-food items including spending on health, education, utilities, etc.

§ Includes Temporarily laid off, on sick or other leave, or in job training

¶ Household food unavailability in the past 12 months, where household members either reduced their meal size, did not eat even though they were hungry, or did not eat for a whole day because enough food was not available in the household.

#Frailty index for an individual was calculated by summing the non-missing health deficit scores and then dividing by the total number of deficits measured in that individual (up to 3 were allowed to be missing).

S5 Table. Prevalence of frailty, overall and by participants' background characteristics.

Characteristic	All	45-60 years	60-plus years
Overall	29.5 (28.7, 30.4)	16.2 (15.4, 16.9)	43.2 (41.9, 44.4)
Sex			
Female	36.1 (34.9, 37.4)	21.4 (20.2, 22.6)	52.2 (50.4, 54.1)
Male	21.7 (20.8, 22.7)	9.6 (8.5, 10.6)	33.2 (31.8, 34.6)
5-year age group			
45-49	11.6 (10.5, 12.7)	11.6 (10.5, 12.7)	-
50-54	16.3 (14.8, 17.7)	16.3 (14.8, 17.7)	-
55-59	21.8 (20.1, 23.5)	21.8 (20.1, 23.5)	-
60-64	29.9 (28.4, 31.5)	-	29.9 (28.4, 31.5)
65-69	39 (36.3, 41.7)	-	39 (36.3, 41.7)
70-74	52.5 (49.3, 55.8)	-	52.5 (49.3, 55.8)
75-79	53.9 (50.4, 57.3)	-	53.9 (50.4, 57.3)
80-plus	67.9 (64.2, 71.6)	-	67.9 (64.2, 71.6)
Place of residence			
Rural	30.8 (30.1, 31.5)	17.5 (16.7, 18.3)	43.7 (42.6, 44.8)
Urban	26.5 (24.3, 28.8)	13.2 (11.5, 14.9)	41.8 (38.3, 45.2)
Educational status			
No schooling	35.3 (34.4, 36.3)	19.8 (18.7, 20.9)	48 (46.6, 49.4)
Less than 5 years	34.2 (32.1, 36.2)	19.7 (17.6, 21.8)	47.6 (44.5, 50.8)
5 to 9 years	24.7 (22.6, 26.9)	15.1 (13.4, 16.8)	37.4 (33.5, 41.3)
10 years or more	15.5 (12.8, 18.2)	7.9 (6.3, 9.4)	27.3 (21.9, 32.7)
MPCE fifths[*]			
Poorest	29.8 (28.4, 31.2)	15 (13.4, 16.6)	44.3 (42.1, 46.4)
Poorer	29.9 (28.6, 31.3)	16.9 (15.3, 18.4)	42.9 (40.8, 45)
Middle	28.8 (27.2, 30.4)	16.1 (14.5, 17.7)	41.2 (38.8, 43.6)
Richer	30.6 (28.2, 33)	17.4 (15.2, 19.6)	44.1 (40.6, 47.7)
Richest	28.3 (25.7, 30.9)	15.5 (13.6, 17.3)	43.4 (39.4, 47.3)
Living arrangement			
Living alone	46.4 (42.8, 50)	22.7 (17.9, 27.5)	53.7 (49.5, 57.9)
Living with spouse with or without children	24.2 (23.4, 24.9)	15.5 (14.6, 16.3)	36.2 (35, 37.5)
Living with children and others	45.4 (42.9, 47.9)	21.4 (19.2, 23.6)	55.2 (52.3, 58.1)
Living with others only	36 (31, 41)	13.1 (8.5, 17.8)	50.9 (46.7, 55.1)
Employment			
Currently working [†]	18.4 (17.6, 19.3)	12.4 (11.5, 13.3)	29.3 (27.8, 30.8)
Worked in the past	45.9 (44.4, 47.4)	29.9 (27.3, 32.5)	50.2 (48.5, 51.9)
Never worked	36.5 (34.2, 38.8)	20.5 (18.6, 22.3)	52.9 (49.8, 56)
Food constraint[§]			
No	28.3 (27.4, 29.2)	15.2 (14.4, 16)	41.8 (40.4, 43.1)
Yes	44.1 (41.7, 46.5)	28.2 (25.2, 31.2)	58.4 (55, 61.7)
Tobacco use			
Never used tobacco	30.2 (29, 31.4)	17.1 (16, 18.2)	45 (43.1, 46.8)
Current/past user	28.3 (27.3, 29.3)	14.4 (13.4, 15.4)	40.5 (39, 42)
Alcohol use			
Never consumed	31 (30, 31.9)	17.2 (16.3, 18.1)	44.9 (43.5, 46.3)
Less than once a month in past 3 months	23.5 (21.8, 25.2)	11.6 (9.8, 13.3)	35.1 (32.2, 37.9)
One to three days per month or more frequently	18.1 (16.2, 19.9)	9 (7.4, 10.5)	29.6 (26, 33.1)

Caste			
Scheduled caste	29.9 (28.5, 31.4)	17.9 (16.3, 19.5)	42.9 (40.6, 45.2)
Scheduled tribe	23.9 (22.1, 25.7)	12.9 (11.2, 14.6)	36.6 (33.5, 39.8)
Other backward class	30 (28.4, 31.6)	15.5 (14.1, 16.8)	44.8 (42.5, 47.1)
None of the above/No caste or tribe/Don't know/Missing	30.2 (29.1, 31.3)	17.2 (16, 18.5)	42.5 (40.8, 44.2)
Religion			
Hindu	29.1 (28.2, 30.1)	15.4 (14.6, 16.2)	43.1 (41.6, 44.5)
Muslim	34.4 (32.2, 36.6)	23.4 (20, 26.7)	46.1 (43.3, 49)
Christian	24 (19.5, 28.4)	10.5 (6.7, 14.3)	39.2 (34.7, 43.7)
Other	28.2 (25.4, 31.1)	16.4 (13.1, 19.7)	39.3 (35, 43.6)
Region			
North	23.6 (22.5, 24.8)	12 (10.8, 13.2)	34.9 (33.1, 36.8)
Central	27.2 (25.7, 28.6)	14.4 (12.9, 15.8)	40 (37.7, 42.3)
East	33.2 (31.9, 34.5)	20.5 (19, 22.1)	45.7 (43.7, 47.7)
Northeast	19.8 (18.3, 21.2)	8.8 (7.5, 10.1)	34.7 (32.1, 37.3)
West	32.2 (30.6, 33.8)	18.6 (16.8, 20.3)	45 (42.5, 47.6)
South	30.6 (27.8, 33.5)	15.2 (13, 17.5)	47.9 (43.9, 51.9)

Numbers presented in table are weighted, using national-level individual sampling weights provided in data.

* MPCE: monthly per capita expenditure which is defined as total monthly household consumption expenditure divided by household size. It includes household's per capita spending on food and non-food items including spending on health, education, utilities, etc.

† Includes Temporarily laid off, on sick or other leave, or in job training

§ Household food unavailability in the past 12 months, where household members either reduced their meal size, did not eat even though they were hungry, or did not eat for a whole day because enough food was not available in the household.

S6 Table. Sex differences in distribution of frailty deficit scores.

	45-59 years		60-plus years	
	Female, N = 18,717	Male, N = 15,381	Female, N = 16,366	Male, N = 15,098
Self-reported general Health				
0 (very good)	851 (4.6%)	1,167 (7.6%)	416 (2.6%)	616 (4.2%)
0.25 (good)	7,280 (39%)	7,076 (46%)	4,418 (28%)	4,854 (33%)
0.5 (fair)	8,003 (43%)	5,540 (36%)	7,160 (45%)	6,221 (42%)
0.75 (poor)	2,265 (12%)	1,342 (8.8%)	3,541 (22%)	2,663 (18%)
1 (very poor)	195 (1.0%)	138 (0.9%)	485 (3.0%)	424 (2.9%)
Self-reported medically diagnosed conditions				
Arthritis	1,568 (8.4%)	704 (4.6%)	1,833 (11%)	1,222 (8.1%)
Stroke	128 (0.7%)	225 (1.5%)	347 (2.1%)	495 (3.3%)
Angina	1,313 (7.0%)	656 (4.3%)	1,232 (7.5%)	804 (5.3%)
Diabetes	1,968 (11%)	1,601 (10%)	2,416 (15%)	2,444 (16%)
COPD	116 (0.6%)	143 (0.9%)	213 (1.3%)	252 (1.7%)
Asthma	482 (2.6%)	414 (2.7%)	792 (4.8%)	873 (5.8%)
Depression	1,278 (6.9%)	732 (4.8%)	1,162 (7.3%)	886 (6.0%)
Hypertension	7,758 (42%)	6,058 (40%)	9,524 (58%)	7,803 (52%)
Cataract	1,027 (5.5%)	553 (3.6%)	3,646 (22%)	2,862 (19%)
Medical symptoms				
Bodily aches or pains	5,300 (28%)	2,751 (18%)	5,331 (33%)	3,660 (24%)
Problem with sleeping	2,060 (11%)	1,369 (8.9%)	2,449 (15%)	1,908 (13%)
Difficulty with distance vision				
0	1,255 (6.7%)	1,559 (10%)	542 (3.3%)	786 (5.2%)
0.25	8,181 (44%)	7,683 (50%)	4,716 (29%)	5,206 (35%)
0.5	7,340 (39%)	5,011 (33%)	7,311 (45%)	6,329 (42%)
0.75	1,772 (9.5%)	991 (6.5%)	3,318 (20%)	2,391 (16%)
1	106 (0.6%)	90 (0.6%)	444 (2.7%)	326 (2.2%)
Difficulty with near vision				
0	922 (4.9%)	1,105 (7.2%)	520 (3.2%)	715 (4.8%)
0.25	7,019 (38%)	6,310 (41%)	4,477 (27%)	4,937 (33%)
0.5	7,962 (43%)	5,803 (38%)	7,646 (47%)	6,613 (44%)
0.75	2,580 (14%)	1,970 (13%)	3,228 (20%)	2,420 (16%)
1	156 (0.8%)	140 (0.9%)	436 (2.7%)	340 (2.3%)
Functional assessment (difficulty with the following)				
Walking 100 yards	3,103 (17%)	1,381 (9.0%)	6,250 (38%)	4,048 (27%)
Sitting for 2 hours or more	4,717 (25%)	2,385 (16%)	7,270 (45%)	4,815 (32%)
Getting up from a chair after sitting for long period	5,087 (27%)	2,559 (17%)	7,894 (48%)	5,387 (36%)
Climbing one flight of stairs without resting	6,870 (37%)	3,350 (22%)	10,060 (62%)	7,148 (48%)

Stooping, kneeling or crouching	7,445 (40%)	3,838 (25%)	10,144 (62%)	7,483 (50%)
Reaching or extending arms above shoulder level (either arm)	1,819 (9.8%)	964 (6.3%)	3,944 (24%)	2,390 (16%)
Pulling or pushing large objects	6,027 (32%)	2,717 (18%)	9,583 (59%)	6,471 (43%)
Lifting or carrying weights over 5 kilos, like a heavy bag of groceries	3,583 (19%)	1,419 (9.3%)	7,439 (46%)	4,374 (29%)
Picking up a coin from a table	563 (3.0%)	296 (1.9%)	1,950 (12%)	1,220 (8.1%)
ADL/IADL* limitations (difficulty with the following)				
Dressing, including putting on chappals, shoes, etc	440 (2.4%)	292 (1.9%)	1,282 (7.9%)	891 (5.9%)
Walking across a room	380 (2.0%)	208 (1.4%)	1,339 (8.2%)	888 (5.9%)
Bathing	326 (1.7%)	249 (1.6%)	1,318 (8.1%)	926 (6.2%)
Eating	390 (2.1%)	237 (1.5%)	1,394 (8.5%)	924 (6.2%)
Getting in or out of bed	864 (4.6%)	395 (2.6%)	2,024 (12%)	1,286 (8.6%)
Using the toilet, including getting up and down	1,265 (6.8%)	630 (4.1%)	2,868 (18%)	1,987 (13%)
Preparing a hot meal (cooking and serving)	810 (4.3%)	669 (4.4%)	2,963 (18%)	2,212 (15%)
Shopping for groceries	1,551 (8.3%)	630 (4.1%)	4,323 (26%)	2,361 (16%)
Making telephone calls	2,966 (16%)	969 (6.3%)	5,270 (32%)	2,838 (19%)
Taking medications	1,194 (6.4%)	486 (3.2%)	2,803 (17%)	1,515 (10%)
Doing work around the house or garden	1,728 (9.3%)	700 (4.6%)	4,598 (28%)	2,765 (18%)
Managing money, such as paying bills and keeping track of expenses	2,468 (13%)	604 (3.9%)	5,127 (31%)	2,283 (15%)
Getting around or finding address in unfamiliar place	3,041 (16%)	726 (4.7%)	5,677 (35%)	2,437 (16%)
Any form of mental impairment	266 (1.4%)	199 (1.3%)	431 (2.6%)	326 (2.2%)
Body mass index				
0 (normal)	8,197 (48%)	7,967 (58%)	7,118 (49%)	7,590 (56%)
0.5 (underweight/overweight)	4,531 (26%)	3,136 (23%)	2,936 (20%)	2,249 (17%)
1 (obese)	4,461 (26%)	2,731 (20%)	4,487 (31%)	3,670 (27%)
Weak grip strength	7,279 (43%)	6,807 (49%)	10,265 (71%)	10,962 (82%)
Slow gait speed	83 (0.5%)	48 (0.3%)	807 (5.7%)	351 (2.6%)

*ADL: Activities of Daily Living; IADL: Instrumental Activities of Daily Living

S7 Table. Sex-specific associations between frailty and adverse outcomes.

Outcome	45-59 years			60-plus years		
	Male OR (95% CI)	Female OR (95% CI)	Female:Male ROR (95% CI)*	Male OR (95% CI)	Female OR (95% CI)	Female:Male ROR (95% CI)*
Hospitalized in last 12 months	2.22 (1.91, 2.58)	2.6 (2.11, 3.21)	1.17 (0.91, 1.52)	2.13 (1.84, 2.46)	2.27 (1.97, 2.61)	1.07 (0.87, 1.31)
Fallen down in last 2 years	2.15 (1.96, 2.37)	2.17 (1.86, 2.54)	1.01 (0.84, 1.21)	1.75 (1.6, 1.91)	2.06 (1.86, 2.29)	1.18 (1.03, 1.35)
Poor cognition	1.29 (1.1, 1.5)	1.44 (1.00, 2.06)	1.12 (0.75, 1.66)	1.35 (1.19, 1.52)	1.56 (1.31, 1.86)	1.16 (0.93, 1.44)

* ROR, ratio of odds ratios, indicating the sex difference in the relationship between frailty and adverse outcomes. For example, odds ratios of 2.6 and 2.22 for females and males, respectively, and a female:male ROR of 1.17 for hospitalization indicates that odds of hospitalization are higher for frail adults in both sexes, but the relative increase is 17% higher in females.

S8 Table. Summary of different frailty measures, by sex and age groups.

	Frailty index			Frail: frailty index ≥ 0.25			Frail: frailty index > 0.21			Frail: Frailty index based on non-missing deficits* ≥ 0.25		
	45-59 years	60-plus years	Overall	45-59 years	60-plus years	Overall	45-59 years	60-plus years	Overall	45-59 years	60-plus years	Overall
	(N=30568)	(N=27081)	(N=57649)	(N=30568)	(N=27081)	(N=57649)	(N=30568)	(N=27081)	(N=57649)	(N=33674)	(N=30657)	(N=64331)
Overall	0.14 (0.14, 0.15)	0.24 (0.24, 0.25)	0.19 (0.19, 0.2)	16.2 (15.4, 16.9)	43.2 (41.9, 44.4)	29.5 (28.7, 30.4)	22.6 (21.7, 23.6)	52.2 (51, 53.4)	37.2 (36.4, 38.1)	16.7 (15.7, 17.7)	44.5 (43.3, 45.6)	30.5 (29.7, 31.4)
Male	0.12 (0.12, 0.12)	0.21 (0.21, 0.22)	0.17 (0.16, 0.17)	9.6 (8.5, 10.6)	33.2 (31.8, 34.6)	21.7 (20.8, 22.7)	13.8 (12.7, 15)	42.2 (40.7, 43.6)	28.4 (27.3, 29.4)	10.8 (8.9, 12.6)	34.8 (33.4, 36.1)	23.1 (22, 24.2)
Female	0.17 (0.16, 0.17)	0.27 (0.27, 0.28)	0.22 (0.21, 0.22)	21.4 (20.2, 22.6)	52.2 (50.4, 54.1)	36.1 (34.9, 37.4)	29.6 (28.2, 31)	61.3 (59.6, 63)	44.8 (43.5, 46.1)	21.5 (20.3, 22.6)	53.1 (51.5, 54.8)	36.8 (35.6, 38)

*Frailty index for an individual was calculated by summing the non-missing health deficit scores and then dividing by the total number of deficits measured in that individual (up to 3 were allowed to be missing). CI: confidence interval

S9 Table. Association (OR(95% CI)) between frailty (alternative definitions) and adverse outcomes.

Outcome	Frail: frailty index > 0.21		Frail: Frailty index based on non-missing deficits* \geq 0.25	
	45-59 years (N= 30568)	\geq 60 years (N= 27081)	45-59 years (N33674)	\geq 60 years (N= 30657)
Hospitalization in last 12 months	2.26 (2.02, 2.53)	2.11 (1.9, 2.33)	2.58 (2.31, 2.88)	2.37 (2.16, 2.6)
Any fall in last 2 years	1.99 (1.85, 2.14)	1.88 (1.76, 2.01)	2.18 (2.02, 2.36)	1.97 (1.85, 2.09)
Poor cognition	1.99 (1.85, 2.14)	1.35 (1.22, 1.5)	1.35 (1.19, 1.55)	1.42 (1.3, 1.56)

*Frailty index for an individual was calculated by summing the non-missing health deficit scores and then dividing by the total number of deficits measured in that individual (up to 3 were allowed to be missing).

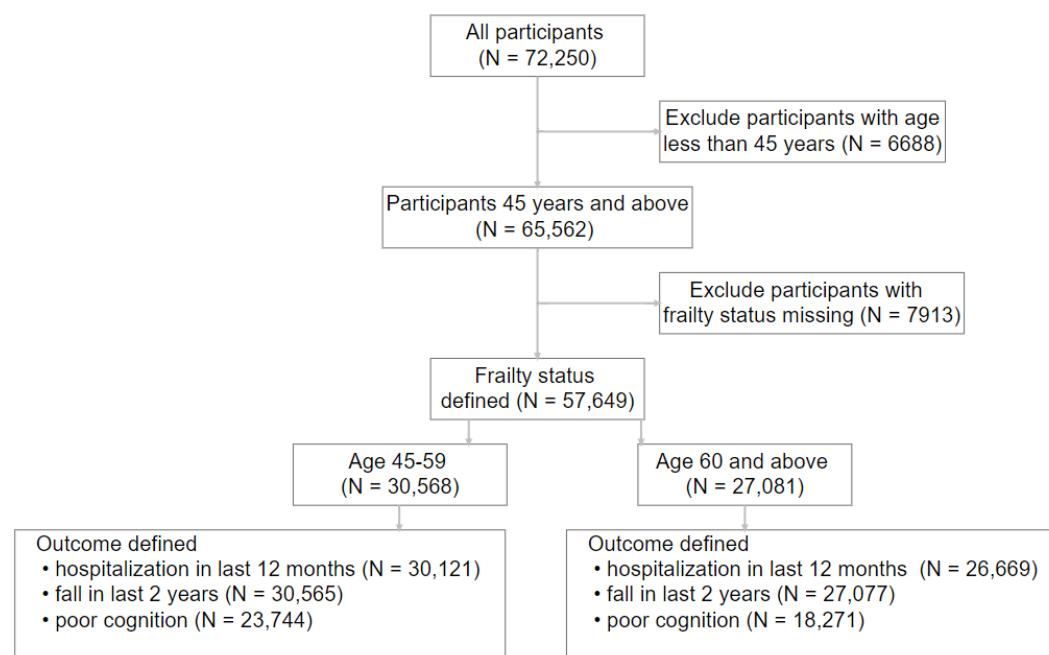
S10 Table. Distribution of frailty deficit scores in middle-aged and older adults, frail and overall.

	45-59 years		60-plus years	
	Overall N = 34,098	Frail N = 4,302	Overall N = 31,464	Frail N = 10,580
Self-reported general Health				
0 (very good)	2,018 (6.0%)	59 (1.4%)	1,032 (3.4%)	123 (1.2%)
0.25 (good)	14,356 (42%)	677 (16%)	9,272 (30%)	1,697 (16%)
0.5 (fair)	13,543 (40%)	2,063 (48%)	13,381 (43%)	4,740 (45%)
0.75 (poor)	3,607 (11%)	1,331 (31%)	6,204 (20%)	3,490 (33%)
1 (very poor)	333 (1.0%)	172 (4.0%)	909 (3.0%)	530 (5.0%)
Self-reported medically diagnosed conditions				
Arthritis	2,272 (6.7%)	869 (20%)	3,055 (9.7%)	1,765 (17%)
Stroke	353 (1.0%)	126 (2.9%)	842 (2.7%)	433 (4.1%)
Angina	1,969 (5.8%)	679 (16%)	2,036 (6.5%)	1,122 (11%)
Diabetes	3,569 (10%)	826 (19%)	4,860 (15%)	2,058 (19%)
COPD	259 (0.8%)	81 (1.9%)	465 (1.5%)	233 (2.2%)
Asthma	896 (2.6%)	280 (6.5%)	1,665 (5.3%)	860 (8.1%)
Depression	2,010 (6.0%)	719 (17%)	2,048 (6.7%)	1,198 (11%)
Hypertension	13,816 (41%)	2,440 (57%)	17,327 (55%)	6,895 (65%)
Cataract	1,580 (4.6%)	473 (11%)	6,508 (21%)	3,101 (29%)
Medical symptoms				
Bodily aches or pains	8,051 (24%)	2,352 (55%)	8,991 (29%)	4,749 (45%)
Problem with sleeping	3,429 (10%)	1,171 (27%)	4,357 (14%)	2,428 (23%)
Difficulty with distance vision				
0	2,814 (8.3%)	187 (4.3%)	1,328 (4.2%)	243 (2.3%)
0.25	15,864 (47%)	1,329 (31%)	9,922 (32%)	2,297 (22%)

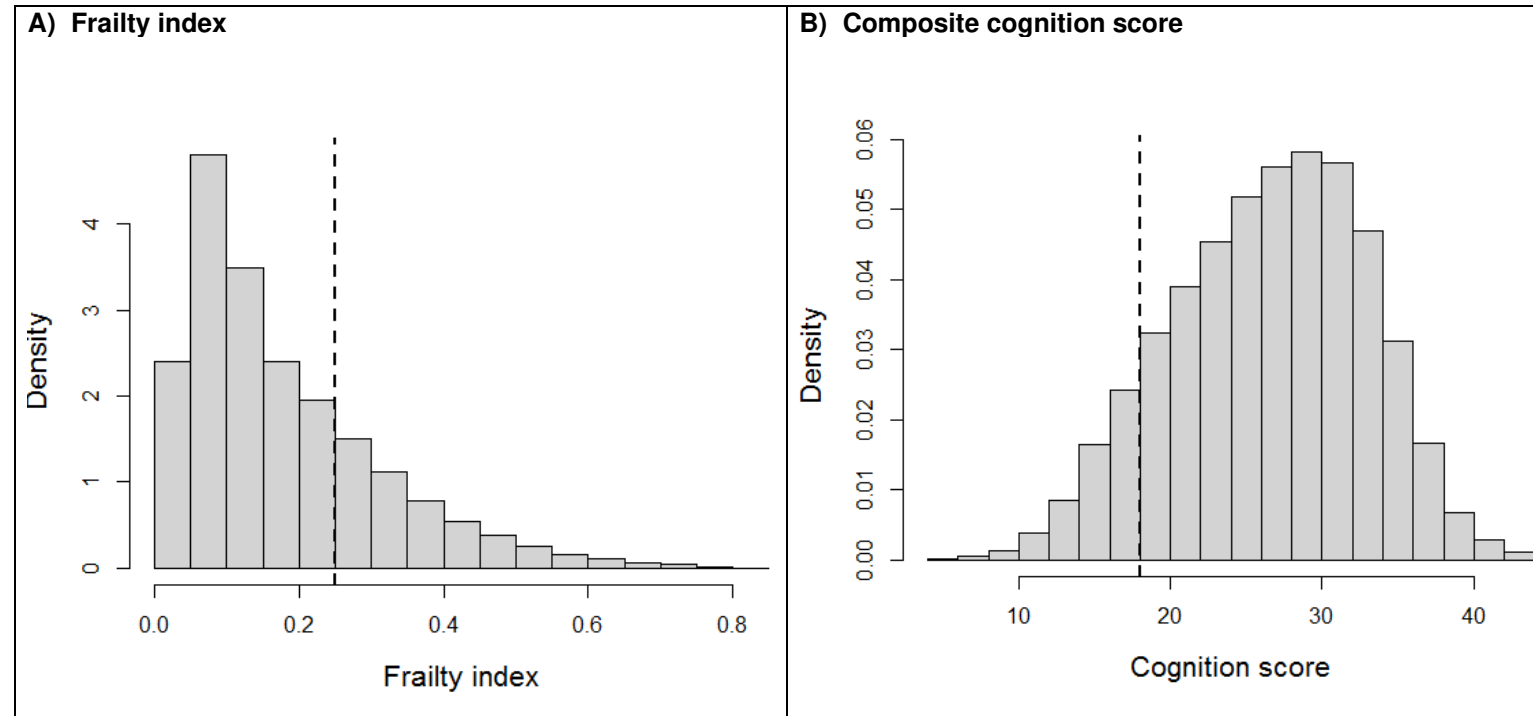
0.5	12,351 (36%)	1,917 (45%)	13,640 (43%)	4,736 (45%)
0.75	2,763 (8.1%)	806 (19%)	5,709 (18%)	2,880 (27%)
1	196 (0.6%)	63 (1.5%)	770 (2.5%)	424 (4.0%)
Difficulty with near vision				
0	2,027 (6.0%)	138 (3.2%)	1,235 (3.9%)	236 (2.2%)
0.25	13,329 (39%)	1,077 (25%)	9,414 (30%)	2,266 (21%)
0.5	13,765 (41%)	1,976 (46%)	14,259 (46%)	4,961 (47%)
0.75	4,550 (13%)	1,025 (24%)	5,648 (18%)	2,711 (26%)
1	296 (0.9%)	86 (2.0%)	776 (2.5%)	406 (3.8%)
Functional assessment (difficulty with the following)				
Walking 100 yards	4,484 (13%)	2,385 (55%)	10,298 (33%)	6,501 (61%)
Sitting for 2 hours or more	7,102 (21%)	3,206 (75%)	12,085 (39%)	7,545 (71%)
Getting up from a chair after sitting for long period	7,646 (23%)	3,371 (78%)	13,281 (42%)	8,115 (77%)
Climbing one flight of stairs without resting	10,220 (30%)	3,839 (89%)	17,208 (55%)	9,556 (90%)
Stooping, kneeling or crouching	11,283 (33%)	3,850 (89%)	17,627 (56%)	9,409 (89%)
Reaching or extending arms above shoulder level (either arm)	2,783 (8.2%)	1,581 (37%)	6,334 (20%)	4,202 (40%)
Pulling or pushing large objects	8,744 (26%)	3,475 (81%)	16,054 (51%)	9,039 (85%)
Lifting or carrying weights over 5 kilos, like a heavy bag of groceries	5,002 (15%)	2,538 (59%)	11,813 (38%)	7,367 (70%)
Picking up a coin from a table	859 (2.5%)	506 (12%)	3,170 (10%)	1,959 (19%)
ADL/IADL* limitations (difficulty with the following)				
Dressing, including putting on chappals, shoes, etc	732 (2.2%)	416 (9.7%)	2,173 (6.9%)	1,152 (11%)
Walking across a room	588 (1.7%)	359 (8.3%)	2,227 (7.1%)	1,217 (12%)
Bathing	575 (1.7%)	351 (8.2%)	2,244 (7.2%)	1,239 (12%)
Eating	627 (1.8%)	370 (8.6%)	2,318 (7.4%)	1,378 (13%)
Getting in or out of bed	1,259 (3.7%)	829 (19%)	3,310 (11%)	2,122 (20%)
Using the toilet, including getting up and down	1,895 (5.6%)	1,151 (27%)	4,855 (15%)	3,133 (30%)
Preparing a hot meal (cooking and serving)	1,479 (4.4%)	820 (19%)	5,175 (17%)	3,377 (32%)
Shopping for groceries	2,181 (6.4%)	1,234 (29%)	6,684 (21%)	4,566 (43%)
Making telephone calls	3,935 (12%)	1,397 (32%)	8,108 (26%)	4,778 (45%)
Taking medications	1,680 (4.9%)	875 (20%)	4,318 (14%)	2,773 (26%)
Doing work around the house or garden	2,428 (7.2%)	1,460 (34%)	7,363 (23%)	5,032 (48%)
Managing money, such as paying bills and keeping track of expenses	3,072 (9.0%)	1,494 (35%)	7,410 (24%)	4,883 (46%)

Getting around or finding address in unfamiliar place	3,767 (11%)	1,655 (38%)	8,114 (26%)	5,221 (49%)
Any form of mental impairment	465 (1.4%)	155 (3.6%)	757 (2.4%)	365 (3.4%)
Body mass index				
0 (normal)	16,164 (52%)	1,732 (40%)	14,708 (52%)	4,841 (46%)
0.5 (underweight/overweight)	7,667 (25%)	1,192 (28%)	5,185 (18%)	2,071 (20%)
1 (obese)	7,192 (23%)	1,378 (32%)	8,157 (29%)	3,668 (35%)
Weak grip strength	14,086 (46%)	2,675 (62%)	21,227 (76%)	9,046 (86%)
Slow gait speed	131 (0.4%)	70 (1.6%)	1,158 (4.2%)	917 (8.7%)

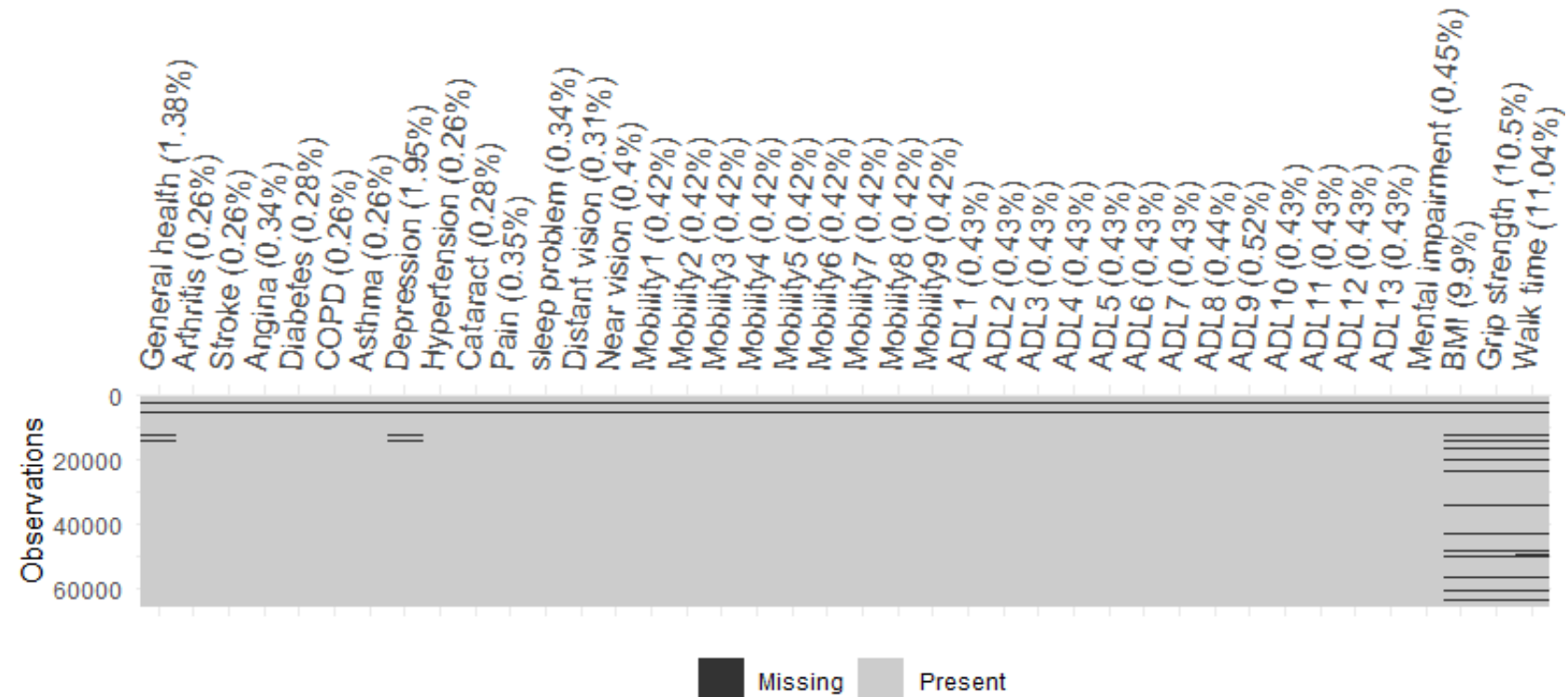
*ADL: Activities of Daily Living; IADL: Instrumental Activities of Daily Living



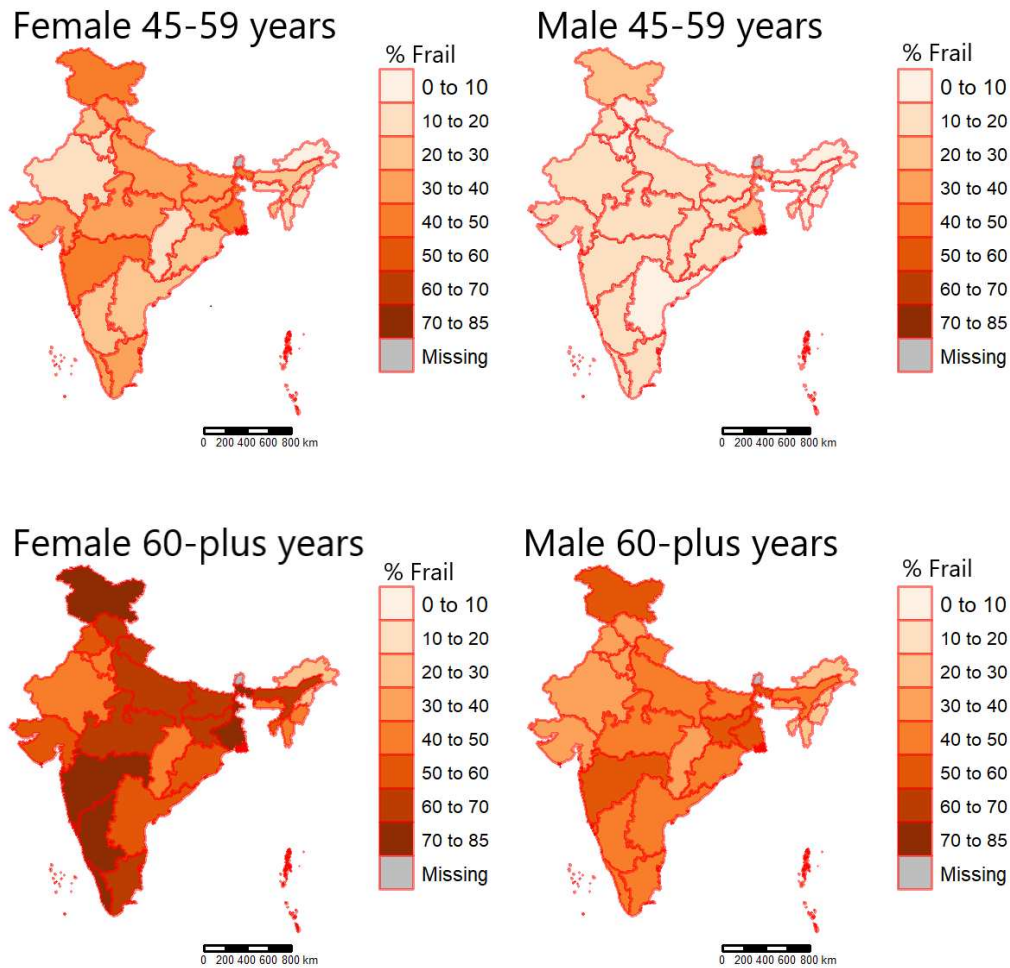
S1 Fig. Flowchart presenting selection of participants for analyses.



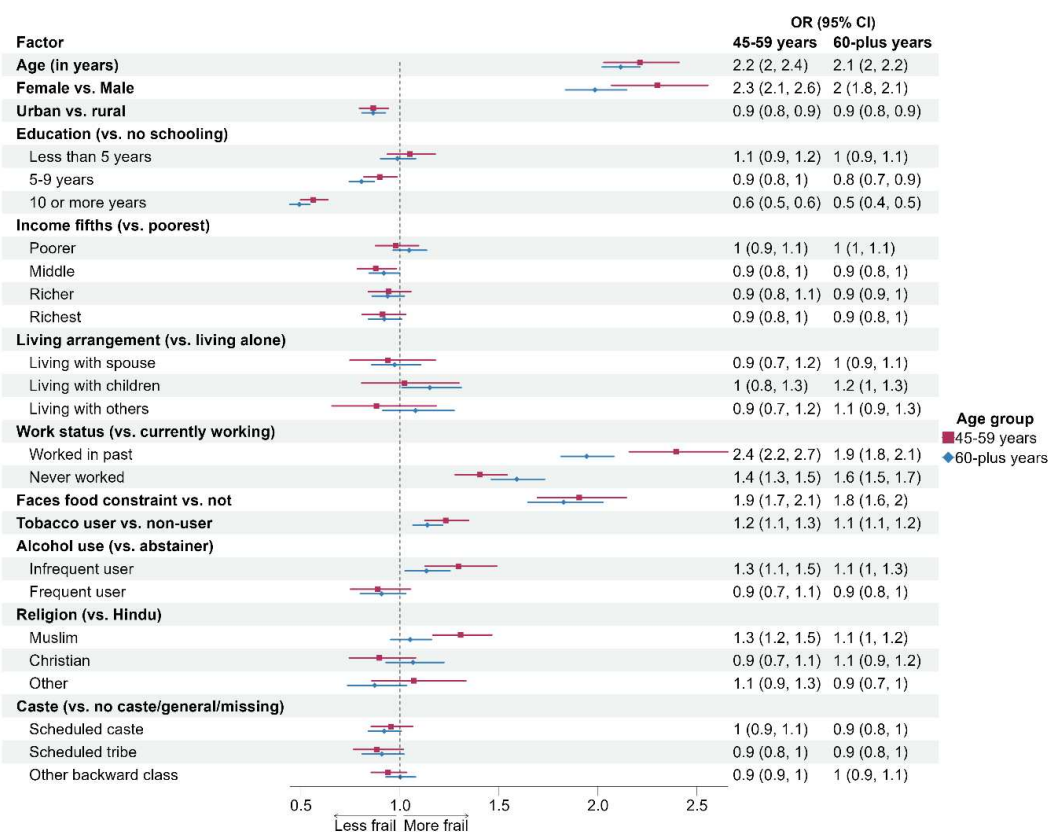
S2 Fig. Distribution of frailty index and cognition score among 45-plus participants. A) Frailty index had a mean value of 0.18 and standard deviation (SD) of 0.13, with values ranging from 0-0.83 and a median (IQR) of 0.14 (0.08, 0.25). The dotted line presents the cut-off 0.25. B) Composite cognition score value ranges from 4 to 43, with a mean of 27.01 (SD=6.36) and a median of 27 (IQR = 22,32). Poor cognition is defined as cognition score ≤ 18 (10th percentile marked as dotted line in the graph).



S3 Fig. Missingness in deficit scores. BMI:Body mass index; Mobility1:Walking 100 yards; Mobility2:Sitting for 2 hours or more; Mobility3:Getting up from a chair after sitting for long period; Mobility4:Climbing one flight of stairs without resting ; Mobility5:Stooping, kneeling or crouching; Mobility6:Reaching or extending arms above shoulder level (either arm); Mobility7:Pulling or pushing large objects; Mobility8:Lifting or carrying weights over 5 kilos, like a heavy bag of groceries; Mobility9:Picking up a coin from a table; Activities of Daily Living (ADL) 1:Dressing, including putting on chappals, shoes, etc.; ADL2:Walking across a room; ADL3:Bathing; ADL4:Eating; ADL5:Getting in or out of bed; ADL6:Using the toilet, including getting up and down; ADL7:Preparing a hot meal (cooking and serving); ADL8:Shopping for groceries; ADL9:Making telephone calls; ADL10:Taking medications; ADL11:Doing work around the house or garden; ADL12:Managing money, such as paying bills and keeping track of expenses; ADL13:Getting around or finding address in unfamiliar place.



S4 Fig. Prevalence of frailty across states, in middle-aged and elderly men and women. Individuals with frailty index > 0.21 were considered as frail. Prevalence estimates are weighted, using state-level individual sampling weights provided in data.



S5 Fig. Forest plot of adjusted odds ratios (95% CI) for frailty, by participants' background characteristics, using income as the economic indicator. Annual per capita household income is used as the economic indicator, instead of monthly per capita consumption expenditure. Per capita household income is computed by aggregating income from all sources (agricultural and non-agricultural business, wage/salary, pension and transfers) and dividing by the number of household members.