Journal of Social and Economic Development
https://doi.org/10.1007/s40847-023-00238-z

RESEARCH PAPER

Economic well-being of middle-aged and elderly adults in India: variations by household composition

Sanjay K. Mohanty[1] · P. Arokiasamy[2] · Itishree Nayak[3] · Prashant Shekhar[4]

Accepted: 31 January 2023

Abstract
Using data on 42,949 households from the recently conducted Longitudinal Ageing Study of India, this paper examined the economic well-being of middle-aged and elderly adults in India. All households were classified into three mutually exclusive groups: households with only elderly members (60+), households with both elderly and non-elderly members, and households with no elderly members. Economic well-being was assessed using subjective well-being and a composite index that comprised per capita consumption expenditure, monthly per capita income, and wealth index. The mean value of the economic well-being index of middle-aged and elderly adults was 53.8 (95% CI 53.3–54.4). It was 51.6 among households with only elderly members, 53.5 among households with both elderly and non-elderly members, and 54.9 among households without any elderly members. Health expenditure accounted for 20% of the consumption expenditure among households with only elderly members compared to 13% among households with both elderly and non-elderly members and 12% among those with no elderly members. Controlling for socio-demographic characteristics, households with only elderly members and those with both elderly and non-elderly members had a lower economic status compared to households with no elderly members. Subjective well-being was positively and significantly associated with the objective measures of well-being as measured by the composite index. When the economic well-being was measured using per capita consumption expenditure alone, households with middle-aged and elderly adults were found to be better-off than households with non-elderly members. However, when we measured the economic condition using the comprehensive economic measure, we found the elderly households to be poorer than the non-elderly households. Economic independence is key for the elderly living independently, but the poor elderly have no choice except to live with their children for their survival. These findings highlight the need for strengthening social security and ensuring health protection for the elderly in India.

Keywords Elderly · Non-elderly · Economic well-being · LASI · India

✉ Sanjay K. Mohanty
sanjayiips@yahoo.co.in

Extended author information available on the last page of the article

Published online: 28 February 2023

Introduction

In the developing countries, the demographic transition is leading to fast increase in median age, size, and share of the elderly population, widowhood, and old-age dependency (WHO 2011; Fuster 2017; Isherwood et al. 2017). These demographic changes are causing societal changes and increasing the economic insecurity and the disease burden among elderly. They are also associated with a rise in nuclear families, an increase in individualism, and growth in mobility (Bianchi 2014). While these changes affect everyone, the elderly population is especially vulnerable due to retirement from workforce, reduced or no income, deteriorating health, rising disease burden, increasing familial responsibility, and social isolation (UN 2013; Bloom et al. 2003; Sheiner 2014; Maestas et al. 2016; Kämpfen et al. 2018). Disease burden and financial catastrophe also have a strong age gradient (Mohanty et al. 2014; Prince et al. 2015; Arsenijevic et al. 2016).

Socio-economic development and urbanisation act as catalysts of the decline in intergenerational co-residence worldwide (Szołtysek et al. 2011; Hughes and Waite 2002). With increasing levels of development, the traditional family system has weakened and nuclear families have become mainstream (Chakravorty et al. 2021). An increasing proportion of middle-aged and elderly adults are now living alone or with their spouses or with their unmarried children (Ruggles and Heggeness 2008). The living arrangements of older adults are associated with their economic well-being, physical and psychosocial health, and life satisfaction (Zimmer and Das 2014). Rising incomes, increasing coverage of social support system, growing mobility, and falling dependency on agriculture are driving the trend of independent living arrangements among the elderly (Szołtysek et al. 2011). At the same time, social and demographic factors like privacy among younger couples, internal migration (Taylor and Bain 2005), social networking, and changes in patterns of marriage, cohabitation, and divorce are changing the household composition (Kaur and Singh 2013). The life satisfaction of the elderly is associated with their financial well-being and social capital (Yeo and Lee 2019). Household income is another key determinant of the mental health and well-being of the elderly (Jeon et al. 2007).

India had 136 million older persons (60+) in 2020, accounting for 10% of the country's population. It is the second largest country in the world in terms of size and growth of the elderly population (MoHFW 2019). The growth rate of the elderly population is 3.5% compared to 0.07% of children aged 0–14 years in India (MoHFW 2019).

The longevity of the elderly has been increasing across the states and socio-economic spectrum of India. But half of the elderly are financially dependent, and two-fifths do not have any source of income (Kulkarni et al. 2016). Less than 10% of India's total workforce works in the organised sector, and the coverage of old-age pension is low and inadequate (Maestas et al. 2016). The extent of poverty is higher among the elderly households compared to the non-elderly ones (Srivastava and Mohanty 2012). Hospitalisation and out-of-pocket expenditure (OOPE) have a strong age gradient, with elderly households being more likely to have high OOPE and catastrophic health spending (Pandey et al. 2018; Kastor and Mohanty 2018). Despite that, the insurance sector in India systematically excludes the elderly and the chronically sick adults from its ambit.

Large-scale population-based health surveys, such as the NSSO and the NFHS, provide large amounts of data in India. Yet neither of them provides comprehensive information on the economic well-being of households. The National Sample Survey (NSS) collects consumption expenditure data regularly but does not collect information on household income, assets, and debt. The National Family and Health Survey (NFHS), on the other

hand, collects information neither on consumption expenditure nor on household income but, instead, uses economic proxies (the wealth index) that do not adequately capture the economic well-being of households, especially households with elderly persons. Filling this void, the Longitudinal Ageing Study in India (LASI) provides detailed data on the consumption, income and assets, and debts of older adult households. Using data from LASI, we present a comparative assessment of the economic well-being of households with only elderly members, households with both elderly and non-elderly members, and households with no elderly member in India.

Data and methods

Data

We used the unit data from wave 1 of the Longitudinal Ageing Study in India (LASI), 2017–18. LASI is India's first and the world's largest-ever comprehensive nationwide study on the health, economic, and social well-being of older adults (45+). It was harmonised with the Health and Retirement Survey (HRS) family of ageing studies for cross-country comparison. LASI is a collaborative study of the *International Institute for Population Sciences (IIPS), Mumbai, the Harvard Chan School of Public Health (HSPH), USA, and the University of Southern California (USC), USA,* with financial support from the Ministry of Health and Family Welfare, Government of India, the National Institute of Ageing (NIA), USA, and the UNFPA-India. The LASI survey was canvassed among sample households with at least one member aged 45+. A total of 42,949 households, comprising 72,250 individuals aged 45 years and above, across all the states and union territories except Sikkim (the survey was under way in Sikkim at the time of the release of the LASI data), were successfully interviewed using the stratified multistage probability cluster sampling design. Detailed information on the survey design, contents, and process of LASI is available in the public domain (IIPS, HSPH, and USC 2020).

LASI canvassed a household schedule, an individual schedule, a biomarker schedule, and a community schedule from the eligible households and age-eligible respondents. Figure 1 presents the flowchart of the detailed information collected on household economic condition in the survey. The LASI household schedule collected information on the demographics of each household member and on the housing condition, sanitation, living conditions, consumption, income, wealth, debt and loans, and the subjective economic well-being of each household. An abridged version of the consumption schedule, covering over 30 questions, was canvassed, which facilitated the estimation of household consumption expenditure on food and non-food items for 30 days preceding the survey. The information on non-food expenditure included expenditure incurred on hospitalisation and outpatient services and was treated as being a part of household consumption. Questions on income were canvassed carefully to capture annual income all participating household members from all sources. A set of seven screening questions was asked to identify the sources of income. Annual household income by source was estimated and aggregated to obtain total household income and then converted into per capita income by dividing the total income by household size. Detailed questions were also asked on assets, debts and loans, and reasons for loans. The question on the subjective economic well-being read as follows: *How well, would you say, your*

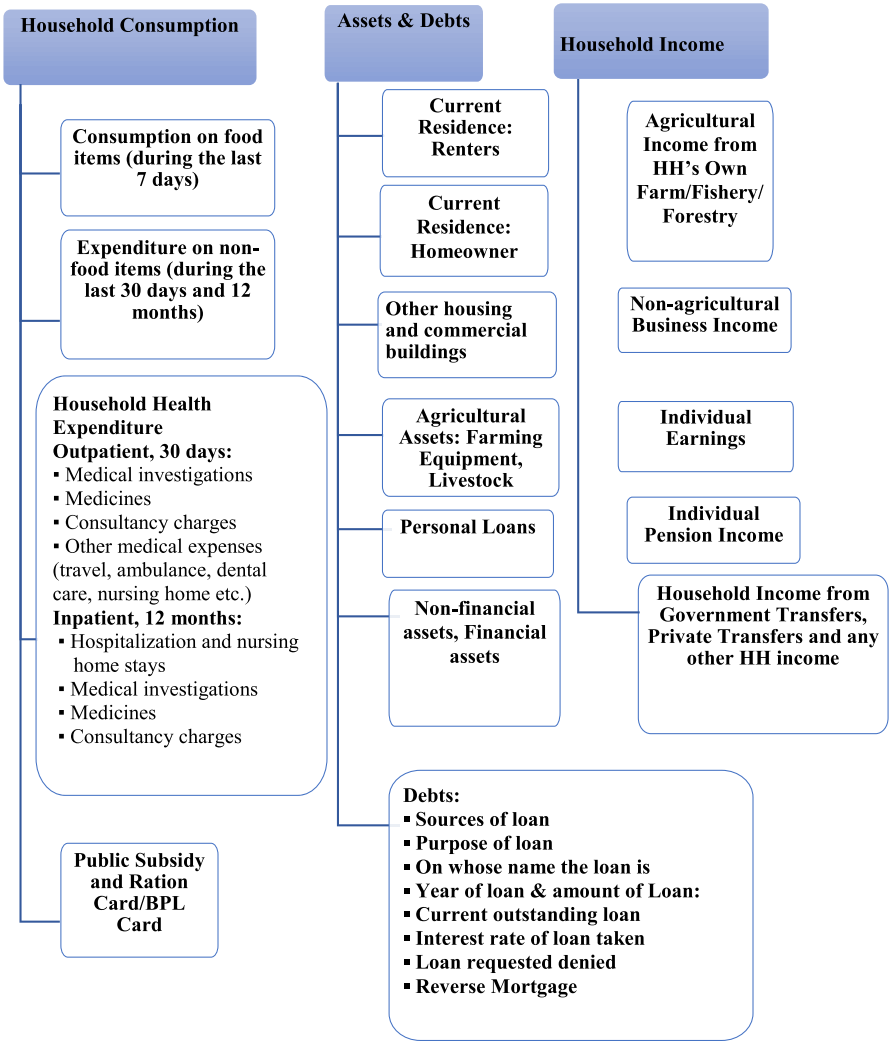

Fig. 1 Schematic representation of economic modules covered in LASI, wave 1

household is managing financially these days? We used all these economic variables to provide a summary measure of the economic well-being of elderly households in India.

Methods

We used descriptive statistics, constructed composite indices, and performed multivariate analyses to understand the economic well-being of middle-aged and elderly adults in India. A brief description of these methodologies is given below.

Construction of wealth index

The wealth index was computed from a set of variables on household consumer durables, ownership of house, and household amenities by using the principal component analysis (PCA) (Filmer and Pritchett 2001; Rutstein and Johnson 2004; Rutstein 2015). PCA generates as many principal components as there are variables, with each principal component being the weighted sum of all the variables. The first principal component was used in the estimation. A total of 28 variables for rural areas and 26 for urban areas were used to compute the wealth index. We calculated the combined score using the appropriate urban and rural factor scores, constants, and coefficients (Rutstein 2015). The wealth index was classified into five quintiles: poorest, poorer, middle, richer, and richest. Cronbach α was used to check the reliability of the variables used in the construction of the asset-based wealth index.

Index of consumption, index of income, and wealth index

We measured the economic well-being by combining the monthly per capita consumption expenditure, the monthly per capita income, and the wealth index. For constructing the composite index, we used a minimum value of ₹100 each for per capita consumption and per capita income. The upper limits of per capita consumption and per capita income were truncated at 99 percentiles, with values of ₹14,179 and ₹31,562, respectively. We then used a logarithmic transformation of the consumption and income variables due to their skewed distribution. In the case of the wealth index, we made the composite score begin from 0 by adding a constant term of 5.99 such that the composite score ranged from − 5.99 to 8.61. The minimum and maximum values of these variables are given in Table 2. The consumption, income, and wealth were normalised by using the standard method.

Index of monthly per capita consumption expenditure (IMPCE)

The index was computed as follows:

$$\mathrm{IMPCE} = \frac{\ln\left(\mathrm{MPCE}_i\right) - \ln\left(100\right)}{\ln\left(14,179\right) - \ln\left(100\right)} \tag{1}$$

where MPCE_i is the monthly per capita expenditure of the ith individual, and ₹100 and ₹14,179 are, respectively, the minimum and maximum monthly expenditures of an individual.

Index of per capita income (IPCI)

The index was computed as follows:

$$\mathrm{IPCI} = \frac{\ln\left(\mathrm{PCI}_i\right) - \ln\left(100\right)}{\ln\left(31,562\right) - \ln\left(100\right)} \tag{2}$$

where PCI_i is the monthly per capita income of the ith individual, and ₹100 and ₹31,562 are, respectively, the lower and upper limits.

Index of wealth (IW)

The index was computed as follows:

$$IW = \frac{Compositscore_i - 0}{14.59 - 0} \tag{3}$$

Index of economic well-being (IEWB)

The index was computed by using the arithmetic mean of the indices of consumption, income, and wealth.

$$\text{Index of economic wellbeing} = \frac{1}{3}(IMPCE + IPCI + IW) \times 100 \tag{4}$$

The composite index varies in the range of 0 and 100. The closer the value to 100, the better the economic well-being, whereas the closer the value to 0, the worse the economic well-being.

Outcome variables

The composite index of economic well-being that combined the objective measures of monthly per capita consumption expenditure, monthly per capita income, and wealth index was the main outcome variable. The subjective well-being of a household was the other outcome variable.

Independent variables

Households were classified into three mutually exclusive categories based on their composition. These categories were used as the main independent variable and included: (a) households with only members aged 60 years and above, (b) households with both elderly and non-elderly members and (c) households with no elderly members but a member aged 45+.

Descriptive statistics, ordinary least squares regression, and ordered probit regression were used in the analyses. The ordinary least squares (OLS) regression equation was estimated by using the composite index of economic well-being, taking MPCE as the dependent variable. The basic OLS regression model can be expressed as:

$$Y_i = \alpha + \beta X_i + \epsilon_i \tag{5}$$

where Y_i is the composite index of economic well-being of the ith individual; α and β are the parameters to be estimated; X_i is the vector of the explanatory variables that includes age, sex, and marital status of the elderly, size of household, and caste, religion, place of residence, and educational attainment of head of household; and ϵ_i is the disturbance term assumed to be independently and identically distributed (i.i.d.).

The subjective measure of economic well-being—a dependent variable—was re-categorised on a 1–5 scale as follows: finding it very difficult (1), finding it difficult (2), just about getting by (3), doing all right, (4) and living comfortably (5). The response was in the order scale, so an ordered probit model was used in the analysis.

The mathematical form of an ordered probit model is given as:

$$y_i^* = X_i'\beta + \varepsilon_i \;\; i = 1, 2, 3, 4, \ldots, N \tag{6}$$

where y_i^* is the observed ordinal rating (level of subjective economic status on a scale of 1–5), X is a vector of the independent variables mentioned before, and β is a vector of the parameters. The error term (ε_i) is assumed to be independently and identically normally distributed, N (0, 1).

Results

Table 1 presents the summary measures of economic well-being and health spending by type of households in India. About half of the households (50%) had both elderly and non-elderly members, 9% had only elderly members, and 41% had no elderly members but a member aged 45–59 years. Household size and median age varied considerably across the three types of households. Per capita health expenditure accounted for one-fifth of the household consumption expenditure in households with only elderly members, compared to 13% in households with both elderly and non-elderly members and 12% in households with non-elderly members. However, the Gini index was similar across each type of household. The composite wealth index score was 30.1 among elderly-only households, 43.2 among households with both elderly and non-elderly members, and 41.2 among households without any elderly member in India.

Figure 2 shows the comparison of MPCE with and without health expenditure by type of households in India. Both MPCE (health expenditure inclusive) and MPCE less of health expenditure were found to be the highest in households with only elderly members, followed by households with no elderly members and households with both elderly and non-elderly members. Figure 3 shows the cumulative distribution function (CDF) of MPCE by type of households in India. The CDF of households without any elderly member was above that of households with no elderly members and households with both elderly and non-elderly members. This suggests that at each stage of the distribution, the MPCE of households with both elderly and non-elderly members was the lowest and that of elderly-only households was the highest. Figure 4 presents the CDF of per capita income by type of households. At the upper end of the distribution, households with only elderly members had the lowest MPCI as compared to the other two types of households. At each stage of the distribution, the MPCI was the highest in households where both elderly and non-elderly members resided. Table 2 presents the log transformation of the minimum and maximum values of MPCE, MPCI, and the wealth index and their mean and standard deviation for all sample households. The standard deviation was 0.69 in the consumption index, 1.14 in the income index, and 2.38 in the wealth index. Table 3 presents the mean of three economic indices as the composite index by type of household composition in India. The index of MPCE was 65.4, the index of MPCI was 54.7, and the wealth index was 41.1 for all middle-aged and elderly adults in India.

Table 1 Summary indicators of economic well-being and health spending by type of households, India, LASI wave 1, 2017–2018

Variables	Households with only elderly members	Households with both elderly and non-elderly members	Households without elderly members	All
Number of households	3818	21,383	17,738	42,939
Percentage share in households	8.89	49.8	41.31	100
Median age	69	32	26	30
Average household size	1.57	5.55	4.61	4.8
Percentage urban	23.43	31.92	33.48	31.64
Monthly per capita consumption expenditure (in ₹)	3868	2898	3001	2967
95% confidence interval	[3760–3975]	[2842–2954]	[2965–3036]	[2842–2954]
Non-food expenditure(in ₹)	1721	1459	1460	1468
95% confidence interval	[1639–1804]	[1409–1508]	[1433–1487]	[1409–1508]
Non-food expenditure as share of consumption expenditure	44.51	50.34	48.67	49.48
Per capita health expenditure (in ₹)	792	384	352	386
95% confidence interval	[730–853]	[372–396]	[336–368]	[372–396]
Health expenditure as a share of MPCE	20.47	13.24	11.73	13.01
MPCE less of health expenditure	3076	2514	2648	2581
95% confidence interval	[2999–3153]	[2461–2567]	[2618–2679]	[2549–2612]
Gini index (MPCE)	0.39	0.37	0.36	0.37
Mean years of schooling of household members (60+)	7.59	8.77	8.9	8.79
Wealth index* [95% CI]	30.1 [29.2–31]	43.2 [42.3–44]	41.1 [40.1–42.1]	41.1 [40.4–41.7]

*Wealth index was created by taking combined wealth score

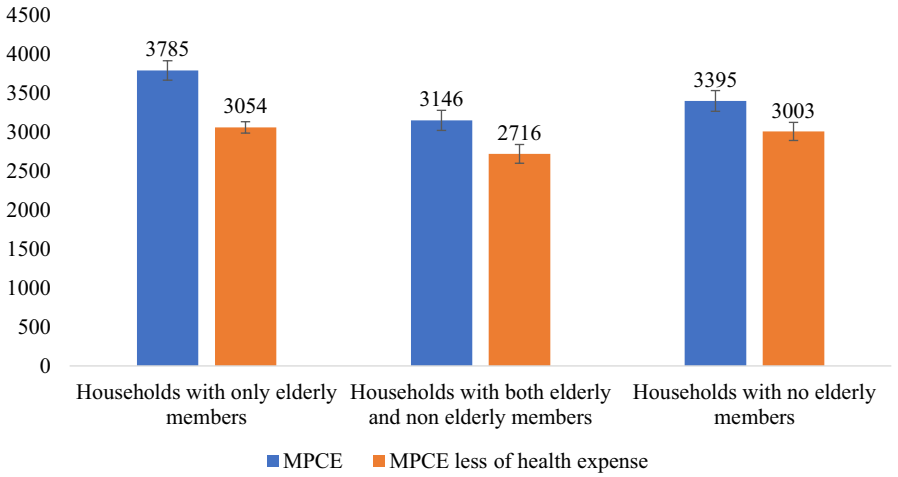

Fig. 2 Comparison of MPCE and MPCE less of health expense among adult households (45+) by type of households, in India, 2017–2018

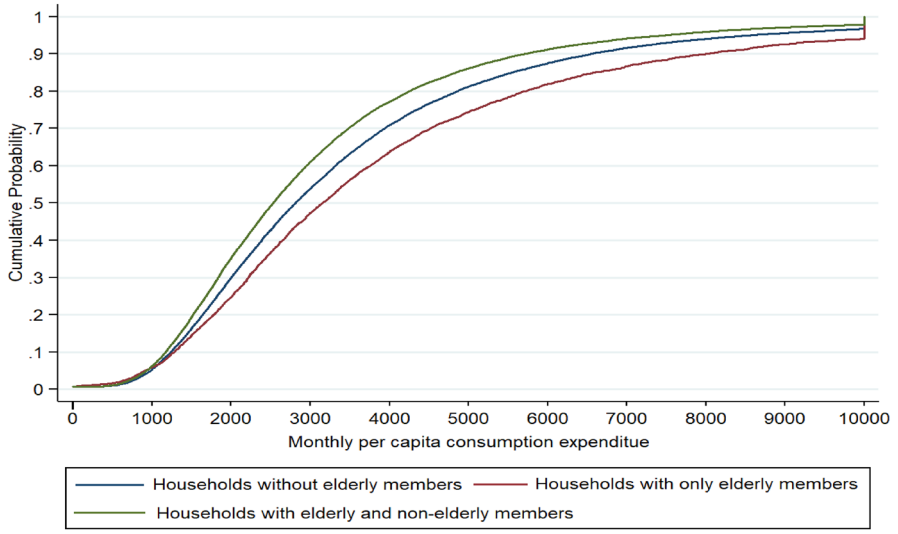

Fig. 3 Probability distribution function of MPCE by only elderly, both elderly and non-elderly and non-elderly households in India, 2017–2018

Table 4 presents the composite index by socio-economic and demographic characteristics and by type of elderly households in India. At 54.9 (CI 53.9–55.9), the index value was the highest for households with no elderly members, followed by 53.5 (CI 52.9–54.1) for households with both elderly and non-elderly members, and 51.6 (CI 50.8–52.5) for households with only elderly members. The composite index was higher in the urban areas, and the pattern was similar across different types of households. Households with a BPL card had a lower index value compared to those that did not have the card across all three types

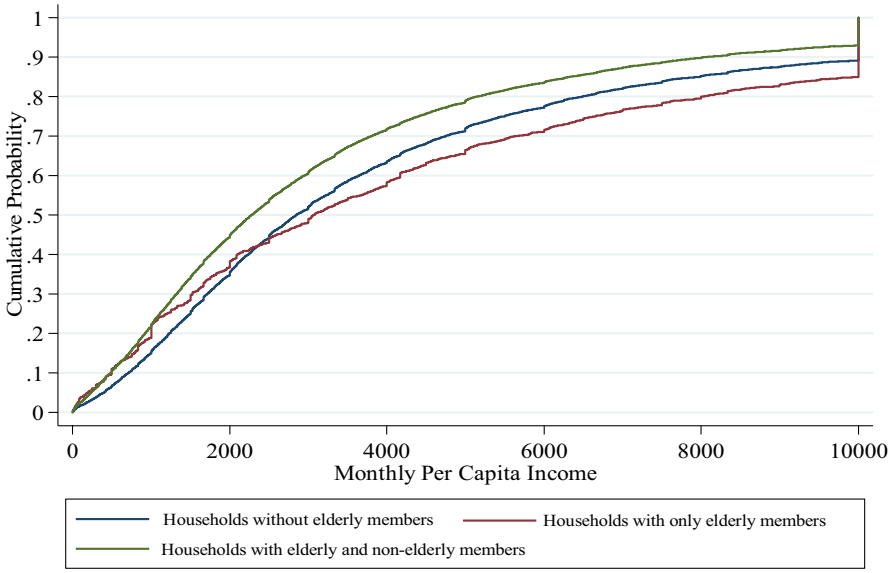

Fig. 4 Probability distribution function of MPCI by only elderly, both elderly and non-elderly and non-elderly households in India, 2017–2018

Table 2 Minimum and maximum values of MPCE, MPCI, and wealth index, India, 2017–2018

	Minimum	Maximum	Mean (SE)
Log (MPCE)	4.60	9.55	7.90 (0.69)
Log (MPCI)	4.60	10.35	7.76 (1.15)
Wealth index	0.00	14.59	6.20 (2.38)

Table 3 Index of MPCE, index of MPCI, wealth index, and composite index and 95% CI by household composition among middle-aged adults and elderly in India, 2017–2018

Index	Households with only elderly members	Households with elderly and non-elderly members	Households without elderly members	All households
Index of MPCE	67.6 (66.6–68.6)	64.3 (63.7–64.9)	66.4 (65.3–67.5)	65.4 (64.9–66.0)
Index of MPCI	57.0 (55.7–58.3)	52.7 (52.0–53.5)	56.9 (55.9–57.9)	54.7 (54.1–55.3)
Wealth index	30.1 (29.2–31.0)	43.2 (42.3–44.0)	41.1 (40.1–42.1)	41.1 (40.4–41.7)
Composite index	51.6 (50.8–52.5)	53.5 (52.9–54.1)	54.9 (53.9–55.9)	53.8 (53.3–54.4)

of households. The composite index declined monotonically with increase in household size. Female-headed households had a lower index value compared to the male-headed ones across all three types of households. The composite economic index for all three types of households increased as the level of education of head of household increased from no education to higher secondary.

Table 4 Composite index by households' composition and socioeconomic characteristics in India, LASI wave 1, 2017–2018

Background characteristic	Composite index and 95% CI			
	Households with only elderly members	Households with both elderly and non-elderly members	Households without elderly members	All households
BPL card				
No	53.8 (52.4–55.1)	56.8 (55.8–57.7)	57.6 (56.0–59.3)	56.8 (56.0–57.6)
Yes	49.0 (48.3–49.8)	49.3 (49–49.7)	51.9 (51.4–52.3)	50.3 (50.0–50.6)
Place of residence				
Rural	48.3 (47.6–48.9)	49.8 (49.5–50.1)	51.1 (50.9–51.4)	50.1 (49.9–50.3)
Urban	62.9 (61.3–64.4)	61.5 (60.3–62.8)	62.5 (60.4–64.5)	62.0 (61.0–63.0)
Household size				
1–2	51.6 (50.7–52.4)	54.5 (53.5–55.6)	58.3 (57.3–59.3)	54.1 (53.5–54.6)
3–4	56.1 (51.8–60.3)	55.6 (54.6–56.6)	58.0 (55.9–60.1)	56.8 (55.6–58.1)
5–6	56.1 (53.4–58.8)	54.5 (53.2–55.8)	52.5 (52.1–53.0)	53.8 (52.9–54.7)
7 and more	–	49.9 (49.4–50.4)	48.1 (47.5–48.7)	49.4 (49.0–49.8)
Sex of head of household				
Male	52.8 (51.9–53.7)	53.6 (53.0–54.2)	55.3 (54.1–56.5)	54.2 (53.6–54.8)
Female	49.1 (47.7–50.4)	53.0 (50.8–55.2)	53.1 (52.1–54)	52.2 (51.1–53.3)
Marital status of head of household				
Currently married	53.1 (52.1–54)	53.8 (53.1–54.5)	55.4 (54.2–56.6)	54.3 (53.7–55.0)
Others	49.5 (48.3–50.6)	52.7 (51.3–54)	52.9 (52–53.9)	52.1 (51.4–52.9)
Educational level of head of household				
No education	46.8 (46.2–47.5)	47.9 (47.5–48.3)	51.5 (48.4–54.5)	49.1 (47.8–50.3)
Primary	50.3 (48.1–52.5)	51.0 (50.4–51.5)	53.1 (52.6–53.7)	51.7 (51.3–52.1)
Secondary	59.1 (57.6–60.6)	55.6 (54.4–56.8)	56.3 (55.7–56.9)	56.0 (55.3–56.7)
Higher secondary	71.5 (69.7–73.4)	64.0 (62.3–65.7)	63.8 (63.0–64.5)	64.3 (63.3–65.4)
Caste of head of household				
Scheduled tribe (ST)	49.8 (44.2–55.4)	46.3 (45.6–47.0)	48.5 (47.5–49.4)	47.6 (46.7–48.4)
Scheduled caste (SC)	48.3 (47.2–49.4)	49.3 (48.7–49.9)	52.4 (51.7–53.2)	50.4 (50.0–50.9)

Table 4 (continued)

Background characteristic	Composite index and 95% CI			
	Households with only elderly members	Households with both elderly and non-elderly members	Households without elderly members	All households
Other backward class (OBC)	50.4 (49.3–51.5)	54.1 (52.9–55.3)	55.7 (53.5–57.8)	54.3 (53.2–55.3)
None of above	57.6 (56.1–59.0)	57.7 (56.9–58.4)	58.4 (57.9–58.9)	57.9 (57.5–58.4)
Religion of head of head of household				
Hindu	51.6 (50.6–52.5)	53.6 (52.9–54.3)	54.3 (54.0–54.7)	53.6 (53.3–54)
Muslim	50.1 (47.6–52.5)	52.1 (49.6–54.5)	57.4 (51.4–63.4)	54.2 (51.1–57.4)
Christian	53.6 (51.3–55.9)	51.9 (50.5–53.3)	53.8 (52.8–54.9)	52.9 (52.0–53.7)
Other	55.2 (51.6–58.8)	57.8 (56.7–58.8)	58.6 (57.2–59.9)	57.8 (57.0–58.6)
Wages/salary received				
Yes	51.9 (51.0–52.8)	53.7 (53–54.4)	55.5 (54.3–56.8)	54.4 (53.7–55.1)
No	51.6 (50.4–52.7)	53.1 (52.1–54.1)	53.1 (52.3–54.0)	52.8 (52.2–53.4)
India	51.6 (50.8–52.5)	53.5 (52.9–54.1)	54.9 (53.9–55.9)	53.8 (53.3–54.4)

Table 5 Estimated coefficients of ordinary least square (OLS) regression analysis of composite index with selected socioeconomic characteristics, India, LASI wave 1, 2017–2018

Background characteristics	Coeff.	*p*-value	95% confidence interval
Household composition			
No elderly members in household®			
Only elderly members in household	−0.82	0.09	[−1.74 to 0.11]
Both elderly and non-elderly members in household	−0.55	0.06	[−1.13 to 0.03]
Total members in house			
Household size	−0.38	<0.001	[−0.48 to −0.28]
Place of residence			
Rural®			
Urban	6.13	<0.001	[5.29 to 6.96]
BPL card holder			
No®			
Yes	−3.89	<0.001	[−4.58 to −3.2]
Caste			
Schedule tribe (ST)®			
Scheduled caste (SC)	2.20	<0.001	[1.36 to 3.05]
Other backward class (OBC)	4.13	<0.001	[3.28 to 4.97]
Others	6.09	<0.001	[5.13 to 7.05]
Religion			
Hindu®			
Muslim	−0.65	0.39	[−2.11 to 0.82]
Christian	0.48	0.32	[−0.45 to 1.41]
Others	1.19	0.03	[0.12 to 2.26]
Sex of head of the household			
Male®			
Female	−0.43	0.49	[−1.67 to 0.8]
Level of education			
No education®			
Primary	1.61	<0.001	[0.79 to 2.44]
Secondary	4.07	<0.001	[3.01 to 5.13]
Higher secondary	9.64	<0.001	[8.45 to 10.83]
Marital status			
Currently married®			
Others	−0.39	0.22	[−1.02 to 0.23]
Wages/salary received			
Yes®			
No	−2.46	<0.001	[−3.14 to −1.79]

Table 5 gives the result of the regression analysis, with composite index as the dependent variable. Households with only elderly members (−0.82, 95% CI −1.74–0.11) and those with both elderly and non-elderly members (−0.55, 95% CI −1.13–0.03) had significantly lower values compared to households with no elderly members. With every additional member, the composite index value was likely to

reduce by 0.38, suggesting that household size was negatively associated with the economic well-being of middle-aged and elderly households. Residents of urban areas had higher index values than rural residents. The composite index was lower for BPL

Table 6 Ordered probit regression model estimates of effect of household and background characteristics on economic condition of households, India, LASI wave 1, 2017–2018

Background characteristics	Coeff.	*p*-value	95% confidence interval
Household composition			
No elderly members in household®			
Only elderly members in household	−0.15	<0.001	[−0.24 to −0.06]
Both elderly and non-elderly members in household	0.11	<0.001	[0.05 to 0.17]
Combined economic index			
Combined economic index	0.04	<0.001	[0.04 to 0.04]
Total members in house			
Household size	0.06	<0.001	[0.05 to 0.07]
Place of residence			
Rural®			
Urban	0.07	0.11	[−0.01 to 0.15]
BPL card holder			
No®			
Yes	−0.12	<0.001	[−0.18 to −0.06]
Caste			
Schedule tribe (ST)®			
Scheduled caste (SC)	−0.15	<0.001	[−0.25 to −0.05]
Other backward class (OBC)	−0.07	0.16	[−0.16 to 0.03]
Others	−0.08	0.10	[−0.18 to 0.02]
Religion			
Hindu®			
Muslim	−0.15	<0.001	[−0.25 to −0.05]
Christian	−0.04	0.39	[−0.15 to 0.06]
Others	−0.13	0.03	[−0.24 to −0.01]
Sex of head of the household			
Male®			
Female	0.06	0.19	[−0.03 to 0.15]
Level of education			
No education®			
Primary	0.09	0.01	[0.03 to 0.15]
Secondary	0.18	<0.001	[0.11 to 0.25]
Higher secondary	0.44	<0.001	[0.3 to 0.57]
Marital status			
Currently married®			
Others	−0.05	0.30	[−0.14 to 0.04]
Wages/salary received			
Yes®			
No	0.32	<0.001	[0.26 to 0.38]

card holders and for those who were not receiving any wage/salary compared to their counterparts. Compared to the scheduled tribe households (the reference category), households belonging to the categories of scheduled caste, other backward classes, and "others" had a higher composite index. The level of educational attainment of head of household was found to be positively and significantly associated with the economic condition. There were no significant differences in the overall economic well-being by religion, marital status, and sex of head of household.

Table 6 presents the results of the ordered probit regression of households' perceived economic status (subjective well-being) by household composition, composite index, and other sociodemographic factors. Households having only elderly members were less likely to report better economic conditions (−0.15, CI −0.24 to −0.06) compared to those without an elderly member. However, households having both elderly and non-elderly members were more likely to report better economic conditions (0.11, CI 0.05–0.17). The likelihood of reporting higher economic conditions increased with the increase in the composite index of the household (0.04, CI 0.03–0.04). Those having a BPL card were less likely to report better economic conditions compared to those who did not have the card. Education was found to be a significant predictor of perceived economic status. Marital status and sex of head of household were not significant predictors of perceived economic status among middle-aged and elderly adults in India.

Discussion

Households in India are the main caregivers to the elderly, and the economic well-being of households is a key determinant of elderly health and overall well-being. The elderly are a particularly vulnerable section of the population due to the rise in economic insecurity, decline in health, increase in medical spending, weakening of family system, and low social protection. In this context, this paper examined the economic well-being of middle-aged and elderly adults by household composition in India. Households were classified into three mutually exclusive groups: households with only elderly members, households with both elderly and non-elderly members, and households with no elderly member. This classification was guided by the fact that middle-aged and elderly adults are not a homogenous group and that their economic independence is one of the key determinants of their living arrangement. In contrast to the conventional analyses that focus only on per capita consumption as a measure of economic conditions, we measured economic well-being using a composite index that included per capita consumption, per capita income, and household assets and amenities. The following are the key findings of this study.

First, in the composite index of economic well-being, middle-aged and elderly adults ranked 54 on a 0–100 scale. The average score of per capita consumption was higher than that of income and wealth among middle-aged and elderly adults. This is possibly due to the high share of health expenditure in the consumption basket of middle-aged and elderly adults in India. The per capita health expenditure of middle-aged and elderly adults accounted for 13% of the per capita consumption expenditure, which was higher than that of the overall population. An earlier study estimated the per capita health expenditure at 6.2% of the consumption expenditure for all households in India (Mohanty et al. 2018).

Second, the overall economic well-being of households varied by household composition. The composite index of economic well-being of households with only elderly members was lower than that of households with both elderly and non-elderly members and

of households without elderly members. The proportion of households with a wage or a salary was the lowest among elderly-only households. Many of the elderly were out of the workforce due to retirement or inability to work. Elderly households were also poorer in terms of wealth accumulation compared to non-elderly households. The share of health expenditure was also the highest among households with only elderly members compared to households without any elderly members. Our findings suggest that the living conditions of older and elderly adults have a strong age gradient.

Third, households with only elderly members were a heterogeneous group that included single member widow/widower households that were economically poor. Elderly persons live alone when their children are away, if they do not have offspring, if they prefer to live separately because of financial independence, or if their children get them separated. A large proportion of elderly persons have no income or pension, which compels them to live with their children.

Fourth, among other factors, the composite index of economic well-being of rural households, female-headed households, and households with low levels of income were significant predictors of elderly subjective well-being. These findings are a strong confirmation of previous assessments that in many countries, in the absence of social protection systems and due to the low asset holding, savings are not sufficient to guarantee adequate income to the elderly persons until the end of their lives. This makes older persons particularly vulnerable to economic insecurity as well as to poverty and poor health, with limited options for escape (Kumar 2003; Bloom et al. 2010; UN 2013).

Our findings call for a strengthening of the social security measures for elderly households in India. It may be mentioned that various old-age pension schemes, as a part of the social security programme, are being implemented in all the states of India. In 1995, the Government of India initiated the National Old Age Pension Scheme as a social assistance program for the poor older adults. It covered all persons over 65 years, and under this scheme both men and women were given an amount of Rs.75 per month. The National Old Age Pension Scheme was renamed as Indira Gandhi National Old Age Pension Scheme (IGNOAPS) in 2007. The amount of pension under IGNOAPS was raised from Rs. 75 to Rs. 200/-per month per beneficiary, and there was a provision where the state governments may contribute over and above to this amount. The primary aim of this program was to provide social security through proving financial assistance to its beneficiaries, including senior citizens, widows, and disable people.

In 2011–2012, it reduced the upper age limit from 64 to 60 years. In 2021–2022, under IGNOPAS, a total of 22.1 million beneficiaries were covered and a sum of 4864 crore were disbursed under direct benefit transfer (NSAP 2023). The Indira Gandhi National Widow Pension Scheme, implemented in 2009, provides pension to widows aged 40–59 years from below poverty line households. In 2021–2022, a total of 6.7 million beneficiaries were covered under IGNWPS and a sum of 1453 crore were disbursed under direct benefit transfer. The monetary assistance provided under these different schemes is too small and not regular enough to meet the needs of the elderly (Kohli et al. 2017). Studies suggest that elderly persons finding it difficult to prove their age to avail the benefits (Barnhart and Peñaloza 2013).

A number of other pension schemes are also being implemented through various financial institutions that provide higher interest rates to working and self-employed professionals as a part of the pension schemes. These include the Pradhan Mantri Vaya Vandana Yojana (PMVVY), the National Pension System (NPS), the Senior Citizen Savings Scheme (SCSS), etc. However, unlike IGNOAPS, the beneficiaries need to invest money for getting returns in old age. In addition, the government of India introduced the Annapurna scheme.

Under this scheme, people aged 65 years and above, those were not covered in Indira Gandhi National Old Age Pension Scheme, are entitled to 10 kg of free rice every month in the form of social help. Swadhar Scheme was launched by Union Ministry of Women and Child Health Development in 2002. Under this scheme, shelter homes are provided to widowed including elderly widowed. Food, clothing, counselling, legal help and training for rehabilitation are other components of the scheme. In Vrindavan, three homes for widows receive Swadhar assistance.

The Indian constitution and judiciary played a significant role in providing social and financial security to older people from time to time. The issue of widowed elderly or elderly staying alone has always been considered as one of the components of a multipronged program. The Maintenance and Welfare of Parents and Senior Citizens (Amendment) Bill, 2019 stipulated that the older adults regardless of their marital status can demand food, clothing, housing, safety and security, medical attendance, healthcare and treatment necessary for the parents to lead a life of dignity from their biological or adapted children. This bill gets rid of the upper limit of maintenance fees that was Rs. 10,000.

The central as well as the state governments need to enhance resource allocation for, and utilisation of, the social security programmes. The amount of money allocated for the social security of the elderly by various state and central governments is small, and the allocated amounts are not always spent. The health insurance coverage is growing in India but is still grossly inadequate for the financial protection of the elderly in low-income settings. Providing comprehensive medicare facilities to the elderly can protect them from financial catastrophe. In addition, it is crucial to increase, among elderly households, the awareness of health protection schemes such as the Health and Wellness Centres (HWCs) and the Pradhan Mantri Jan Arogya Yojana (PM-JAY) launched under the umbrella of Ayushman Bharat in 2018.

Acknowledgements Authors thank Dr. M. H Suryanarayana, Professor at Indira Gandhi Institute of Development Research (IGIDR), Mumbai, for guiding the economic section of LASI module and his thoughtful comments on draft paper.

Author contributions SKM done conceptualisation and design of study and drafting the manuscript; SKM, PS, and IN did analysis and interpretation of data;; PA and SKM contributed to critical revision of the manuscript for important intellectual content.

Funding Not applicable.

Data availability Longitudinal Ageing Study in India (LASI) wave 1 data have been used in the current study. Data are available for academicians, researchers and policy makers and can be requested online at: https://www.iipsindia.ac.in/content/data-request.

Code availability Not applicable.

Declarations

Conflict of interest The authors declare that they have no conflict of interest.

References

Arsenijevic J, Pavlova M, Rechel B, Groot W (2016) Catastrophic health care expenditure among older people with chronic diseases in 15 European countries. PLoS ONE 11(7):e0157765

Barnhart M, Peñaloza L (2013) Who are you calling old? Negotiating old age identity in the elderly consumption ensemble. J Consum Res 39(6):1133–1153

Bianchi SM (2014) A demographic perspective on family change. J Fam Theory Rev 6(1):35–44
Bloom DE, Mahal A, Rosenberg L, Sevilla J (2010) Economic security arrangements in the context of population ageing in India. Int Soc Secur Rev 63(3–4):59–89
Bloom D, Canning D, Sevilla J (2003) The demographic dividend: a new perspective on the economic consequences of population change. Rand Corporation, California
Chakravorty S, Goli S, James KS (2021) Family demography in India: emerging patterns and its challenges. SAGE Open 11(2):21582440211008176
Filmer D, Pritchett LH (2001) Estimating wealth effects without expenditure data—or tears: an application to educational enrollments in states of India. Demography 38(1):115–132
Fuster V (2017) Changing demographics: a new approach to global health care due to the aging population. J Am College Cardiol 69(24):3002–3005
Hughes ME, Waite LJ (2002) Health in household context: living arrangements and health in late middle age. J Health Soc Behav 43(1):1
IIPS, HSPH and USC (2020) Longitudinal ageing study in India (LASI), wave1, 2017–18, India Report. International Institute for Population Sciences, Mumbai
Isherwood LM, King DS, Luszcz MA (2017) Widowhood in the fourth age: support exchange, relationships and social participation. Ageing Soc 37(1):188–212
Jeon GS, Jang SN, Rhee SJ, Kawachi I, Cho SI (2007) Gender differences in correlates of mental health among elderly Koreans. J Gerontol B Psychol Sci Soc Sci 62(5):S323–S329
Kämpfen F, Wijemunige N, Evangelista B (2018) Aging, non-communicable diseases, and old-age disability in low-and middle-income countries: a challenge for global health. Int J Public Health 63:1011–1012
Kastor A, Mohanty SK (2018) Disease-specific out-of-pocket and catastrophic health expenditure on hospitalization in India: Do Indian households face distress health financing? PLoS ONE 13(5):e0196106
Kaur G, Singh S (2013) Changing patterns of marriage in Indian society. Indian J Econ Dev 9(3):261–267
Kohli C, Gupta K, Banerjee B, Ingle GK (2017) Social security measures for elderly population in Delhi, India: awareness, utilization and barriers. J Clin Diagn Res JCDR 11(5):LC10
Kulkarni S, Raju S, Bammidi S (2016) Social security for the elderly in India. Building knowledge base on ageing in India: Increased awareness, access and quality of elderly services thematic paper, 1
Kumar SV (2003) Economic security for the elderly in India: an overview. J Aging Soc Policy 15(2–3):45–65
Maestas N, Mullen KJ, Powell D (2016) The effect of population aging on economic growth, the labor force and productivity (No. w22452). National Bureau of Economic Research, Cambridge
Mohanty SK, Chauhan RK, Mazumdar S, Srivastava A (2014) Out-of-pocket expenditure on health care among elderly and non-elderly households in India. Soc Indic Res 115(3):1137–1157
Mohanty SK, Kim R, Khan PK, Subramanian SV (2018) Geographic variation in household and catastrophic health spending in India: assessing the relative importance of villages, districts, and states, 2011–2012. Milbank Q 96(1):167–206
MoHFW (2019) Report of the technical group on population projection. Population projection for India and States, 2011–36
National Social Assistance Programme (NSAP), Ministry of rural development, government of India. https://nsap.nic.in/. Accessed 8 Jan 2023
Pandey A, Kumar GA, Dandona R, Dandona L (2018) Variations in catastrophic health expenditure across the states of India: 2004 to 2014. PLoS ONE 13(10):e0205510
Prince MJ, Wu F, Guo Y, Robledo LMG, O'Donnell M, Sullivan R, Yusuf S (2015) The burden of disease in older people and implications for health policy and practice. Lancet 385(9967):549–562
Ruggles S, Heggeness M (2008) Intergenerational coresidence in developing countries. Popul Dev Rev 34(2):253–281
Rutstein SO, Johnson K (2004) The DHS wealth index. DHS comparative reports no. 6. ORC Macro, Calverton
Rutstein SO (2015) Steps to constructing the new DHS wealth index. ICF International, Rockville, MD
Sheiner L (2014) The determinants of the macroeconomic implications of aging. Am Econ Rev 104(5):218–223
Srivastava A, Mohanty SK (2012) Poverty among elderly in India. Soc Indic Res 109(3):493–514
Szołtysek M, Gruber S, Zuber-Goldstein B, Scholz R (2011) Living arrangements and household formation in an industrializing urban setting: Rostock 1867–1900. In: Annales de démographie historique, No. 2. Belin, pp 233–269. Cairn/Softwin
Taylor P, Bain P (2005) 'India calling to the far away towns' the call centre labour process and globalization. Work Employ Soc 19(2):261–282
UN. (2013) Inequality matters: report of the world social situation 2013. United Nations, New York

United Nations (2013) Income poverty in old age: an emerging development priority. Department of Economic and Social Affairs programme on ageing (UNDESA): social.un.org/ageing @UN4Ageing
WHO (2011) Global Health and Aging. https://www.who.int/ageing/publications/global_health.pdf
Yeo J, Lee YG (2019) Understanding the association between perceived financial well-being and life satisfaction among older adults: Does social capital play a role? J Fam Econ Issues 40(4):592–608
Zimmer Z, Das S (2014) How skip-generation and other older person household compositions in Sub-Saharan Africa relate to material well-being

Authors and Affiliations

Sanjay K. Mohanty[1] · P. Arokiasamy[2] · Itishree Nayak[3] · Prashant Shekhar[4]

P. Arokiasamy
parokiasamy@iips.net; parokiasamy@gmail.com

Itishree Nayak
itishreenayak1690@gmail.com

Prashant Shekhar
pshekhar227@gmail.com

[1] Department of Population and Development, International Institute for Population Sciences, Govandi Station Road, Deonar, Mumbai 400088, India

[2] International Institute for Population Sciences, Govandi Station Road, Deonar, Mumbai 400088, India

[3] National Institute of Medical Statistics, Indian Council of Medical Research, Main Ring Road, Ansari Nagar East, AIIMS Campus, New Delhi 110029, India

[4] Population Research Centre, The Maharaja Sayajirao University of Baroda, Vadodara, Gujarat 390002, India