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Understanding barriers and enablers of health insurance awareness among older adults in India: Insights from LASI, 2017–18, with a focus on migration status

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ABSTRACT

Background: Awareness of health insurance is uneven among older adults in India and remains a critical barrier to enrolment. This study examines the social and structural factors associated with health insurance unawareness among uninsured older adults in India, with particular attention to migration status.

Data & Methods: Data were drawn from Wave 1 of the Longitudinal Ageing Study in India (LASI, 2017–18). The analysis was restricted to uninsured older adults. Chi-square tests and binary logistic regression models were used to examine associations between migration status, socio-demographic characteristics, and health insurance unawareness.

Results: Model 1 shows that non-migrant older adults are 7% more likely to be unaware of health insurance than migrants [UOR: 1.07*, CI: 1.04–1.12]. Higher education reduces this likelihood, with older adults at higher education levels having 78% lower odds of unawareness [UOR: 0.22, CI: 0.20–0.23]. In Model 2, after adjusting for all factors, non-migrants continue to show higher odds of unawareness [AOR: 1.12***, CI: 1.08–1.17]. Urban residents are less likely to be unaware than rural residents [AOR: 0.57, CI: 0.55–0.60], and those living with a spouse also show lower odds compared to individuals living alone [AOR: 0.76***, CI: 0.64–0.90]. **

Conclusion: Migration status, education, and social factors are significantly associated with health insurance unawareness among older adults. Non-migrants, older adults with low education, rural residents, and those living alone or in poorer conditions are more likely to be unaware of health insurance. Promoting insurance literacy can help to increase awareness.

Introduction

Health is the most valuable asset in a person's life cycle, and adopting a healthy lifestyle can contribute to the prevention of chronic diseases and long-term illnesses. Concurrently, health insurance plays a crucial role in guaranteeing equitable access to medical resources and fostering the well-being of the overall population (Bovbjerg, 2007; Levy & Meltzer, 2008; Zhang et al., 2020). Numerous studies have been conducted on this topic worldwide since the late 20th century. A similar study says that healthcare expenditure is notably high in India among the nations; in 2016, approximately 65 % of the overall healthcare spending in India was covered through out-of-pocket expenses incurred by households (Dang et al., 2021). Despite a significant growth in the number of persons eligible for state-sponsored health insurance and an increase in private health insurance corporations, approximately 60 % of families continue to be uninsured in India (Ambade et al., 2023).

It is commonly known that the elderly experience a higher incidence of illnesses compared to other age groups, resulting in a greater need for healthcare(Garg et al., 2022; McGrath et al., 2019; Prince et al., 2015). Apart from that, the lower and middle-income countries have witnessed the rapid growth of the elderly population (Amani et al., 2021). The percentage of individuals aged 60 and above in India is projected to rise from 9 % of the overall population in 2015 to approximately 19 % by 2050 (Mandal et al., 2023). Regarding this, it is essential to promote good health and well-being among the elderly population. On the other hand, Internal migration is a significant and pervasive phenomenon in

Abbreviations: LASI, Longitudinal ageing study in India; UT, Union territory; PSU, Primary sampling units; CEB, Census enumeration block; SC, Scheduled caste; ST, Scheduled tribe; OBC, Other backward Castes; VIF, Variance Inflation factor; UOR, Unadjusted odds ratio; AOR, Adjusted odds ratio; CI, Confidence interval.

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the Indian economy and culture. According to the 2011 Census, 450 million persons, or 37 % of the total population, were classified as internal migrants due to their previous place of residence (Rajan & Bhagat, 2021). In this regard, it is known that migrants, particularly those who are unskilled and undocumented, frequently labour with inadequate social protection, low access to health and other social services, and are vulnerable to exploitation (Chen et al., 2017; Tangcharoensathien et al., 2017). Moreover, when migrants are older adults, their vulnerability increases significantly. Ageing individuals face compounded challenges due to declining physical health, limited adaptability to new environments, and reduced access to social and financial support systems, making their circumstances even more precarious. Lack of knowledge and awareness are the primary reasons for the low coverage of health insurance among the older migrant population, which hinders access to healthcare services (Choi, 2011).

Previously, many studies have been carried out regarding awareness, determinants and coverage of health insurance and healthcare services among the migrant population across the world (Attalla & Tema, 2020; Carrasquillo et al., 2000; Long et al., 2024; Montes de Oca et al., 2011; Pandey & Kagotho, 2010; Ro et al., 2022). A relevant study has been carried out on access to health insurance coverage among sub-Saharan African migrants living in France. It says that on their first visit to France, 63.4 % of women and 55.3 % of men received health insurance coverage (Vignier et al., 2018). Another study says that for migrants to the United States, health insurance coverage rates are extremely low, and access to healthcare services is poor (Ku, 2006). A significant factor contributing to the limited health insurance coverage among migrants is their lack of awareness. A study has identified several major challenges healthcare providers encounter in managing migrant care. These challenges encompass language and cultural barriers, resource limitations within workplaces, and conflicts between professional norms and laws that restrict migrants' access to health services (Suphanchaimat et al., 2015). Additionally, another study's finding also says that many eligible immigrants remain outside the public health insurance system due to a lack of awareness, highlighting the necessity for improved education regarding healthcare access (Dzúrová et al., 2014). Simultaneously, a significant factor in the limited health insurance coverage among older migrants is their lack of awareness. This group is particularly vulnerable regarding healthcare utilization and socio-economic status (Long et al., 2023).

Although numerous studies have been carried out on the awareness, coverage, and determinants of health insurance among various social groups worldwide, there is a relative scarcity of such studies focusing on the migrant population in the Indian context. In this context, it is crucial to study the factors that are influencing the awareness of health insurance coverage among older adult migrants. As per the nexus between awareness and coverage of health insurance among migrants, the research question arises–

Does migration status impact awareness of health insurance coverage among older adult migrants in India?

What are the key factors that are influencing the awareness of health insurance coverage among older adults in India?

Do educational attainment, living arrangements, and social participation moderate the relationship between migration status and awareness of health insurance coverage among older adults in India?

Data and methods

Data source

This study used data from the recent Longitudinal Ageing Study in India (LASI) Wave-1 release. The LASI is a full-scale national survey of scientific investigation of the health, economic, and social determinants and consequences of population ageing in India conducted during 2017–2018 (IIPS et al., 2020). The LASI is a nationally representative survey of over 72,000 adults aged 45 and above across India's states and union territories. The survey's main objective is to study the health status and the social and economic well-being of older adults in India. LASI adopted a multistage stratified area probability cluster sampling design to arrive at the eventual units of observation: adults age 45 and above and their spouses, irrespective of age. The survey adopted a three-stage sampling design in rural areas and a four-stage sampling design in urban areas. In each state/UT, the first stage involved the selection of Primary Sampling Units (PSUs), that is, sub-districts (Tehsils/Talukas), and the second stage involved the selection of villages in rural areas and wards in urban areas in the selected PSUs. In rural areas, the households were selected from selected villages in the third stage. However, sampling in urban areas involved an additional stage. Specifically, in the third stage, one Census Enumeration Block (CEB) was randomly selected in each urban area. In the fourth stage, households were selected from this CEB. The detailed methodology, with complete information on the survey design and data collection, was published in the survey report (IIPS et al., 2020; Perianayagam et al., 2022).

Variable description

Outcome variable

In LASI Wave 1, respondents were first asked whether they were covered by any health insurance scheme (“Are you covered by health insurance?”, with binary response options: yes or no). Respondents who reported not having health insurance were subsequently asked about the primary reason for non-enrolment. Based on this follow-up question, the outcome variable for the present study was constructed to capture unawareness of health insurance among uninsured older adults. Responses indicating “not aware” were coded as 1, while all other reported reasons (e.g., affordability, lack of perceived need, or administrative constraints) were coded as 0. Accordingly, the analysis focuses on unawareness as a specific barrier to health insurance enrolment among uninsured individuals, rather than population-level awareness of insurance schemes. Insured respondents were excluded from the outcome definition because LASI does not assess awareness uniformly among insured individuals, and insurance coverage itself implies baseline awareness.

Key explanatory variable

Migration status. Migration status was treated as the key explanatory variable in this study. Consistent with previous research using LASI data (Ahamad et al., 2024; Mandal et al., 2023; Mishra et al., 2024) on migration status was derived from the question, *“How many years have you been living (continuously) in this area?”* Older adults who reported residing in their current place of residence “since birth” were classified as non-migrants, while those reporting any other duration of residence were classified as migrants. Although LASI does not capture detailed migration trajectories such as migration distance, timing, or reasons for migration, this binary indicator has been widely used in ageing and migration research in India and allows for the identification of lifetime non-migrants versus individuals with any migration exposure. This distinction is relevant in the context of health insurance awareness, as migration exposure may be associated with differential access to information, institutional environments, and social networks.

Other explanatory variables: Barriers and enablers of health insurance awareness

Based on an extensive review of the literature, a range of socio-demographic, economic, and social variables were included in the analysis and conceptually framed as either barriers or enablers of health insurance awareness among older adults. Factors such as older age, female sex, lower levels of education, unmarried status, living alone, lower wealth status, rural residence, belonging to socially disadvantaged caste groups, lack of social participation, and engagement in risk behaviours (smoking and alcohol consumption) were treated as potential

barriers, as these characteristics are often associated with limited access to information, reduced health literacy, weaker social support, and constrained engagement with formal health and insurance systems. In contrast, higher educational attainment, better economic status, urban residence, co-residence with a spouse or other household members, active participation in social activities, and residence in regions with relatively stronger health infrastructure were conceptualised as enablers of health insurance awareness. These factors are likely to facilitate greater exposure to health-related information, enhance navigational capacity within health systems, and promote awareness of available insurance schemes. Accordingly, these variables were included in the multivariable models to examine their association with health insurance unawareness and to assess how migration status interacts with these barriers and enablers in shaping awareness outcomes among older adults in India.

Statistical analysis

We conducted a chi-square test (McHugh, 2013) and binary logistic regression analysis (King, 2008) to examine the factors associated with health insurance unawareness. The logistic regression model is usually put into a more compact form, as follows:

$$\text{Logit}[P(Y=1)] = \beta_0 + \beta * X$$

The parameter β_0 estimates the log odds of the health insurance unawareness for the reference group, while β estimates the maximum likelihood and differential log odds of the health insurance unawareness associated with a set of predictors X, as compared to the reference group. Furthermore, the variance inflation factor (VIF) was estimated to measure multicollinearity among the variables, and no multicollinearity was found in the variables used in the study (Lewis-Beck et al., 2004).

Furthermore, two sets of models were used in the multivariate analysis to explain the unadjusted and adjusted effects of background factors on health insurance awareness. Model 1 provides the unadjusted effect of migration status, education, place of residence, and social participation on the outcome. Model 2 provides the adjusted effects of the other variables, along with migration status. To examine the moderation effects, we used interaction terms in Model 3. A choropleth map was constructed to examine the spatial variation in the proportion of older adults "not aware" of health insurance across Indian states/UTs.

Results

Table 1 presents the background characteristics of the study population. More than half of the respondents (58.1 %) reported that their place of birth differed from their current place of residence, indicating substantial migration exposure among older adults in India. Nearly three-fourths of the respondents were currently married (72.2 %), and the majority lived with a spouse (71.1 %), suggesting the presence of household-level social support for many older adults. However, a substantial proportion of respondents faced structural disadvantages: 62.3 % had no formal education or had not completed primary schooling, 68.3 % resided in rural areas, and over 42 % belonged to the poorest or poorer wealth quintiles. These characteristics highlight the coexistence of both enabling and constraining conditions relevant to health insurance awareness.

Fig. 1 illustrates the spatial distribution of health insurance unawareness among uninsured older adults across Indian states and union territories. Marked regional disparities are evident, with the highest prevalence of unawareness (51.9–82.5 %) concentrated in northern and eastern states such as Bihar, Jharkhand, Uttar Pradesh, Madhya Pradesh, and Assam. In contrast, substantially lower levels of unawareness (11.9–40.2 %) are observed in southern and western states, including Kerala, Tamil Nadu, Maharashtra, and Gujarat. This spatial pattern reflects regional variation in socioeconomic development, institutional capacity, and health system outreach, which may operate as structural barriers or enablers of health insurance awareness. Bivariate associations between background characteristics and health insurance unawareness are presented in Table 2. Several characteristics emerged as significant barriers to awareness. Non-migrant older adults exhibited a considerably higher prevalence of unawareness compared to migrants (59.5 % vs. 40.5 %, $p < 0.001$). Rural residents were also significantly more likely to be unaware than their urban counterparts (57.0 % vs. 38.1 %, $p < 0.001$). Education showed a strong gradient, with 59.1 % of older adults with no education or incomplete primary schooling being unaware of health insurance, compared to only 25.1 % among those with

Table 1
Background characteristics of the study population.

Variables	Weighted (%)	n
Migration Status		
Migrants	58.07	28,855
Non-migrants	41.93	22,088
Place of Residence		
Rural	68.27	32,463
Urban	31.73	18,481
Demographic variables		
Sex		
Male	44.97	23,349
Female	55.03	27,595
Marital Status		
Currently married	72.24	37,583
Currently unmarried	27.76	13,361
Living arrangement		
Living alone	3.74	1831
Living with spouse	71.09	36,801
Living with others	25.17	12,312
Age		
45–59	48.58	25,973
60–69	29.39	14,727
70–79	15.86	7354
80+	6.17	2890
Socio-economic variables		
Education		
No/primary not completed	62.31	29,893
Primary completed	11.79	6582
Secondary completed	16.44	9681
Higher and above	9.46	4788
Caste		
SC	19.51	8663
ST	7.37	8089
OBC	44.67	19,022
Others	28.46	15,170
Religion		
Hindu	81.66	3077
Muslim	11.99	36,631
Christian	2.37	6596
Others	3.99	4690
Wealth Index		
Poorest	21.12	9991
Poorer	21.54	10,207
Middle	20.2	10,240
Richer	19.11	10,173
Richest	18.02	10,333
Health-related variables		
Smoking		
Never smoked	63.76	33,355
Ever smoked	36.24	17,547
Alcohol		
Never	86.48	42,722
Ever	13.52	8200
Social Participation		
No	21.44	9249
Yes	78.56	41,695
Others		
Region		
North India	12.31	10,117
Central India	24.27	7770
East India	23.12	8691
North-East India	2.58	6905
West India	17.28	6418
South India	20.42	11,043

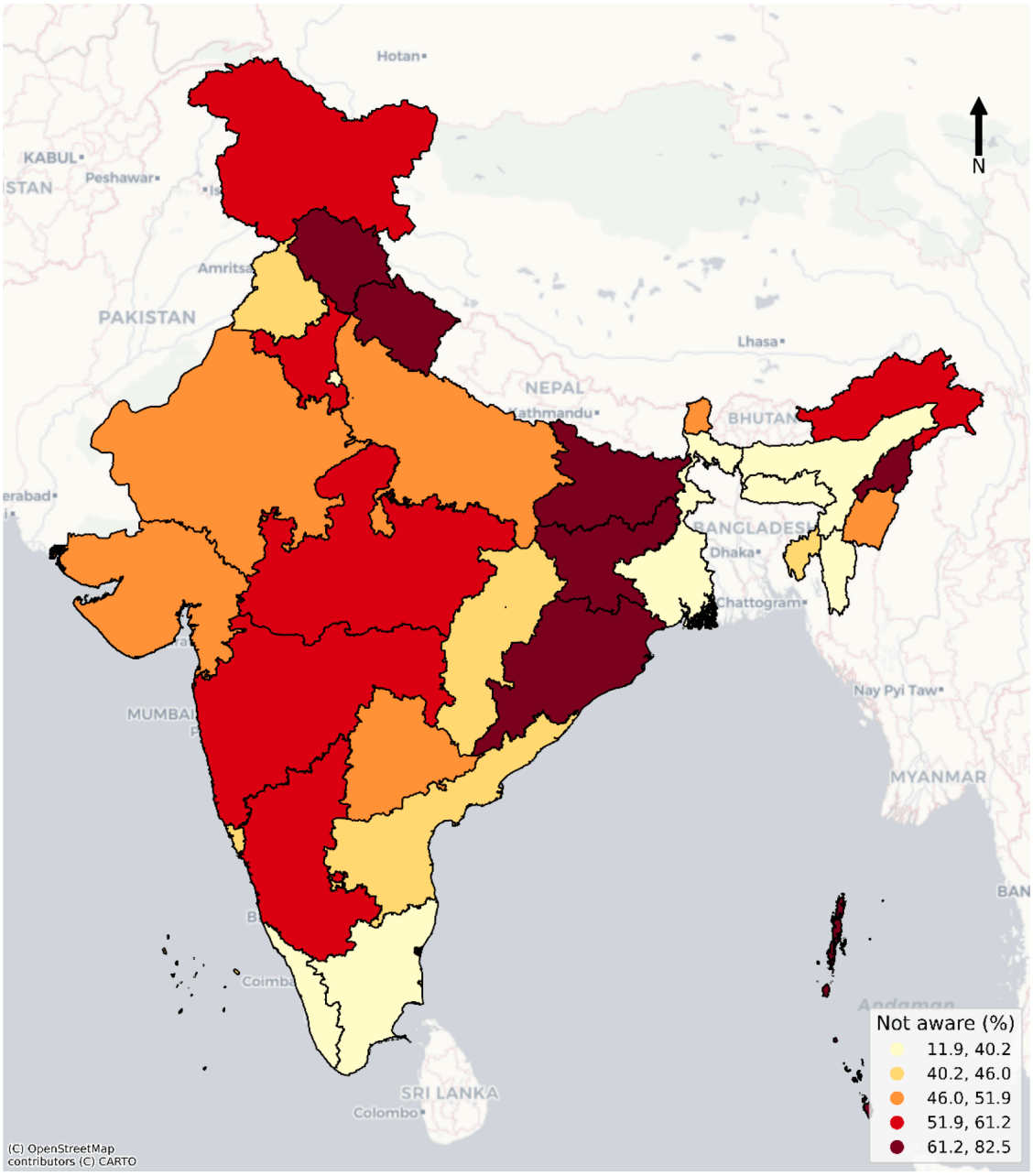

Fig. 1. Spatial variation in the proportion of older adults not aware of health insurance across Indian States/UTs, LASI 2017–18.

higher education ($p < 0.001$). Older adults living alone (55.7 %) and those in the poorest wealth quintile (21.7 %) also showed disproportionately higher levels of unawareness, underscoring the role of social isolation and economic vulnerability as barriers. Conversely, several factors functioned as enablers at the bivariate level. Urban residence, higher educational attainment, co-residence with a spouse, and higher economic status were all associated with lower levels of unawareness. Social participation emerged as one of the strongest enabling factors, with only 24.5 % of socially engaged older adults being unaware of health insurance, compared to 75.5 % among those without social participation ($p < 0.001$). Regional differences further reinforced this barrier–enabler pattern, with southern (17.5 %) and western (19.4 %) regions exhibiting lower unawareness relative to northern (11.7 %) and central (24.8 %) regions.

Estimates from logistic regression analysis for older adults who were unaware of health insurance in India

Table 3 presents the results of the logistic regression models examining factors associated with health insurance unawareness among uninsured older adults. In the unadjusted model, non-migrant status was associated with a higher likelihood of unawareness compared to migrant status (UOR: 1.07; 95 % CI: 1.04–1.12). This association persisted in the fully adjusted model (AOR: 1.12; 95 % CI: 1.08–1.17), indicating that migration status remained independently associated with unawareness after controlling for socio-demographic, economic, and health-related factors. Education emerged as one of the strongest enablers of health insurance awareness in the multivariable analysis. Compared to older adults with no education or incomplete primary schooling, those with secondary education (AOR: 0.53; 95 % CI: 0.50–0.56) and higher education (AOR: 0.31; 95 % CI: 0.29–0.34) had substantially lower odds of being unaware of health insurance. Urban residence was also associated

Table 2
Relationship between background characteristics and unawareness of health insurance.

Variables	Unawareness of health insurance		
	Proportion (%)	n	p-value
Migration Status			
Migrants	40.48	11,182	0
Non-migrants	59.52	14,076	
Place of Residence			
Rural	57.01	18,447	0
Urban	38.05	6812	
Demographic variables			
Sex			
Male	45.83	10,584	0
Female	55.21	14,675	
Marital Status			
Currently married	49.31	18,081	0
Currently unmarried	55.37	7178	
Living arrangement			
Living alone	55.74	1030	0
Living with spouse	49.22	17,689	
Living with others	55.29	6540	
Age			
45–59	48.95	12,384	0
60–69	51.61	7377	
70–79	54.67	3909	
80+	54.68	1589	
Socio-economic variables			
Education			
No/primary not completed	59.08	17,462	0
Primary completed	48.27	3143	
Secondary completed	37.2	3544	
Higher and above	25.07	1110	
Caste			
SC	19.69	6745	0
ST	9.16	4433	
OBC	45.01	4667	
Others	26.14	9414	
Religion			
Hindu	81.79	1367	0
Muslim	12.12	18,158	
Christian	2.23	3261	
Others	3.85	2473	
Wealth Index			
Poorest	21.65	5312	0
Poorer	23.48	5450	
Middle	20.02	5092	
Richer	19.18	4946	
Richest	15.67	4459	
Health-related variables			
Smoking			
Never smoked	61.55	16,126	
Ever smoked	38.45	9120	
Alcohol			
Never	86.38	21,162	0.582
Ever	13.62	4089	
Social Participation			
No	75.49	19,668	0
Yes	24.51	5591	
Others			
Region			
North India	11.72	4833	0
Central India	24.75	4060	
East India	24.52	4694	
North-East India	2.2	3391	
West India	19.35	3402	
South India	17.47	4879	

with significantly lower odds of unawareness (AOR: 0.57; 95 % CI: 0.55–0.60), highlighting the enabling role of urban information environments. Living with a spouse reduced the likelihood of unawareness compared to living alone (AOR: 0.76; 95 % CI: 0.64–0.90), while older adults in the richest wealth quintile had 15 % lower odds of unawareness than those in the poorest quintile (AOR: 0.85; 95 % CI: 0.80–0.90). Social participation remained a strong enabler, with socially engaged

Table 3
Estimates from logistic regression analysis for older adults who were Unaware of health insurance in India.

Background characteristics	Model 1 UOR [95 % CI]	Model 2 AOR [95 % CI]	Model 3 AOR [95 % CI]
Migration Status			
Migrants®			
Non-migrants	1.07*** [1.04,1.12]	1.12*** [1.08,1.17]	
Place of Residence			
Rural®			
Urban	0.44*** [0.43,0.46]	0.57*** [0.55,0.60]	
Demographic variables			
Sex			
Male®			
Female		1.25*** [1.19,1.32]	
Marital Status			
Currently married			
Currently unmarried		0.85* [0.73,1.00]	
Living arrangement			
Living alone®			
Living with spouse		0.76** [0.64,0.90]	
Living with others		0.9 [0.81,1.00]	
Age			
45–59		1 [1.00,1.00]	
60–69		1 [0.95,1.04]	
70–79		1.08* [1.02,1.14]	
80+		1.01 [0.93,1.11]	
Socio-economic variables			
Education			
No/primary not completed			
Primary completed	0.65*** [0.62,0.69]	0.78*** [0.73,0.82]	
Secondary completed	0.41*** [0.39,0.43]	0.53*** [0.50,0.56]	
Higher and above	0.22*** [0.20,0.23]	0.31*** [0.29,0.34]	
Caste			
SC		0.92** [0.87,0.97]	
ST		1.22*** [1.14,1.30]	
OBC		0.96 [0.92,1.01]	
Others®			
Religion			
Hindu		1.24*** [1.14,1.34]	
Muslim		1.19*** [1.08,1.30]	
Christian		1.21*** [1.09,1.33]	
Others®			
Wealth Index			
Poorest®			
Poorer		1.08** [1.02,1.15]	
Middle		0.98 [0.93,1.04]	
Richer		0.99 [0.93,1.05]	
Richest		0.85*** [0.80,0.90]	
Health-related variables			
Smoking			
Never smoked®			
Ever smoked		1.07** [1.03,1.12]	

(*continued on next page*)

Table 3 (*continued*)

Background characteristics	Model 1 UOR [95 % CI]	Model 2 AOR [95 % CI]	Model 3 AOR [95 % CI]
Alcohol			
Never®			
Ever		1.05 [0.99,1.11]	
Social Participation			
No®			
Yes	0.59*** [0.56,0.61]	0.84*** [0.80,0.88]	
Others			
Region			
East India		1.06 [0.99,1.13]	
North India®			
Central India		0.92** [0.86,0.98]	
North-East India		0.78*** [0.72,0.84]	
West India		1.22*** [1.14,1.30]	
South India		0.83*** [0.78,0.88]	
Interaction effects			
Migration status# Education			
Migrants#No/primary not completed®			
Migrants#Primary completed			0.62*** [0.57,0.66]
Migrants#Secondary completed			0.38*** [0.35,0.40]
Migrants#Higher and above			0.19*** [0.17,0.21]
Non-Migrants#No/primary not completed			1.08** [1.03,1.13]
Non-Migrants#Primary completed			0.75*** [0.69,0.81]
Non-Migrants#Secondary completed			0.48*** [0.45,0.52]
Non-Migrants#Higher and above			0.26*** [0.24,0.29]
Migration status# Social Participation			
Migrants#No®			
Migrants#Yes			0.55*** [0.52,0.59]
Non-Migrants#No			0.96 [0.89,1.05]
Non-Migrants#Yes			0.61*** [0.57,0.65]
Migration status#Living arrangements			
Migrants#Living alone®			
Migrants#Living with spouse			0.70*** [0.62,0.79]
Migrants#Living with others			0.89 [0.79,1.01]
Non-Migrants#Living alone			1.05 [0.87,1.26]
Non-Migrants#Living with spouse			0.78*** [0.69,0.89]
Non-Migrants#Living with others			0.91 [0.79,1.03]

older adults showing significantly lower odds of unawareness (AOR: 0.84; 95 % CI: 0.80–0.88).

The interaction analyses further demonstrate that the strength of these enablers varies by migration status. Higher education reduced unawareness among both migrants and non-migrants; however, the protective effect was stronger among migrants with higher education (AOR: 0.19; 95 % CI: 0.17–0.21) than among non-migrants with similar education (AOR: 0.26; 95 % CI: 0.24–0.29). Similarly, migrants engaged in social participation had substantially lower odds of unawareness (AOR: 0.55; 95 % CI: 0.52–0.59) compared to non-migrants with social participation (AOR: 0.61; 95 % CI: 0.57–0.65). Co-residence with a spouse also functioned as a stronger enabler among migrants than non-migrants. Together, these findings indicate that while education, social participation, and household support universally enable health insurance awareness, their protective effects are more pronounced among older adults with migration experience.

Discussion

This study contributes to the growing literature on health insurance awareness among older adults in India by illustrating how migration status, alongside social, economic, and household characteristics, is associated with differential levels of insurance unawareness. The findings indicate that health insurance awareness in later life is shaped by a complex interplay of individual resources, social embeddedness, and broader structural contexts, rather than by any single factor in isolation.

Migration status emerged as an important dimension in understanding health insurance unawareness among older adults. Older adults without migration experience were more likely to remain unaware of health insurance schemes compared to those who had migrated at some point in their lives (Kusuma et al., 2018; Lai et al., 2024). This pattern may reflect differences in exposure to institutional environments, information channels, and social networks. Migrants are often required to interact with formal systems related to employment, housing, or public services, which may indirectly increase familiarity with welfare programmes, including health insurance (Hennebry, 2017). In contrast, lifetime non-migrants, particularly those residing in socially and economically disadvantaged settings, may rely more heavily on informal or traditional sources of information, which are less effective in disseminating knowledge about insurance schemes. Educational attainment functioned as a key enabling factor in reducing health insurance unawareness. Higher levels of education are likely to enhance health literacy, improve comprehension of policy information, and increase confidence in navigating administrative procedures. Conversely, limited educational attainment may persistently restrict individuals' ability to access, interpret, and act on insurance-related information effectively (Tipirneni et al., 2020). These findings underscore the need for communication strategies that move beyond text-heavy or procedurally complex formats and instead adopt more inclusive and accessible modes of outreach for older adults with limited formal education. Place of residence also played a significant role in shaping awareness. Older adults living in urban areas were generally less likely to be unaware of health insurance than those residing in rural areas. Urban environments typically offer greater proximity to healthcare facilities, insurance enrolment initiatives, and information infrastructure, whereas rural areas often face constraints in service availability, workforce shortages, and limited outreach (Ying et al., 2020). This persistent rural disadvantage indicates the importance of strengthening insurance awareness efforts within rural primary healthcare settings and ensuring that frontline health workers are equipped to disseminate information effectively to older populations. Household context and economic conditions further influenced awareness of health insurance. Older adults living with a spouse or other household members appeared to benefit from shared decision-making and mutual support, which can facilitate information exchange and reduce informational isolation. In contrast, those living alone may face greater challenges in accessing and understanding insurance-related information (Umberson & Karas Montez, 2010). Similarly, economic disadvantage may constrain awareness by limiting access to communication channels and reducing engagement with formal health systems. These findings suggest that socially isolated and economically vulnerable older adults should be prioritised in targeted outreach strategies (Bhusal & Sapkota, 2021). Social participation emerged as a particularly important enabler of awareness of health insurance. Engagement in community activities, social groups, and collective forums provides opportunities for information sharing, peer

learning, and interaction with community leaders or health workers (Reshmi et al., 2021). Such social spaces can serve as effective platforms for disseminating health insurance information in a manner that is contextually relevant and culturally appropriate (Seibel, 2019). Leveraging existing community networks, including senior citizens' groups, self-help groups, and local associations, may therefore be a promising approach for improving awareness among older adults (Clark et al., 2021; Ghahramani et al., 2022; World Health Organization, 2023). The interaction between migration status and key enabling factors suggests that the benefits of education, social participation, and household support may be more pronounced among older adults with migration experience. This finding points to the importance of recognizing heterogeneity within the older population and avoiding one-size-fits-all approaches to policy design. Tailored strategies that account for differences in life-course experiences, mobility histories, and social embeddedness may be more effective in addressing health insurance unawareness.

Several limitations of the study should be acknowledged. The cross-sectional nature of the data limits the ability to draw causal inferences, and the observed associations should be interpreted accordingly. In addition, migration status was operationalized using duration of residence and does not capture the diversity of migration trajectories, such as migration distance, timing, or purpose. Furthermore, health insurance unawareness was measured only among uninsured respondents, and thus the findings pertain specifically to barriers to enrolment rather than population-wide awareness. Despite these limitations, the study offers important policy-relevant insights. Improving health insurance awareness among older adults will require coordinated efforts that address educational disadvantage, rural–urban inequalities, social isolation, and informational barriers. Integrating insurance literacy into primary healthcare services, strengthening community-based outreach, and utilising social participation platforms can play a critical role in enhancing awareness. Such targeted and context-sensitive interventions are essential for improving equitable access to health insurance and reducing financial vulnerability among India's ageing population.

Conclusion

This study demonstrates the social and structural factors associated with limited awareness of health insurance among older adults in India. The findings underscore the relevance of migration status, educational attainment, place of residence, household context, economic position, and social participation in shaping differences in health insurance awareness in later life. Older adults who are lifetime non-migrants, have lower levels of education, reside in rural areas, live alone, or experience economic disadvantage appear to face greater informational barriers, placing them at heightened risk of remaining uninformed about available health insurance schemes. In contrast, social participation and co-residence with a spouse or other household members emerge as important enabling conditions that may facilitate information exchange and enhance understanding of health insurance coverage. These patterns suggest that health insurance awareness among older adults is deeply embedded within broader social relationships and institutional contexts, rather than being solely an individual-level attribute. From a policy perspective, the findings point to the need for targeted, context-sensitive interventions aimed at reducing informational inequalities among older adults. Strengthening community-based awareness initiatives, integrating health insurance literacy into primary healthcare services, and leveraging existing social platforms can help improve outreach to vulnerable groups, particularly non-migrants, rural residents, individuals with limited education, and those living alone. Local healthcare providers, including Sub-centres, Primary Health Centres (PHCs), and Community Health Centres (CHCs), can play a critical role in disseminating accessible and age-appropriate information on health insurance schemes.

Overall, improving health insurance awareness among older adults is essential for enhancing equitable access to healthcare and mitigating financial vulnerability in later life. Addressing these informational barriers through coordinated community-level and health system–based strategies can contribute to reducing out-of-pocket healthcare expenditure and strengthening social protection for India's ageing population.

Ethics approval and consent to participate

All survey agencies that conducted the field survey for the data collection have collected prior informed consent from the respondents. The Indian Council of Medical Research (ICMR) and all partner institutions extended the necessary guidance and ethical approval for conducting the LASI survey. All methods were conducted following relevant guidelines and regulations, as well as the principles outlined in the World Medical Association Declaration of Helsinki.

Consent for publication

Not Applicable

Declarations

Funding

No funding was received for this study.

Conflict of interest

The authors declare no competing interests.

Ethical Considerations

The study utilizes a secondary source of data that is freely available in the public domain through https://g2aging.org/. Also, survey agencies that conducted the field survey for the data collection have collected prior informed consent from the respondents. The Indian Council of Medical Research (ICMR) and all partner institutions extended the necessary guidance and ethical approval for conducting the LASI survey.

Authors' contributions

RRS supervised the study. SND and SS developed the concept for this study and wrote the methods section. SND performed data analysis. RRS, SND and SS wrote the background, interpretation text, and discussion. RRS, SND, and SS performed editorial checks and reviewed the manuscript for intellectual content. SS performed in corresponding with the journal. All authors read and approved the final version of the manuscript.

CRediT authorship contribution statement

Samrat Sarkar: Writing – review & editing, Writing – original draft, Visualization, Methodology, Formal analysis, Conceptualization. **Sumit Narayan Dwivedi:** Writing – review & editing, Writing – original draft, Methodology, Data curation, Conceptualization. **Reshmi R . S . :** Writing – review & editing, Visualization, Supervision, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Data availability

https://g2aging.org/ (The study utilizes a secondary source of data that is freely available in the public domain through .)

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