Assessing the Unmet Need for Healthcare among Older Adults in India

Evidence from a Nationwide Survey

DIPTI GOVIL, T V SEKHER, MANISH LEKHWANI

Using unit-level data from the Longitudinal Ageing Study in India, we define unmet healthcare needs among older adults using various parameters. Seven indicators were computed to measure unmet needs based on healthcare visits and referrals, treatment of sensory organs, lack of treatment of diagnosed diseases and undiagnosed and undertreated hypertension/diabetes.

Dipti Govil (*dgovil@iipsindia.ac.in*), T V Sekher (*tvsekher@gmail.com*) and Manish Lekhwani (*manishlekhwani500@gmail.com*) are with the International Institute for Population Sciences, Mumbai.

Unmet needs can be a critical indicator for assessing a healthcare system's performance, identifying barriers to healthcare and measuring healthcare inequalities (Rahman et al 2022; Coube et al 2023). An increasing number of studies indicate that despite advancements in medicine and related technologies, and improving policy focus, there remains a noticeable gap in identifying unmet healthcare needs, especially among the geriatric population. In this context, defining what unmet needs are becomes a basic prerequisite for addressing them (Allin et al 2010; Mahapatro et al 2021).

Taking into consideration various parameters related to health-seeking behaviour, psychological responses to disease, and the availability, accessibility, and suitability of existing health services, researchers have arrived at several definitions of unmet needs (Allin et al 2010; Smith and Connolly 2020). However, many of these classifications are primarily based on perceived rather than actual needs. Moreover, the quantification of unmet needs may depend on data availability and the criteria adopted by researchers (Kowal et al 2023). From a policy perspective, an unmet need can be quantified by its contribution to the efforts to "leave no one behind" as part of Sustainable Development Goals, Target 3.8 and revive interest in equity in national policy deliberations as part of the commitments to the Asthana Declaration (Kraef and Kallestrup 2019; Kowal et al 2023).

Meanwhile, countries across the globe are currently experiencing a dual burden of disease, with communicable diseases remaining a concern on one side, and non-communicable diseases (NCDs) rising due to demographic transition (Yadav et al 2022). NCDs are degenerative diseases and are often associated with ageing. India is also experiencing an increase in the proportion of older people, driven by rising life expectancy (NSO 2021; NITI Aayog 2024), which has resulted in a growing burden of NCDs. India's health sector is facing immense challenges at the primary/secondary healthcare level; the availability of human resources and essential requirements is far below the prescribed norms (Planning Commission 2011). Healthcare services are not uniform across states, with needs exceeding current levels of provision (MOHFW 2020; NITI Aayog 2021).

Several social and economic determinants affect the health-seeking behaviour of India's population, particularly among older adults (Yahyavi et al 2020; Das et al 2023). The ageing population faces challenges due to a lack of financial empowerment

and nutrition, declining social network support, limited mobility, and inaccessible or limited health services. Additionally, as their numbers are still limited, this population group has limited representation in policy priorities (Sciubba 2014; Das et al 2023). Given increasing life expectancy, rising disease burden and poor focus on geriatric health, health needs may be self-perceived and affected by available treatment options. Asking direct questions about healthcare needs is one of the most conventional ways to capture a population's health requirements. Based on this direct enquiry, the extent of self-reported unmet needs can be estimated. Additional follow-up questions may delve into barriers to access and service adequacy. Worldwide surveys on health capture the need for and unmet needs around healthcare using diverse enquiry dimensions, leading to a variation in estimates (Kowal et al 2023).

In India, limited studies have measured unmet healthcare needs among older adults, and those that exist primarily focus on visible symptoms and unavoidable conditions requiring medical attention. However, such definitions and parameters do not capture the full spectrum of healthcare needs among older adults, due to individuals' ignorance of disease symptoms, the need for, and accessibility of essential treatments. The paper aims to define unmet healthcare needs among older adults (45 years and above) using more robust, inclusive parameters that are essential to improving the quality of life.

Data and Methods

The Longitudinal Ageing Study in India (LASI) offers a range of information on health parameters and treatments. We use a nationally representative panel survey of LASI covering 73,396 individuals aged 45 and above and their spouses, irrespective of age, from all states and union territories of India. The survey used a multistage stratified cluster sampling design (IIPS et al 2020) and adopted internationally comparable research designs and tools with the sister survey, the Health and Retirement Survey (HRS), to provide scientific evidence on the burden of disease, functional health, healthcare, and the social and economic well-being of older adults (IIPS et al 2020). In addition, the survey collected information on various biomarkers from 66,859 consenting individuals.

Measuring unmet needs: We measured unmet healthcare needs among older adults aged 45 years and above in India. Using the classification provided by Allin et al (2010) and Smith and Connolly (2020) and employing available information from the survey, we calculated seven different types of unmet healthcare needs among older adults. They are as follows.

1 Subjective unmet need: Questions on the utilisation of healthcare services (health facilities and providers), adherence to referral advice, and reasons for not availing healthcare in the past 12 months were considered. A proxy variable for the number of visits was calculated based on the types of providers and facilities visited in the reference period. The indicator was divided into three parts: "no need," "met need," and "unmet need" for healthcare. When respondents did not get sick, did not consider these illnesses serious enough to visit a healthcare facility/provider, or had medicine at home, this was categorised as "no need." When respondents visited a healthcare facility/provider to treat an ailment and adhered to the referral advice, this fell under "met need." Unmet need was accounted for when respondents did not visit the healthcare provider/facility because of economic reasons, lack of accessibility, poor quality of facility, and no support from family; or visited the healthcare facility/provider, but did not adhere to referral advice as they have recorded only one visit and; those who made more than one visit but decided against referral advice because of various reasons.

2 Unmet sensory care need: When respondents reported problems with vision (poor vision, nearsightedness with or without glasses), hearing (diagnosed with a problem but did not seek treatment), and teeth (chewing problems), they were categorised as unmet sensory care need. The remaining were categorised as no need or met need.

Based on the lack of treatment for diseases, the unmet need was categorised into five types:

3(i) Post-diagnosis treatment deficit: This indicator considers 10 chronic conditions/diseases (hypertension, diabetes, cancer, lung diseases, heart diseases, stroke, arthritis/rheumatism/osteoporosis, neurological issues/psychiatric problems, high cholesterol, and renal failure). If a healthcare provider ever diagnosed the respondent with any of these conditions/diseases and the respondent was not seeking healthcare to manage it at the time of the survey, she was considered to have an unmet need. If the respondent was seeking treatment, she was considered to have a met need, and those without a condition/disease were considered to have no need.

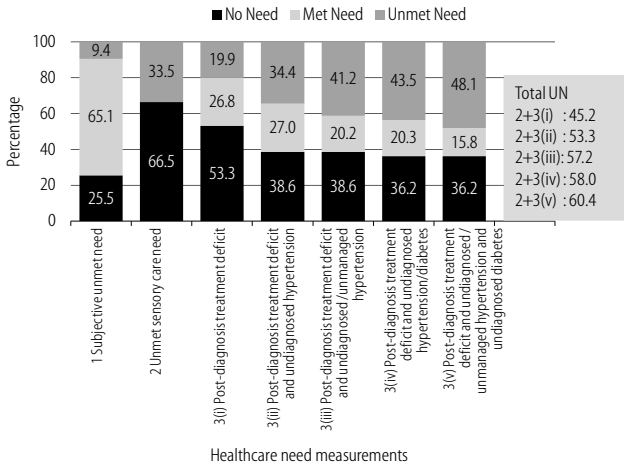
3(ii) Post-diagnosis treatment deficit and undiagnosed hypertension: The information on measured hypertension was considered here. The indicator included respondents classified as having unmet need on indicator 3(i), and respondents who were not diagnosed with hypertension but were assessed to have hypertension in the survey (measured hypertension).

3(iii) Post-diagnosis treatment deficit and undiagnosed/unmanaged hypertension: This includes respondents classified as having an unmet need on indicator 3(ii), along with those who were consuming medicines for hypertension but were still measured with high blood pressure in the survey (unmanaged hypertension).

3(iv) Post-diagnosis treatment deficit and undiagnosed hypertension/diabetes: All respondents classified as having an unmet need on indicator 3(ii), along with those who did not report being diagnosed with diabetes, but were tested with high blood sugar.

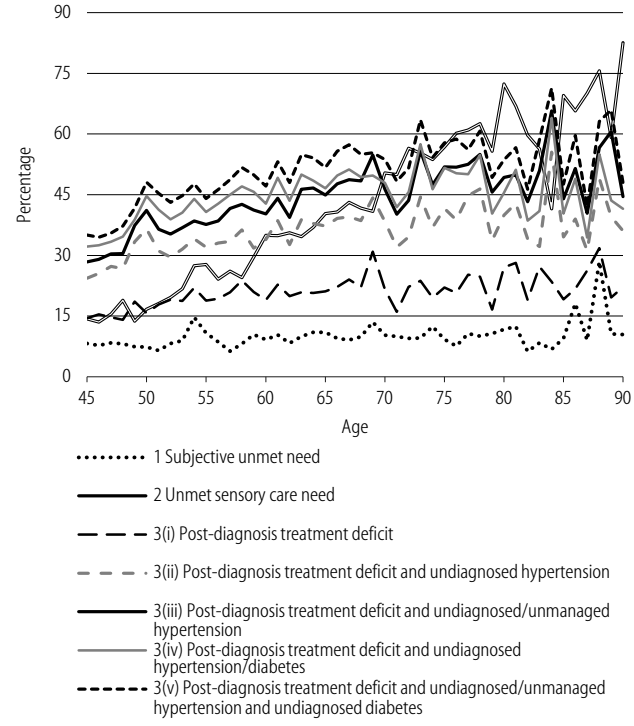
3(v) Post-diagnosis treatment deficit and undiagnosed/unmanaged hypertension and undiagnosed diabetes: All

Figure 1: Need for Healthcare among Older Adults in India



Source: LASI Wave I.

Figure 2: Unmet Need for Healthcare by Age among Older Adults in India



Source: LASI Wave I.

respondents classified as having an unmet need on indicator 3(iii), along with non-diabetic respondents, tested with high blood sugar.

The sample size for the first three indicators (1, 2, and 3[i]) is 66,606. For indicators 3(ii) and 3(iii), it is 60,484 and for indicators 3(iv) and 3(v), it is 58,327 due to biomarker information.

We used bivariate and multivariable logistic regression, and the Wagstaff decomposition to identify the factors affecting unmet healthcare needs among older adults in India. Various controls were included in the analysis. We conducted a multi-collinearity test to assess whether the predictors in the model are highly correlated (VIF>5), and none were detected.

Results

Nine percent of older adults in our sample had a subjective unmet need, while 25.5% did not need any healthcare. Around 34% of older adults had an unmet sensory care need (indicator 2). On post-diagnosis treatment deficit (indicator 3[i]), the unmet need was at 19.9%. After including undiagnosed hypertension, this increased to 34.4% (indicator 3[ii]). An additional 6.8 percentage point increase to 41.2% was observed when the indicator included unmanaged hypertension (indicator 3[iii]). After including undiagnosed diabetes in indicators 3(ii) and 3(iii), the unmet need increased to 43.5% (indicator 3[iv]) and 48.1% (indicator 3[v]), respectively. We combined indicators 2 and 3 (unmet sensory care need and post-diagnosis treatment deficit) to assess total unmet need among older adults. The total unmet need stood at 45.2%, 53.3%, 57.2%, 58.0% and 60.4%, respectively, for the following combinations: indicator 2 + 3(i); indicator 2 + 3(ii); indicator 2 + 3(iii); indicator 2 + 3(iv); indicator 2 + 3(v) (Figure 1).

The indicators were further cross-tabulated by respondents' age. Subjective unmet need (indicator 1) and post-diagnosis treatment deficit (indicator 3[i]) remained almost constant across the ages. In contrast, the other five indicators showed an increase in unmet need with increasing age (Figure 2). Table 1 (p 95) presents the results of the binary logistic regression for unmet healthcare needs. Respondents with multi-morbidity, mobility problems, activities of daily living (ADL) restrictions, and impairment issues had higher subjective unmet needs, while education and availability of health insurance were negatively associated with subjective unmet needs. The north-eastern and western regions of India had higher unmet needs than the northern region, while the eastern region had low unmet needs. With increasing age, unmet sensory care needs showed a manyfold increase. Morbidity, mobility issues, ADL restrictions, and having ever worked contributed to high unmet sensory care needs, while those currently married, urban residents, those with more than 10 years of education, and those in the richest MPCE quintile showed low unmet needs compared to their counterparts.

The determinants of post-diagnosis treatment deficit (indicator 3[i]) were age, monthly per capita consumption expenditure (MPCE), education, place of residence, gender, work status, mobility issues, ADL restrictions, and impairment. Compared to northern India, other regions had low unmet needs. While indicator 3(ii), which accounted for undiagnosed hypertension, showed a similar pattern in terms of demographic and health determinants, the north-eastern, western and southern regions showed high unmet needs. In addition, females had a lower unmet need. Odds ratios for post-diagnosis treatment deficit and undiagnosed/unmanaged hypertension (indicator 3[iii]) were low among females, those in higher MPCE quintiles and those in the central region. It was high in ever married, ever worked adults, increasing with age, ADL restrictions, and mobility issues. The odds ratios for indicators 3(iv) and 3(v) moved in a similar direction as that of 3(ii) and 3(iii).

Table 1: Determinants of Unmet Healthcare Needs among Older Adults in India

Background Characteristics	1 Subjective Unmet Need		2 Unmet Sensory Care Need		3(i) Post-diagnosis Treatment Deficit		3(ii) Post-diagnosis Treatment Deficit and Undiagnosed Hypertension		3(iii) Post-diagnosis Treatment Deficit and Undiagnosed/ Unmanaged Hypertension		3(iv) Post-diagnosis Treatment Deficit and Undiagnosed Hypertension/Diabetes		3(v)Post-diagnosis Treatment Deficit and Undiagnosed/Unmanaged Hypertension and Undiagnosed Diabetes	
	OR (Sig)	95% CI	OR (Sig)	95% CI	OR (Sig)	95% CI	OR (Sig)	95% CI	OR (Sig)	95% CI	OR (Sig)	95% CI	OR (Sig)	95% CI
Age group														
45–49®														
50–59	1.04	[0.96–1.13]	1.58***	[1.48–1.67]	1.14***	[1.08–1.21]	1.20***	[1.14–1.26]	1.30***	[1.24–1.37]	1.31***	[1.25–1.37]	1.39***	[1.32–1.46]
60–69	1.01	[0.93–1.10]	2.61***	[2.45–2.77]	1.14***	[1.07–1.21]	1.33***	[1.26–1.40]	1.55***	[1.47–1.63]	1.46***	[1.39–1.54]	1.63***	[1.55–1.72]
70–79	0.95	[0.85–1.05]	4.34***	[4.04–4.66]	1.12***	[1.04–1.21]	1.42***	[1.33–1.52]	1.77***	[1.66–1.89]	1.50***	[1.41–1.60]	1.78***	[1.67–1.91]
80+	0.99	[0.86–1.13]	7.50***	[6.80–8.29]	1.04	[0.94–1.16]	1.40***	[1.27–1.53]	1.70***	[1.55–1.86]	1.33***	[1.21–1.46]	1.61***	[1.46–1.77]
Place of residence														
Rural®														
Urban	0.96	[0.9–1.02]	0.75***	[0.72–0.78]	0.99	[0.94–1.03]	0.96*	[0.93–1.00]	1.13***	[1.09–1.18]	1.22***	[1.17–1.27]	1.33***	[1.28–1.38]
Sex														
Male®														
Female	0.97	[0.91–1.04]	1.01	[0.97–1.06]	1.09***	[1.04–1.15]	0.84***	[0.81–0.88]	0.86***	[0.82–0.90]	0.84***	[0.81–0.88]	0.85***	[0.82–0.89]
Education														
No Education®														
<5	0.94	[0.86–1.03]	1.05	[0.99–1.11]	1.15***	[1.08–1.22]	1.06**	[1.00–1.12]	1.09***	[1.03–1.15]	1.09***	[1.03–1.15]	1.10***	[1.04–1.16]
5–9 years	0.86***	[0.80–0.93]	0.89***	[0.85–0.94]	1.09***	[1.04–1.15]	1.02	[0.98–1.07]	1.09***	[1.05–1.14]	1.13***	[1.08–1.18]	1.16***	[1.11–1.22]
10 or more	0.75***	[0.69–0.82]	0.64***	[0.60–0.68]	1.08**	[1.01–1.15]	1.05*	[0.99–1.11]	1.14***	[1.08–1.20]	1.27***	[1.21–1.34]	1.32***	[1.25–1.39]
Marital status														
Others®														
Currently married	0.99	[0.86–1.15]	0.86***	[0.78–0.95]	1.02	[0.91–1.14]	0.93	[0.84–1.02]	0.96	[0.88–1.06]	1.00	[0.91–1.09]	1.00	[0.91–1.10]
Widowed	0.96	[0.82–1.12]	1.02	[0.92–1.14]	1.02	[0.91–1.15]	1.04	[0.94–1.15]	1.16***	[1.05–1.28]	1.11**	[1.00–1.23]	1.18***	[1.06–1.30]
Work status														
Never worked®														
Ever worked	1.14***	[1.06–1.23]	1.15***	[1.09–1.21]	1.22***	[1.15–1.29]	1.09***	[1.04–1.15]	1.00	[0.96–1.06]	1.04	[0.99–1.09]	0.99	[0.94–1.04]
Currently working	0.97	[0.90–1.05]	0.93***	[0.88–0.98]	0.93**	[0.88–0.99]	1.02	[0.97–1.07]	0.88***	[0.84–0.92]	0.87***	[0.83–0.91]	0.79***	[0.75–0.82]
MPCE quintile														
Poorest®														
Poorer	0.94	[0.86–1.02]	0.98	[0.93–1.04]	1.02	[0.96–1.09]	0.93***	[0.88–0.98]	0.98	[0.93–1.03]	0.98	[0.93–1.04]	1.02	[0.96–1.07]
Middle	0.89***	[0.81–0.97]	0.97	[0.92–1.03]	1.06*	[0.99–1.12]	0.94**	[0.89–0.99]	1.02	[0.97–1.08]	1.01	[0.95–1.06]	1.05*	[1.00–1.11]
Richer	0.98	[0.90–1.07]	0.94**	[0.89–0.99]	1.1***	[1.03–1.17]	0.91***	[0.87–0.97]	1.03	[0.97–1.08]	1.03	[0.97–1.09]	1.09***	[1.03–1.15]
Richest	1.08*	[0.99–1.18]	0.89***	[0.84–0.95]	1.15***	[1.08–1.23]	0.93**	[0.88–0.98]	1.06**	[1.00–1.12]	1.06*	[1.00–1.12]	1.14***	[1.08–1.21]
Mobility problem														
No®														
Yes	1.26***	[1.18–1.34]	1.87***	[1.79–1.95]	1.66***	[1.59–1.74]	1.13***	[1.09–1.17]	1.23***	[1.19–1.28]	1.19***	[1.15–1.23]	1.26***	[1.21–1.31]
Impairment														
No®														
Yes	1.44***	[1.32–1.58]	1.91***	[1.78–2.04]	1.17***	[1.09–1.26]	0.99	[0.92–1.06]	0.98	[0.92–1.05]	0.98	[0.92–1.05]	0.98	[0.91–1.05]
Morbidity														
0®														
1	1.45***	[1.36–1.55]	1.14***	[1.09–1.19]										
2+	1.85***	[1.72–1.99]	1.29***	[1.23–1.36]										
ADL														
No®														
Yes	1.28***	[1.19–1.38]	1.73***	[1.64–1.82]	1.35***	[1.28–1.42]	1.19***	[1.13–1.26]	1.24***	[1.18–1.3]	1.17***	[1.12–1.24]	1.21***	[1.15–1.27]
Health insurance														
No®														
Yes	0.91***	[0.86–0.98]			1.02	[0.97–1.07]	0.96*	[0.92–1.00]	0.96**	[0.92–1.00]	0.98	[0.94–1.02]	0.98	[0.94–1.02]
Regions														
North®														
Central	1.03	[0.93–1.14]	1.15***	[1.08–1.23]	0.67***	[0.62–0.72]	0.87***	[0.82–0.93]	0.75***	[0.71–0.80]	0.82***	[0.77–0.87]	0.74***	[0.69–0.78]
East	0.74***	[0.67–0.82]	0.83***	[0.78–0.88]	0.93**	[0.87–0.99]	1.01	[0.95–1.07]	0.93**	[0.88–0.98]	0.97	[0.92–1.03]	0.91***	[0.86–0.97]
North Eastern	1.46***	[1.33–1.61]	0.84***	[0.79–0.89]	0.87***	[0.82–0.94]	1.24***	[1.17–1.32]	1.22***	[1.15–1.29]	1.09***	[1.03–1.16]	1.12***	[1.05–1.19]
Western	1.33***	[1.21–1.46]	0.47***	[0.44–0.51]	0.77***	[0.71–0.82]	1.13***	[1.06–1.20]	1.05*	[0.99–1.12]	1.16***	[1.09–1.23]	1.10***	[1.03–1.17]
Southern	0.92*	[0.84–1.01]	0.68***	[0.64–0.72]	0.95	[0.90–1.01]	1.25***	[1.18–1.32]	1.29***	[1.22–1.36]	1.51***	[1.43–1.59]	1.50***	[1.42–1.58]
Constant	0.07***	[0.06–0.08]	0.19***	[0.17–0.22]	0.14***	[0.12–0.16]	0.43***	[0.38–0.49]	0.46***	[0.41–0.52]	0.49***	[0.43–0.55]	0.53***	[0.46–0.60]

Sig: *** p<.01, ** p<.05, * p<.1.

Impairment includes physical, mental, hearing, visual and speech. Limitation in performing activities of daily living (ADL) includes limitations in dressing, walking across the room, bathing, eating, getting in and out of bed, and using toilet facilities in the last three months. Ten conditions were considered for mobility. Multi-morbidity included 10 conditions, and were classified as having no-morbidity, one-morbidity and two or more morbidities.

The contribution of explanatory variables in unmet need measurements was estimated using the Wagstaff decomposition (Table 2). On indicator 1, the presence of morbidity explained the maximum variation (7.5%), followed by mobility (4.8%) and work status (2.5%). Marital status, age, education and insurance had negative contributions. Age (48.1%) and mobility issues (25.7%) explained the maximum variation in indicator 2, while marital status contributed the least. Mobility explained much of the variation (20.8%) in indicator 3(i), whereas for indicators 3(ii) to 3(v), age became the most important in explaining the high prevalence of unmet needs, which includes undiagnosed and unmanaged hypertension or diabetes, while gender explained the least.

Table 2: Decomposition Analysis Indicating the Percentage Contribution of Socio-demographic Characteristics in Unmet Healthcare Needs

Background Characteristics	1 Subjective Unmet Need		2 Sensory Care Unmet Need		3(i) Post-diagnosis Treatment Deficit		3(ii) Post-diagnosis Treatment Deficit and Undiagnosed Hypertension		3(iii) Post-diagnosis Treatment Deficit and Undiagnosed/Unmanaged Hypertension		3(iv) Post-diagnosis Treatment Deficit and Undiagnosed Hypertension/Diabetes		3(v) Post-diagnosis Treatment Deficit and Undiagnosed/ Unmanaged Hypertension and Undiagnosed Diabetes	
	%	% Change	%	% Change	%	% Change	%	% Change	%	% Change	%	% Change	%	% Change
Age group														
45–50®		-2.06		48.15		7.98		21.97		31.44		28.10		34.18
50–59	-0.14		6.16		3.52		6.47		8.85		9.56		11.03	
60–69	-0.45		17.65		3.78		9.51		13.34		12.24		14.46	
70–79	-1.04		16.48		0.50		4.74		7.10		5.58		7.07	
80+	-0.42		7.85		0.19		1.26		2.15		0.72		1.62	
Place of residence														
Rural®		-0.57		-5.02		-0.75		-0.52		3.93		5.73		7.85
Urban	-0.57		-5.02		-0.75		-0.52		3.93		5.73		7.85	
Sex														
Male®		-1.24		-3.49		0.25		-7.40		-5.95		-9.20		-7.41
Female	-1.24		-3.49		0.25		-7.40		-5.95		-9.20		-7.41	
Education														
No education®		-3.61		-7.12		4.52		1.82		4.68		5.65		7.31
<5	-0.21		0.40		0.96		0.52		0.76		0.86		1.21	
5–9 years	-0.92		-2.57		1.89		0.27		1.55		1.37		1.98	
10 or more	-2.48		-4.96		1.67		1.03		2.37		3.42		4.13	
Marital status														
Others®		-5.27		-32.90		7.95		13.93		15.96		25.55		24.25
Currently married	-3.62		-28.05		6.04		8.75		9.31		17.66		15.60	
Widowed	-1.64		-4.84		1.91		5.17		6.65		7.90		8.64	
Work status														
Never worked®		2.46		-4.26		-3.75		1.44		-3.55		-4.73		-6.71
Ever worked	2.28		3.08		1.16		1.39		1.06		1.86		1.98	
Currently working	0.18		-7.34		-4.91		0.05		-4.61		-6.59		-8.69	
MPCE quintile														
Poorest®		0.43		-2.77		2.89		-2.28		3.28		2.65		6.10
Poorer	-0.17		-0.91		0.31		-0.80		0.04		-0.21		0.66	
Middle	-0.58		-0.46		0.28		0.20		1.17		1.15		1.84	
Richer	0.13		-0.73		1.30		-1.23		0.41		0.20		0.90	
Richest	1.05		-0.67		1.00		-0.45		1.65		1.50		2.70	
Mobility problem														
No®		4.83		25.73		20.79		6.46		11.99		9.38		13.23
Yes	4.83		25.73		20.79		6.46		11.99		9.38		13.23	
Impairment														
No®		1.19		4.00		0.63		-0.01		-0.20		-0.50		-0.57
Yes	1.19		4.00		0.63		-0.01		-0.20		-0.50		-0.57	
Morbidity														
0®		7.53		4.53		0.00		0.00		0.00		0.00		0.00
1	3.30		0.91											
2+	4.23		3.62											
ADL														
No®		1.43		7.69		4.29		4.86		5.61		4.62		5.19
Yes	1.43		7.69		4.29		4.86		5.61		4.62		5.19	
Health insurance														
No®		-1.55		0.00		-0.38		-0.81		-0.45		-0.33		-0.19
Yes	-1.55				-0.38		-0.81		-0.45		-0.33		-0.19	
Regions														
North®		2.10		-12.06		-10.78		8.48		2.12		11.35		4.46
Central	0.46		3.80		-5.25		-2.63		-5.61		-3.59		-6.06	
East	-1.77		-0.21		-0.40		1.74		0.23		0.69		-0.64	
North-eastern	0.71		0.53		-0.41		0.35		0.47		0.00		0.18	
Western	2.83		-9.95		-2.78		3.50		2.50		3.82		2.78	
Southern	-0.13		-6.23		-1.94		5.51		4.53		10.44		8.20	
Total		5.69		22.48		33.64		47.93		68.87		78.27		87.70

Source: Authors' analysis based on LASI.

Discussion

Our paper assesses the unmet healthcare needs of India's older adults, using varied definitions and examines the factors affecting them. The analysis indicates that a change in the definition of unmet needs (an indication of delayed and forgone healthcare) from a subjective to a screening-based approach increases its prevalence manyfolds among older adults. Subjective unmet needs (based on healthcare utilisation, referral advice, and reasons for non-utilisation) were only 9% in the country, while unmet sensory care needs stood at 34%. Accounting for post-diagnosis treatment deficit and undiagnosed hypertension/diabetes increased the unmet need to 44%. Accounting for various types of unmet needs together, increased its prevalence to 60%.

Across literature, diverse definitions of unmet healthcare needs have been used, leading to a variation in estimates. These definitions primarily focus on subjective assessment rather than on clinical assessment. Using questions on healthcare utilisation, Mahapatro et al (2021) reported an unmet needs of 8.6% among older adults in India, close to our estimates for indicator 1. Kowal et al (2023) also measured unmet healthcare needs across 83 countries, using varied definitions and available data. The unmet needs so estimated ranged from 67.4% in Zimbabwe (2017 data) to none in Qatar (2010 data). For India, the authors used questions on access to healthcare and oral health among those aged above 60 from the World Health Organization's Study on Global Ageing and Adult Health (SAGE) and estimated that unmet needs stood at 29.6%. These estimates were slightly lower than our figures on unmet sensory care needs (34%). The variation in estimates across studies depending on definitions points towards the need for a precise, unified methodology to define unmet needs for better comparability.

The prevalence of unmet needs tends to rise with age across all definitions, except for indicators 1 and 3(i). The increase in unmet sensory care needs was more pronounced with age, as older adults often experience declines/failures in one or more sensory organs, and are crippled by poor access to aid. Other studies have reported mixed results on age variation (Kowal et al 2023) and suggest that younger age groups had higher unmet needs than older adults (Mahapatro et al 2021; Yadav et al 2022), which might again hint at definitional variability. We also found a stark difference in the measurements across various regions of the country. Our analysis points towards age as a major contributor in explaining high levels of unmet needs in demographically developed regions, which are noted for having relatively better healthcare facilities and an improved doctor–population ratio. Many states with difficult terrains may have limited access to healthcare services, resulting in high unmet healthcare needs.

There were significant gender differences, indicating that treatment-seeking is often poor among women. Studies also suggest that females tend to neglect their health due to family responsibilities, in order to minimise family expenses, and to comply with cultural norms and stigmas (Azad et al 2020; Gajovic et al 2021). On the other hand, due to a lower level of awareness, men are found to have undiagnosed hypertension (Everett and Zajacova 2015). Studies have also found higher unmet healthcare needs in rural than in urban areas (Peltzer et al 2019; Das et al 2023). Our analysis finds greater unmet needs in urban areas for indicators 3(iii) to 3(v), indicating that, despite better accessibility of healthcare services, hypertension/diabetes remains undiagnosed and ignored. Additionally, income determines health-seeking behaviour. The high cost of healthcare (out-of-pocket expenses) can deter individuals belonging to lower socio-economic groups from seeking timely medical attention (Mahapatro et al 2021; Yadav et al 2022). Our paper showed mixed results on economic parameters. Respondents with financial hardships had higher subjective unmet needs and unmet sensory care needs, while financially better-off respondents showed ignorance about morbidities and treatments (indicators 3[i] and 3[iii]—3[v]). Additionally, not having health insurance is a barrier to seeking healthcare, as non-insured individuals tend to delay treatment until serious health issues arise (Diamant et al 2004). Mobility problems, impairment, ADL limitations and the presence of morbidity indicated higher unmet needs in almost all definitions used.

The use of self-reported measures in calculating the unmet needs may be influenced by an individual's health status, preferences, self-assessment and healthcare accessibility. Additionally, LASI does not provide information on the reasons respondents do not seek treatment for diagnosed diseases. Hence, the estimates in our paper might differ from those in other studies.

Conclusions

Unmet needs indicate the effectiveness and efficiency of any healthcare system. Our paper points towards the prevalence of unmet healthcare needs among older adults in India, using diverse definitions, and found substantial heterogeneity in the presence of unmet needs. Demographically and economically advanced (western and southern) and geographically difficult regions (north-east and north) had greater unmet needs for undiagnosed and unmanaged diseases. Functional/mobility limitations also contributed to higher unmet needs, along with age and socio-economic factors. The cost of treatment, limited health facilities, scheduling conflicts, the unwillingness to view health problems as serious, and a mistrust/fear of the provider may also contribute to unmet needs. More targeted efforts are required to strengthen the healthcare system to address issues related to awareness, accessibility, and effective outreach of services. In addition, there is a dire need to standardise the definitions of unmet need for better comparability.

REFERENCES

Allin, S, M Grignon and J Le Grand (2010): "Subjective Unmet Need and Utilization of Health Care Services in Canada: What Are the Equity Implications?" *Social Science and Medicine*, Vol 70, No 3, pp 465–72.

Azad, A D, A G Charles, Q Ding, A W Trickey and S M Wren (2020): "The Gender Gap and Healthcare: Associations between Gender Roles and Factors Affecting Healthcare access in Central Malawi, June–August 2017," *Archives of Public Health*, Vol 78, No 1, p 119.

Bloom, D E, T V Sekher and J Lee (2021): "Longitudinal Aging Study in India (LASI): New Data Resources for Addressing Aging in India," *Nature Aging*, Vol 1, No 12, pp 1070–72.

Coube, M, Z Nikoloski, M Mrejen and E Mossialos (2023): "Inequalities in Unmet Need for Health Care Services and Medications in Brazil: A Decomposition Analysis," *The Lancet Regional Health – Americas*, Vol 19.

Das, J, S Kundu and B Hossain (2023): "Rural-Urban Difference in Meeting the Need for Healthcare and Food among Older Adults: Evidence from India," *BMC Public Health*, Vol 23, No 1.

Diamant, A L, R D Hays, L S Morales et al (2004): "Delays and Unmet Need for Health Care Among Adult Primary Care Patients in a Restructured Urban Public Health System," *American Journal of Public Health*, Vol 94, No 5, pp 783–89.

Everett, B and A Zajacova (2015): "Gender Differences in Hypertension and Hypertension Awareness Among Young Adults," *Biodemography and Social Biology*, Vol 61, No 1, pp 1–17.

Gajovic, G, K Janicijevic, D Andric, O Djurovic and S Radevic (2021): "Gender Differences in Health Care Utilization among the Elderly," *Serbian Journal of Experimental and Clinical Research*, Vol 22, No 3, pp 195–203.

IIPS et al (2020): *Longitudinal Ageing Study in India (LASI) Wave 1, 2017–18, India Report*, Mumbai: International Institute for Population Sciences.

Kowal, P, B Corso, K Anindya et al (2023): "Prevalence of Unmet Health Care Need in Older Adults in 83 Countries: Measuring Progress Towards Universal Health Coverage in the Context of Global Population Ageing," *Population Health Metrics*, Vol 21, No 1.

Mahapatro, S R, K S James and U S Mishra (2021): "Intersection of Class, Caste, Gender and Unmet Healthcare Needs in India: Implications for Health Policy," *Health Policy OPEN*, Vol 2.

Ministry of Health and Family Welfare (2020): *Health and Family Welfare Statistics in India 2019–20*, Government of India.

NITI Aayog (2021): *Healthy States, Progressive India: Report on the Ranks of States and Union Territories*, Government of India.

— (2024): *Senior Care Reforms in India: Reimagining the Senior Care Paradigm*, Government of India.

National Statistical Office (2021): *Elderly in India*, Ministry of Statistics and Programme Implementation, Government of India.

Peltzer, K, N Phaswana-Mafuya and S Pengpid (2019): "Rural–Urban Health Disparities Among Older Adults in South Africa," *African Journal of Primary Health Care & Family Medicine*, Vol 11, No 1.

Planning Commission of India (2011): *High Level Expert Group Report on Universal Health Coverage for India*, Government of India.

Rahman, M M, M Rosenberg, G Flores et al (2022): "A Systematic Review and Meta-Analysis of Unmet Needs for Healthcare and Long-term Care among Older People," *Health Economics Review*, Vol 12, No 1.

Right to Health Bill (2021): Government of India (Bill as Introduced).

Sciubba, J D (2014): "Explaining Campaign Timing and Support for a UN Convention on the Rights of Older People," *International Journal of Human Rights*, Vol 18, Nos 4–5, pp 462–78.

Smith, S and S Connolly (2020): "Re-thinking Unmet Need for Health Care: Introducing a Dynamic Perspective," *Health Economics, Policy and Law*, Vol 15, No 4, pp 440–57.

United Nations General Assembly (2019): *Transforming Our World: The 2030 Agenda for Sustainable Development*, United Nations.

World Health Organization (1946): *Preamble to the Constitution of the World Health Organization*.

Yadav, R, J Yadav and C Shekhar (2022): "Unmet Need for Treatment-Seeking from Public Health Facilities in India: An Analysis of Sociodemographic, Regional and Disease-Wise Variations," *PLOS Global Public Health*, Vol 2, No 4.

Yahyavi, D J, M Tajvar and Y Mohammadzadeh (2020): "The Effect of the Presence of an Elderly Member on Health Care Costs of Iranian Households," *Iranian Journal of Ageing*, Vol 14, No 4, pp 462–77.