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Association of perceived discrimination and ill-treatment with depressive symptoms among older adults in India

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Abstract

Background

Depression is an important public health issue among older adults and is related to poor quality of life, functional decline, and increased healthcare burden. Social stressors: perceived discrimination and ill-treatment may adversely affect the mental well-being of older adults; however, nationally representative evidence from India remains limited. The objective is to examine the association of perceived discrimination and ill-treatment with depressive symptoms among older adults in India.

Methods

The study utilised data from the Longitudinal Ageing Study in India, Wave 1 (LASI, 2017–18). The analytical sample included 30,765 older adults aged 60 years and older. Depressive symptoms were assessed using the 10-item Centre for Epidemiologic Studies Depression Scale (CES-D), with a score of ≥ 4 indicating depressive symptoms. Perceived discrimination was measured with six questions on everyday discriminatory experiences, while ill-treatment was assessed using self-reported mistreatment. Descriptive statistics and weighted bivariate analyses were performed using Pearson's chi-square test. Binary logistic regression models were employed to estimate adjusted odds ratios (AORs) and 95% confidence intervals (CIs) for depressive symptoms.

Results

Overall, 30.09% of older adults reported depressive symptoms. The prevalence of depressive symptoms was significantly higher among respondents reporting perceived discrimination (47.75%) and ill-treatment (50.07%) compared with their counterparts. In the adjusted analysis, older adults experiencing perceived discrimination had significantly higher odds of depressive symptoms (AOR: 1.96; 95% CI: 1.70–2.26). Similarly, ill-treatment was positively associated with depressive symptoms (AOR: 1.39; 95% CI: 1.15–1.68). Higher odds of depressive symptoms were also observed among widowed older adults, individuals with ADL and IADL limitations, and those with multimorbidity. Conversely, higher educational attainment and greater life satisfaction were associated with lower odds of depressive symptoms.

Conclusions

Perceived discrimination and ill-treatment are significant predictors of depressive symptoms among older adults in India. The findings highlight the importance of addressing social discrimination, elder mistreatment, and psychosocial vulnerabilities through age-friendly policies, social support systems, and mental health interventions. Strengthening community-based care and promoting social inclusion may help improve mental well-being among India's ageing population.

Introduction

Population ageing has emerged as one of the most significant demographic transitions of the twenty-first century, and globally, the number of older adults is increasing rapidly due to declining fertility rates, improvements in healthcare, and rising life expectancy (Ienca et al., 2021; Srivastava et al., 2021; Jane Osareme, Ogugua et al., 2024). India, which is home to one of the world's largest ageing populations, is experiencing a substantial rise in the proportion of older adults (Malik et al., 2022; D. Zhang, 2023). According to the Census of India and recent demographic projections, the elderly population is expected to increase considerably in the coming decades, posing major social, economic, and public health challenges (Jane Osareme, Ogugua et al., 2024; Perianayagam et al., 2022). Alongside physical health problems, mental health disorders among older adults have become an important public health concern in India(Subramaniam et al., 2025).

Depression is one of the most common mental health conditions among older adults and contributes significantly to disability, poor quality of life, functional impairment, and increased mortality (Muhammad & Meher, 2021). Late-life depression is often associated with chronic illnesses, social isolation, functional dependency, financial insecurity, and reduced social participation (Hodgetts et al., 2017; Srivastava et al., 2021; L. Zhang et al., 2022). Despite its growing burden, depression among older adults frequently remains underdiagnosed and untreated in low- and middle-income countries, including India, due to stigma, limited awareness, and inadequate mental healthcare services (Antony et al., 2023; Kumar et al., 2023; Srivastava et al., 2021).

Social experiences and interpersonal relationships play an important role in shaping the mental well-being of older adults. Among these, perceived discrimination and ill-treatment have increasingly gained attention as important social determinants of mental health (Alegría et al., 2018; Hossain et al., 2022). Perceived discrimination refers to unfair, disrespectful, or unequal treatment experienced in daily life, whereas ill-treatment includes neglect, abuse, humiliation, or mistreatment within social or familial settings (Alegría et al., 2018; Srivastava et al., 2021; Hossain et al., 2022). Older adults may experience discrimination due to age, caste, economic dependency, poor health, social marginalisation, or reduced productivity. Such experiences can generate chronic stress, feelings of helplessness, low self-esteem, and emotional distress, thereby increasing vulnerability to depressive symptoms (Chakraborty & Kundu, 2024; Han & Richardson, 2015).

Previous studies conducted in different settings have shown that discrimination and elder mistreatment are associated with poor mental health outcomes, including depression, anxiety, loneliness, and psychological distress (Cisler et al., 2012; Dong et al., 2013; D. Zhang, 2023). However, evidence from India remains limited, particularly using nationally representative data. Existing studies have often focused on specific regions or selected populations and have inadequately explored the combined influence of discrimination, ill-treatment, socio-economic conditions, and health-related factors on depressive symptoms among older adults (Chakraborty & Kundu, 2024; Cisler et al., 2012; Dong et al., 2013; D. Zhang, 2023).

India's socio-cultural diversity, persistent social inequalities, and rapid demographic transition make it important to examine the relationship between discrimination and mental health among the elderly population. Understanding these associations is essential for developing policies and interventions aimed at promoting healthy and dignified ageing.

Using nationally representative data from the Longitudinal Ageing Study in India (LASI) Wave 1, the present study aims to examine the prevalence of depressive symptoms among older adults in India and assess the association between perceived discrimination and ill-treatment and depressive symptoms, after controlling for socio-demographic, behavioural, and health-related factors.

Methodology

Study population and data source

The present study used data from Wave 1 of the Longitudinal Ageing Study in India (LASI), conducted during 2017–18. It is a nationally representative longitudinal survey designed to examine the health, economic, and social well-being of older adults in India. The International Institute for Population Sciences implemented the survey in collaboration with the Ministry of Health and Family Welfare, Government of India, the Harvard T.H. Chan School of Public Health, and the University of Southern California.

The LASI target population included adults aged 45 years and above and their spouses, irrespective of age, residing in sampled households. Individuals residing in institutional settings such as nursing homes, prisons, military camps, and other collective living arrangements were excluded from the survey. LASI adopted a multistage, stratified, area-probability cluster sampling design to obtain nationally representative estimates across states and union territories. In rural areas, a three-stage sampling design was followed, while urban areas used a four-stage sampling design. Primary sampling units (PSUs) were selected using probability proportional to size (PPS) sampling methods.

Wave 1 surveyed 72,250 individuals aged 45 years and above and their spouses from 35 states and union territories of India, excluding Sikkim. For the present study, only respondents aged 60 years and above were included. After excluding observations with missing data on study variables, the final analytical sample comprised 30,765 older adults. Sampling weights provided in the LASI dataset were applied in all analyses to account for the complex survey design and ensure national representativeness.

Variables

Outcome Variable

The outcome variable was depressive symptoms among older adults. Depressive symptoms were measured using the 10-item Centre for Epidemiologic Studies Depression Scale (CES-D) included in the Longitudinal Ageing Study in India survey. The CES-D is a widely used screening instrument for

assessing depressive symptoms in population-based studies. The LASI version comprised seven negative symptom items (trouble concentrating, feeling depressed, low energy, fearfulness, loneliness, being bothered by things, and feeling that everything was an effort) and three positive symptom items (feeling happy, hopeful, and satisfied). Participants were asked how frequently they experienced each symptom during the week preceding the interview, with response categories ranging from “rarely or never” (< 1 day), “sometimes” (1–2 days), “often” (3–4 days), to “most or all of the time” (5–7 days). For negative symptom items, responses of “often” or “most/all of the time” were coded as 1, while “rarely/never” and “sometimes” were coded as 0. Reverse coding was applied for the positive symptom items. The summed CES-D score ranged from 0 to 10, with higher scores indicating greater depressive symptomatology. Consistent with previous literature, a score of 4 or more was used to classify respondents as having depressive symptoms.

Exposure variables

The primary exposure variables in the study were perceived discrimination and ill-treatment among older adults. Perceived discrimination was assessed using six questions related to respondents’ day-to-day discriminatory experiences. Older adults were asked whether: (a) they were treated with less courtesy or respect than other people; (b) they received poorer service than others at restaurants or stores; (c) people acted as if they thought the respondent was not smart; (d) people acted as if they were afraid of the respondent; (e) the respondent was threatened or harassed; and (f) the respondent received poorer treatment than others from doctors or hospitals. Response categories included “almost every day,” “at least once a week,” “a few times a month,” “a few times a year,” “less than once a year,” and “never.” Respondents reporting at least one discriminatory experience were categorised as experiencing “any discrimination,” while those reporting “never” for all items were categorised as having “no discrimination.”

Ill-treatment was assessed using self-reported experiences of mistreatment or abuse. Respondents who reported experiencing any form of ill-treatment were categorised as “yes,” while others were categorised as “no.”

Covariates

Based on previous literature on late-life depression and psychosocial health among older adults, the study adjusted for a range of socio-demographic, socioeconomic, behavioural, and health-related covariates that may confound the association between perceived discrimination, ill-treatment, and depressive symptoms.

Socio-demographic covariates included age group (60–69, 70–79, and ≥ 80 years), gender (male/female), marital status (currently married, never married, widowed, and others), caste category (ST/SC, OBC, and others), religion (Hinduism, Islam, and others), educational attainment (no formal education, up to primary, secondary and above, and graduation and above), work status (currently

working, currently not working, never worked, and retired), household Monthly Per Capita Consumption Expenditure (MPCE) quintile (richest, richer, middle, poorer, and poorest), place of residence (rural/urban), and geographical region (north, central, east, northeast, west, and south).

Behavioural covariates included smoking and alcohol consumption (yes/no).

Health-related covariates included Activities of Daily Living (ADL) limitations, Instrumental Activities of Daily Living (IADL) limitations, morbidity burden, and life satisfaction. ADL and IADL limitations were categorised as "yes" if respondents reported difficulty performing at least one activity. Morbidity burden was classified as no morbidity, single morbidity, and multi-morbidity based on the number of self-reported chronic conditions. Life satisfaction was categorised as low, medium, or high using a composite life satisfaction score.

Statistical analysis

Descriptive statistics were used to present the socio-demographic, behavioural, and health-related characteristics of the study population. Weighted prevalence estimates of depressive symptoms were calculated across categories of explanatory variables. Pearson’s chi-square test was used to examine the bivariate association between depressive symptoms and the study variables.

Binary logistic regression analysis was performed to assess the association of perceived discrimination and ill-treatment with depressive symptoms among older adults. Initially, unadjusted odds ratios (UORs) with 95% confidence intervals (CIs) were estimated. Subsequently, adjusted odds ratios (AORs) were obtained after controlling for socio-demographic, socioeconomic, behavioural, and health-related covariates. Sampling weights provided in the LASI dataset were applied in all analyses to account for the complex survey design and ensure nationally representative estimates. Statistical significance was considered at $p < 0.05$. Collinearity diagnostics indicated no concern, with all Variance Inflation Factors (VIFs) < 2.5 and a mean VIF = 1.53, suggesting that the independent variables were sufficiently distinct for inclusion in the multivariable models. All analyses were conducted using Stata version 17.0.

Results

Sample characteristics and prevalence of depressive symptoms

Table 1 presents the socio-demographic, behavioural, and health-related characteristics associated with depressive symptoms among older adults in India. The study included 30,765 older adults, among whom 30.09% reported depressive symptoms. A substantially higher prevalence of depressive symptoms was observed among older adults who experienced perceived discrimination (47.75%) compared with those reporting no discrimination (26.3%) ($p < 0.001$). Similarly, depressive symptoms were more prevalent

among respondents reporting ill-treatment (50.07%) than among those who did not report ill-treatment (28.98%) ($p < 0.001$).

Table 1
Socio-demographic, Behavioural, and Health-related Characteristics Associated with Depressive Symptoms among Older Adults in India: Bivariate Results from LASI Wave 1

Variable and Category	Sample Size(n)	Depressive Symptoms (%)	P Value
Perceived Discrimination			< 0.001
No discrimination	26,011	26.3	
Any discrimination	4,754	47.75	
Ill-treatment			< 0.001
No	29,485	28.98	
Yes	1,268	50.07	
Age Group			< 0.001
Young-Old	18,733	28.66	
Old-Old	8,890	31.26	
Oldest-Old	3,142	34.75	
Gender			< 0.001
Male	14,772	27.51	
Female	15,993	32.39	
Current Marital Status			< 0.001
Currently Married	19,630	27.25	
Never Married	288	41.3	
Widowed	10,336	34.58	
Others	511	34.57	
Caste Category			< 0.001
ST/SC	10,120	32.69	
OBC	11,713	29.76	
Others	8,932	28.08	
Religion			< 0.001
Hinduism	22,493	30.34	

Notes: Sample sizes (n) represent unweighted frequencies. Percentages (%) are weighted using the sampling weight. P-values are calculated using Pearson's Chi-square test. MPCE, Monthly Per Capita Consumption Expenditure; ADL, Activities of Daily Living; IADL, Instrumental Activities of Daily Living. *p < 0.05, **p < 0.01, ***p < 0.001.

Variable and Category	Sample Size(n)	Depressive Symptoms (%)	P Value
Islam	3,581	31.26	
Others	4,691	25.03	
Level of Education			< 0.001
No formal education	16,509	33.96	
Up to primary	7,406	27.53	
Secondary and above	5,574	23.39	
Graduation and above	1,276	17.63	
Household MPCE Quintile			< 0.001
Richest	5,778	30.08	
Richer	6,057	27.9	
Middle	6,278	29.44	
Poorer	6,342	28.87	
Poorest	6,310	33.88	
Working Status			< 0.001
Currently working	8,860	27.31	
Currently not working	10,547	33.94	
Never worked	8,736	30.52	
Retired	2,622	21.53	
Place of Residence			< 0.001
Rural	20,372	31.32	
Urban	10,393	27.06	
Region			< 0.001
North	5,644	27.48	
Central	4,076	35.83	
East	5,597	31.73	

Notes: Sample sizes (n) represent unweighted frequencies. Percentages (%) are weighted using the sampling weight. P-values are calculated using Pearson's Chi-square test. MPCE, Monthly Per Capita Consumption Expenditure; ADL, Activities of Daily Living; IADL, Instrumental Activities of Daily Living. *p < 0.05, **p < 0.01, ***p < 0.001.

Variable and Category	Sample Size(n)	Depressive Symptoms (%)	P Value
Northeast	3,609	18.56	
West	4,132	20.67	
South	7,707	33.34	
Smoking	11,910	29.96	< 0.05
No	18,838	30.16	
Yes			
Alcohol consuming			< 0.001
No	25,453	30.51	
Yes	5,303	27.64	
ADL Limitations			< 0.001
No	24,475	26.05	
Yes	6,285	43.83	
IADL Limitations			< 0.001
No	17,385	23.84	
Yes	13,343	37	
Morbidity Category			< 0.001
No morbidity	14,067	28.05	
Single morbidity	9,120	30.09	
Multi-morbidity	7,578	34.09	
Life Satisfaction			< 0.001
Low satisfaction	9,381	43.97	
Medium satisfaction	7,382	32.89	
High satisfaction	13,974	18.92	
Total Sample	**30,765**	**30.09**	

Notes: Sample sizes (n) represent unweighted frequencies. Percentages (%) are weighted using the sampling weight. P-values are calculated using Pearson's Chi-square test. MPCE, Monthly Per Capita Consumption Expenditure; ADL, Activities of Daily Living; IADL, Instrumental Activities of Daily Living. *p < 0.05, **p < 0.01, ***p < 0.001.

The prevalence of depressive symptoms increased with age, ranging from 28.66% among the young-old (60–69 years) to 34.75% among the oldest-old (≥ 80 years) ($p < 0.001$). Female older adults reported a higher prevalence of depressive symptoms (32.39%) than males (27.51%). Depressive symptoms were also more common among widowed (34.58%) and never-married older adults (41.3%) compared with currently married respondents (27.25%).

Significant socioeconomic differentials were observed. Older adults with no formal education had a considerably higher prevalence of depressive symptoms (33.96%) compared with those having a graduation or higher (17.63%). Similarly, depressive symptoms were highest among respondents belonging to the poorest MPCE quintile (33.88%). Rural residents reported a higher prevalence of depressive symptoms (31.32%) than urban residents (27.06%).

Regional variation was also seen in depressive symptoms. The prevalence of depressive symptoms was highest in the central region (35.83%) and lowest in the northeast region (18.56%). Health-related conditions showed strong associations with depressive symptoms. Older adults with ADL limitations (43.83%) and IADL limitations (37.0%) had more depressive symptoms compared to people without ADL and IADL limitations, respectively (26.05% and 23.84%). Multi-morbidity (34.09%) and low life satisfaction (43.97%) had substantially higher prevalence of depressive symptoms compared with their counterparts (all $p < 0.001$).

State-wise prevalence of perceived discrimination and depressive symptoms

The following is the state and union territory-wise distribution of perceived discrimination and depressive symptoms among older adults. Nationally, 17.65% of older adults reported perceived discrimination, while 30.09% experienced depressive symptoms (Table 2 & Fig. 1).

Table 2
State/UT-wise Distribution of Sample Size, Weighted Prevalence of Perceived Discrimination, and Depressive Symptoms among Older Adults in India (LASI Wave 1)

State / Union Territory	Sample Size (N)	Perceived Discrimination (%)	Depressive Symptoms (%)
Jammu and Kashmir	700	22.73	54.07
Himachal Pradesh	606	9.77	14.5
Punjab	967	6.51	14.27
Chandigarh	366	15.86	11.86
Uttarakhand	633	6.21	25.69
Haryana	822	12.56	32.65
Delhi	489	31.93	39.94
Rajasthan	1,061	13.98	24.64
Uttar Pradesh	2,063	24.97	34.85
Bihar	1,759	18.05	23.63
Sikkim	425	22.72	22.92
Arunachal Pradesh	314	30.71	29.75
Nagaland	583	0.72	7.98
Manipur	575	10.59	11.96
Mizoram	489	6.66	19.38
Tripura	446	2.46	25.27
Meghalaya	409	3.82	12.61
Assam	793	9.16	18.91
West Bengal	1,493	14.56	47.44
Jharkhand	1,143	9.64	31.84
Odisha	1,202	3.74	17.96
Chhattisgarh	757	32	28.66
Madhya Pradesh	1,256	25.72	39.26
Gujarat	938	13.41	15.56
Daman and Diu	412	16.47	17.42
Dadra and Nagar Haveli	431	17.38	20.96

State / Union Territory	Sample Size (N)	Perceived Discrimination (%)	Depressive Symptoms (%)
Maharashtra	1,739	14.37	22.8
Andhra Pradesh	1,072	16.25	25.8
Karnataka	940	30.31	39.77
Goa	612	16.32	16.92
Lakshadweep	492	3.65	17.57
Kerala	1,152	13.37	28.83
Tamil Nadu	1,493	15.16	34.1
Puducherry	616	14.76	35.84
Andaman and Nicobar	492	11.62	45.85
Telangana	1,025	24.47	30.65
Total Sample / National Avg.	**30,765**	**17.65**	**30.09**

Considerable inter-state variation was observed in both perceived discrimination and depressive symptoms. The prevalence of perceived discrimination was highest in Chhattisgarh (32.0%), followed by Delhi (31.93%) and Karnataka (30.31%), whereas Nagaland reported the lowest prevalence (0.72%). Depressive symptoms were highest among older adults in Jammu and Kashmir (54.07%), followed by West Bengal (47.44%) and Andaman and Nicobar Islands (45.85%). In contrast, Nagaland (7.98%), Chandigarh (11.86%), and Manipur (11.96%) reported comparatively lower prevalence of depressive symptoms (Fig. 1).

Factors associated with depressive symptoms among older adults

Findings from binary logistic regression analysis examining the association between perceived discrimination, ill-treatment, and depressive symptoms among older adults (Table 3).

In the unadjusted model, older adults experiencing perceived discrimination had a significantly higher likelihood of depressive symptoms (UOR: 2.36; 95% CI: 2.04–2.73). After adjusting for socio-demographic, socioeconomic, behavioural, and health-related factors, the association remained statistically significant (AOR: 1.96; 95% CI: 1.70–2.26). Similarly, older adults reporting ill-treatment had significantly higher odds of depressive symptoms both in the unadjusted model (UOR: 1.61; 95% CI: 1.30–2.00) and adjusted model (AOR: 1.39; 95% CI: 1.15–1.68).

Table 3
Multivariable logistic regression analysis of factors associated with depressive symptoms among older adults in India, LASI Wave 1

Variables	Categories	Model 1 (UoR)	95% CI	Model 2 (AoR)	95% CI
Perceived Discrimination	No discrimination®				
	Any discrimination	2.36***	[2.04, 2.73]	1.96***	[1.70, 2.26]
Ill-treatment	No®				
	Yes	1.61***	[1.30, 2.00]	1.39***	[1.15, 1.68]
Age Group	Young-Old (60–69) ®				
	Old-Old (70–79)			0.98	[0.87, 1.09]
	Oldest-old (80+)			0.96	[0.82, 1.12]
Gender	Male®				
	Female			1.01	[0.89, 1.14]
Current Marital Status	Currently Married®				
	Never Married			1.61*	[1.06, 2.46]
	Widowed			1.19**	[1.06, 1.33]
	Others			1.22	[0.90, 1.66]
Social Group	ST/SC®				
	OBC			0.9	[0.81, 1.01]
	Others			0.99	[0.87, 1.13]
Religion	Hinduism®				

Notes: **UOR** Unadjusted odds ratio, **AOR** adjusted odds ratio, **CI** confidence interval, ® reference category, **MPCE** monthly per capita consumption expenditure, **ADL** activities of daily living, **IADL** instrumental activities of daily living

Variables	Categories	Model 1 (UoR)	95% CI	Model 2 (AoR)	95% CI
	Islam			1.01	[0.87, 1.16]
	Others			0.84∗	[0.70, 1.00]
Educational Attainment	No formal education®				
	Upto primary			0.86∗	[0.76, 0.97]
	Secondary and above			0.83	[0.68, 1.01]
	Graduation and above			0.65∗∗	[0.49, 0.85]
MPCE	Richest®				
	Richer			0.85	[0.71, 1.02]
	Middle			0.9	[0.76, 1.07]
	Poorer			0.82∗	[0.70, 0.96]
	Poorest			0.95	[0.81, 1.12]
Work Status	Currently working®				
	Currently not working			1.09	[0.97, 1.22]
	Never worked			0.96	[0.82, 1.12]
	Retired			0.93	[0.76, 1.15]
Place of Residence	Rural®				
	Urban			1.02	[0.90, 1.16]
Spatial Region	North®				

Notes: **UOR** Unadjusted odds ratio, **AOR** adjusted odds ratio, **CI** confidence interval, ® reference category, **MPCE** monthly per capita consumption expenditure, **ADL** activities of daily living, **IADL** instrumental activities of daily living

Variables	Categories	Model 1 (UoR)	95% CI	Model 2 (AoR)	95% CI
	Central			1.39***	[1.21, 1.59]
	East			1.07	[0.95, 1.21]
	Northeast			0.69***	[0.58, 0.82]
	West			0.73***	[0.62, 0.85]
	South			1.15	[0.99, 1.34]
Smoking	No®				
	Yes			0.96	[0.87, 1.06]
Alcohol Consumption	No®				
	Yes			0.94	[0.82, 1.09]
ADL Limitations	No®				
	Yes			1.88***	[1.67, 2.11]
IADL Limitations	No®				
	Yes			1.27***	[1.14, 1.42]
Morbidity Burden	No morbidity®				
	Single morbidity			1.12*	[1.01, 1.25]
	Multi-morbidity			1.34***	[1.18, 1.52]
Life Satisfaction	Low satisfaction®				
	Medium satisfaction			0.69***	[0.61, 0.78]
	High satisfaction			0.37***	[0.33, 0.41]

Notes: **UOR** Unadjusted odds ratio, **AOR** adjusted odds ratio, **CI** confidence interval, ® reference category, **MPCE** monthly per capita consumption expenditure, **ADL** activities of daily living, **IADL** instrumental activities of daily living

Among socio-demographic factors, widowed older adults were more likely to report depressive symptoms compared with currently married respondents (AOR: 1.19; 95% CI: 1.06–1.33). Never-married older adults also had significantly higher odds of depressive symptoms (AOR: 1.61; 95% CI: 1.06–2.46).

Educational attainment showed a protective association with depressive symptoms. Older adults with graduation and above education had significantly lower odds of depressive symptoms compared with those with no formal education (AOR: 0.65; 95% CI: 0.49–0.85). Likewise, respondents with up to primary education showed lower odds of depressive symptoms (AOR: 0.86; 95% CI: 0.76–0.97).

Regional disparities persisted after adjustment. Older adults residing in the central region had significantly higher odds of depressive symptoms (AOR: 1.39; 95% CI: 1.21–1.59), whereas those living in the northeast (AOR: 0.69; 95% CI: 0.58–0.82) and western regions (AOR: 0.73; 95% CI: 0.62–0.85) had lower odds compared with respondents from the northern region.

Health-related factors demonstrated strong associations with depressive symptoms. Older adults with ADL limitations had nearly twice the odds of depressive symptoms (AOR: 1.88; 95% CI: 1.67–2.11), while those with IADL limitations had 27% higher odds (AOR: 1.27; 95% CI: 1.14–1.42) of depressive symptoms compared to those with no limitations. Multi-morbidity was significantly associated with depressive symptoms (AOR: 1.34; 95% CI: 1.18–1.52). Life satisfaction emerged as a strong protective factor. Older adults with high life satisfaction had substantially lower odds of depressive symptoms (AOR: 0.37; 95% CI: 0.33–0.41) compared with those reporting low life satisfaction.

Discussion

This study examined the association between perceived discrimination, ill-treatment, and depressive symptoms among older adults in India using nationally representative data from LASI Wave 1. The findings revealed a high burden of depressive symptoms among older adults, with nearly one-third of respondents reporting depressive symptoms. Perceived discrimination and ill-treatment emerged as strong and independent correlates of depressive symptoms even after adjusting for socio-demographic, behavioural, and health-related characteristics.

Older adults who experienced any form of perceived discrimination had significantly higher odds of depressive symptoms compared with those who did not report discrimination. Similarly, respondents reporting ill-treatment were more likely to experience depressive symptoms. These findings support the stress-process framework, which suggests that repeated exposure to social stressors such as discrimination and mistreatment adversely affects psychological well-being and increases emotional distress (Lee & Turney, 2012; Pearlin et al., 1981; Ra et al., 2019). Experiences of disrespect, exclusion, neglect, or unfair treatment may reduce self-esteem, weaken social participation, and contribute to chronic psychological stress among older adults(Braga et al., 2019).

The observed association between discrimination and depressive symptoms is consistent with previous evidence from both high-income and low- and middle-income countries (Braga et al., 2019; Sutin et al.,

2015). Earlier studies have shown that perceived discrimination is associated with poorer mental health outcomes, including depression, anxiety, loneliness, and reduced quality of life among older adults (Hackett et al., 2024; Pengpid & Peltzer, 2021). In the Indian context, discrimination may arise from ageism, caste-based inequalities, economic dependency, social exclusion, and unequal access to healthcare and social support systems (Hossain et al., 2022; Sadhu et al., 2026; Saha et al., 2024). The findings therefore highlight the importance of recognising discrimination as a major social determinant of mental health in later life.

Ill-treatment also showed a significant positive association with depressive symptoms. Elder abuse, neglect, verbal humiliation, and emotional mistreatment can negatively affect emotional security and social trust among older persons (Dong et al., 2013). In many Indian households, rapid social transformation, migration, weakening intergenerational support, and financial dependency may increase the vulnerability of older adults to mistreatment (Alegría et al., 2018; Jane Osareme, Ogugua et al., 2024; Shahi et al., 2026). The findings suggest that social protection mechanisms and family-based support systems remain crucial for preserving mental well-being among the elderly population.

Several socio-demographic factors were also associated with depressive symptoms. Widowed and never-married older adults had significantly higher odds of depressive symptoms compared with currently married respondents. Marriage may provide emotional companionship, social support, and economic security, which can protect against psychological distress in later life (Choi & Ha, 2011; Ferreira Carrijo et al., 2022). Educational attainment showed a protective effect, as older adults with higher education had lower odds of depressive symptoms. Education may enhance coping capacity, awareness, social engagement, and access to healthcare services(Hinata et al., 2021).

Regional disparities in depressive symptoms were also evident. Older adults residing in the central region had higher odds of depressive symptoms, whereas those from the northeast and western regions showed lower odds compared with the northern region. These regional differences may reflect variations in socio-economic development, health infrastructure, social cohesion, and cultural practices across India. Furthermore, wealth disparities played a critical role, as individuals in the lowest income quintiles exhibited a higher propensity for depressive symptoms than their wealthier counterparts, underscoring the necessity of financial security for mental health (Khanal & Selvamani, n.d.).

Functional and health-related limitations emerged as important predictors of depressive symptoms. Older adults with ADL and IADL limitations were significantly more likely to experience depressive symptoms. Physical dependency may reduce autonomy, increase social isolation, and diminish self-worth, thereby contributing to poor mental health. Similarly, multimorbidity was positively associated with depressive symptoms, which is consistent with previous studies demonstrating the psychological burden of chronic diseases among older adults (Arokiasamy et al., 2015; Jiang et al., 2020; L. Zhang et al., 2022). Life satisfaction demonstrated a strong inverse association with depressive symptoms. Respondents with medium and high life satisfaction had substantially lower odds of depressive symptoms compared with those reporting low life satisfaction. Higher life satisfaction may reflect

stronger social relationships, better coping abilities, and greater emotional resilience, all of which contribute to improved mental health outcomes. Furthermore, engagement in social activities and regular interaction with peers or family members serve as critical buffers against psychological morbidity, promoting a sense of belonging and perceived social support (Bramhankar et al., 2023).

Interestingly, smoking and alcohol consumption were not significantly associated with depressive symptoms in the adjusted analysis. This suggests that the effects of behavioural factors may be mediated through broader social and health-related conditions among older adults. The state-level analysis further highlighted substantial geographical variation in both perceived discrimination and depressive symptoms. States such as Jammu and Kashmir, West Bengal, Karnataka, and Delhi reported comparatively higher levels of depressive symptoms. In contrast, North-eastern states such as Nagaland and Manipur showed relatively lower prevalence. These differences may reflect regional disparities in socio-cultural environments, economic conditions, social support networks, and access to mental healthcare services. Consequently, policy interventions should prioritise targeted support for women and rural populations to address the unique structural barriers they encounter (Banerjee & Boro, 2022; Paul et al., 2023).

The study has several strengths and limitations. It uses nationally representative data with a large sample size, enabling robust estimates for older adults across India. The use of validated measures for depressive symptoms and discrimination enhances the reliability of findings. However, certain limitations should also be acknowledged. First, the cross-sectional nature of the data limits causal inference regarding the relationship between discrimination and depressive symptoms. Second, depressive symptoms and discrimination were self-reported and may therefore be subject to recall or reporting bias. Third, the study could not account for all potential psychosocial factors, such as social support, personality traits, or lifetime traumatic experiences.

Despite these limitations, the study provides important evidence on the relationship between perceived discrimination and mental health among older adults in India. The findings underscore the need for policies and interventions to reduce discrimination, prevent elder mistreatment, and promote age-friendly social environments. Strengthening mental health services, community-based support programmes, and social protection policies for older adults may help reduce the burden of depressive symptoms in later life.

Conclusion

This study demonstrates that perceived discrimination and ill-treatment are significantly associated with depressive symptoms among older adults in India. Nearly one-third of older adults reported depressive symptoms, indicating a substantial mental health burden among the ageing population. Older adults experiencing discrimination and mistreatment were considerably more vulnerable to depression, even after adjusting for socio-demographic, behavioural, and health-related factors.

The findings further highlight the role of functional limitations, multimorbidity, marital status, education, and life satisfaction in shaping mental health outcomes in later life. These results suggest that mental health among older adults is influenced not only by physical health conditions but also by social experiences and psychosocial environments.

There is a need for comprehensive public health strategies that promote social inclusion, prevent elder abuse and discrimination, and strengthen mental health services for older adults. Community-based support programmes, awareness campaigns, and age-friendly policies may help reduce psychological distress and improve the quality of life among India's elderly population. Future longitudinal studies are required to better understand the causal pathways linking discrimination and depressive symptoms in later life.

Declarations

Ethics approval and consent to participate: 'Not applicable,' as the study used secondary data.

Consent to publish: 'Not applicable'.

Availability of data and materials:

Database Name: Longitudinal Ageing Study in India (LASI) Wave 1, 2017-2018.

URL: https://www.iipsindia.ac.in/content/lasi-wave-i

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Authors' contributions:

[1]**J.M.:** Conceptualisation of the research idea; formal analysis; data curation and data analysis; preparation of tables; writing the data, methods, and results sections; project administration; provision of resources; and overall supervision.

[2]**D.M.:** Conceptual support in manuscript preparation; drafting the introduction; formatting and visualisation of results; identification of potential funding sources; information gathering for publication; and finalisation of the manuscript draft for submission.

[3]**A.B:** Writing the discussion section; drafting and revising the manuscript; methodological application; validation of analytical results; and preparation of the original draft.

[4]**O.H.:** Investigation; manuscript review and editorial support; providing recommendations for improving manuscript quality; ethical oversight; and methodological guidance.

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References

1. Alegría, M., NeMoyer, A., Falgàs Bagué, I., Wang, Y., & Alvarez, K. (2018). Social Determinants of Mental Health: Where We Are and Where We Need to Go. Current Psychiatry Reports, 20(11), 95. https://doi.org/10.1007/s11920-018-0969-9
2. Antony, A., Parida, S. P., Behera, P., & Padhy, S. K. (2023). Geriatric depression: Prevalence and its associated factors in rural Odisha. Frontiers in Public Health, 11, 1180446. https://doi.org/10.3389/fpubh.2023.1180446
3. Arokiasamy, P., Uttamacharya, U., Jain, K., Biritwum, R. B., Yawson, A. E., Wu, F., Guo, Y., Maximova, T., Espinoza, B. M., Salinas Rodríguez, A., Afshar, S., Pati, S., Ice, G., Banerjee, S., Liebert, M. A., Snodgrass, J. J., Naidoo, N., Chatterji, S., & Kowal, P. (2015). The impact of multimorbidity on adult physical and mental health in low- and middle-income countries: What does the study on global ageing and adult health (SAGE) reveal? BMC Medicine, 13(1), 178. https://doi.org/10.1186/s12916-015-0402-8
4. Banerjee, S., & Boro, B. (2022). Analysing the role of sleep quality, functional limitation and depressive symptoms in determining life satisfaction among the older Population in India: A moderated mediation approach. BMC Public Health, 22(1), 1933. https://doi.org/10.1186/s12889-022-14329-9
5. Braga, L. de S., Caiaffa, W. T., Ceolin, A. P. R., de Andrade, F. B., & Lima-Costa, M. F. (2019). Perceived discrimination among older adults living in urban and rural areas in Brazil: A national study (ELSI-Brazil). BMC Geriatrics, 19(1), 67. https://doi.org/10.1186/s12877-019-1076-4
6. Bramhankar, M., Kundu, S., Pandey, M., Mishra, N. L., & Adarsh, A. (2023). An assessment of self-rated life satisfaction and its correlates with physical, mental and social health status among older adults in India. Scientific Reports, 13(1), 9117. https://doi.org/10.1038/s41598-023-36041-3
7. Chakraborty, J., & Kundu, S. (2024). Drivers of perceived discrimination among older adults in India: An intersectional analysis. BMC Psychology, 12(1), 196. https://doi.org/10.1186/s40359-024-01697-7
8. Choi, N. G., & Ha, J.-H. (2011). Relationship between spouse/partner support and depressive symptoms in older adults: Gender difference. Aging & Mental Health, 15(3), 307–317. https://doi.org/10.1080/13607863.2010.513042
9. Cisler, J. M., Begle, A. M., Amstadter, A. B., & Acierno, R. (2012). Mistreatment and Self-Reported Emotional Symptoms: Results From the National Elder Mistreatment Study. Journal of Elder Abuse & Neglect, 24(3), 216–230. https://doi.org/10.1080/08946566.2011.652923
10. Dong, X., Chen, R., Chang, E.-S., & Simon, M. (2013). Elder Abuse and Psychological Well-Being: A Systematic Review and Implications for Research and Policy - A Mini Review. Gerontology, 59(2), 132–142. https://doi.org/10.1159/000341652

11. Ferreira Carrijo, M., Silva Augusto, A. C., Da Silva Alencar, T., Martins Alves, A., Moretti Luchesi, B., & Carvalho Reis Martins, T. (2022). Relationship between depressive symptoms, social isolation, visual complaints and hearing loss in middle-aged and older adults. Psychiatriki. https://doi.org/10.22365/jpsych.2022.086
12. Hackett, R. A., Hunter, M. S., & Jackson, S. E. (2024). The relationship between gender discrimination and wellbeing in middle-aged and older women. PloS One, 19(3), e0299381. https://doi.org/10.1371/journal.pone.0299381
13. Han, J., & Richardson, V. E. (2015). The relationships among perceived discrimination, self-perceptions of aging, and depressive symptoms: A longitudinal examination of age discrimination. Aging & Mental Health, 19(8), 747–755. https://doi.org/10.1080/13607863.2014.962007
14. Hinata, A., Kabasawa, K., Watanabe, Y., Kitamura, K., Ito, Y., Takachi, R., Tsugane, S., Tanaka, J., Sasaki, A., Narita, I., & Nakamura, K. (2021). Education, household income, and depressive symptoms in middle-aged and older Japanese adults. BMC Public Health, 21, 2120. https://doi.org/10.1186/s12889-021-12168-8
15. Hodgetts, S., Gallagher, P., Stow, D., Ferrier, I. N., & O'Brien, J. T. (2017). The impact and measurement of social dysfunction in late-life depression: An evaluation of current methods with a focus on wearable technology. International Journal of Geriatric Psychiatry, 32(3), 247–255. https://doi.org/10.1002/gps.4632
16. Hossain, B., Nagargoje, V. P., Sk, M. I. K., & Das, J. (2022). Social exclusion and mental health among older adults: Cross-sectional evidence from a population-based survey in India. BMC Psychiatry, 22(1), 409. https://doi.org/10.1186/s12888-022-04064-1
17. Ienca, M., Schneble, C., Kressig, R. W., & Wangmo, T. (2021). Digital health interventions for healthy ageing: A qualitative user evaluation and ethical assessment. BMC Geriatrics, 21(1), 412. https://doi.org/10.1186/s12877-021-02338-z
18. Jane Osareme, Ogugua, Muridzo Muonde, Chinedu Paschal Maduka, Tolulope O Olorunsogo, & Olufunke Omotayo. (2024). Demographic shifts and healthcare: A review of aging populations and systemic challenges. International Journal of Science and Research Archive, 11(1), 383–395. https://doi.org/10.30574/ijsra.2024.11.1.0067
19. Jiang, C.-H., Zhu, F., & Qin, T.-T. (2020). Relationships between Chronic Diseases and Depression among Middle-aged and Elderly People in China: A Prospective Study from CHARLS. Current Medical Science, 40(5), 858–870. https://doi.org/10.1007/s11596-020-2270-5
20. Khanal, G., & Selvamani, Y. (n.d.). Association of perceived childhood socio-economic status and health with depressive symptoms among middle-aged and older adults in India: Using data from LASI Wave I, 2017–2018. ResearchGate. Retrieved September 25, 2026, from https://www.researchgate.net/publication/378743354_Association_of_perceived_childhood_socio-economic_status_and_health_with_depressive_symptoms_among_middle-aged_and_older_adults_in_India_using_data_from_LASI_Wave_I_2017-2018

21. Kumar, M., Ruikar, M., & Surya, V. L. (2023). Depression among older adults in an urban slum of Raipur city—A community based cross-sectional study. BMC Geriatrics, 23(1), 709. https://doi.org/10.1186/s12877-023-04402-2
22. Lee, H., & Turney, K. (2012). Investigating the Relationship between Perceived Discrimination, Social Status, and Mental Health. Society and Mental Health, 2(1), 1–20. https://doi.org/10.1177/2156869311433067
23. Malik, M. A., Singh, S. P., & Pattanaik, F. (2022). Economics of Healthy Aging in India: A Multidimensional Perspective. IZA Journal of Labor Policy, 12(1), 20220004. https://doi.org/10.2478/izajolp-2022-0004
24. Muhammad, T., & Meher, T. (2021). Association of late-life depression with cognitive impairment: Evidence from a cross-sectional study among older adults in India. BMC Geriatrics, 21(1), 364. https://doi.org/10.1186/s12877-021-02314-7
25. Paul, R., Muhammad, T., Rashmi, R., Sharma, P., Srivastava, S., & Zanwar, P. P. (2023). Depression by gender and associated factors among older adults in India: Implications for age-friendly policies. Scientific Reports, 13(1), 17651. https://doi.org/10.1038/s41598-023-44762-8
26. Pearlin, L. I., Menaghan, E. G., Lieberman, M. A., & Mullan, J. T. (1981). The Stress Process. Journal of Health and Social Behavior, 22(4), 337–356. https://doi.org/10.2307/2136676
27. Pengpid, S., & Peltzer, K. (2021). Perceived discrimination and health outcomes among middle-aged and older adults in India: Results of a national survey in 2017–2018. BMC Geriatrics, 21, 559. https://doi.org/10.1186/s12877-021-02508-z
28. Perianayagam, A., Bloom, D., Lee, J., Parasuraman, S., Sekher, T. V., Mohanty, S. K., Chattopadhyay, A., Govil, D., Pedgaonkar, S., Gupta, S., Agarwal, A., Posture, A., Weerman, A., & Pramanik, S. (2022). Cohort Profile: The Longitudinal Ageing Study in India (LASI). International Journal of Epidemiology, 51(4), e167–e176. https://doi.org/10.1093/ije/dyab266
29. Ra, C. K., Huh, J., Finch, B. K., & Cho, Y. (2019). The impact of perceived discrimination on depressive symptoms and the role of differentiated social support among immigrant populations in South Korea. International Journal for Equity in Health, 18(1), 7. https://doi.org/10.1186/s12939-019-0910-9
30. Sadhu, R., Ko, S., Subramanian, S. V., & Kim, R. (2026). Everyday discrimination among middle-aged and older adults in India: A multilevel cross-sectional analysis from the Longitudinal Ageing Study in India. Scientific Reports, 16(1), 9062. https://doi.org/10.1038/s41598-026-37790-7
31. Saha, A., Mandal, B., Muhammad, T., & Ali, W. (2024). Decomposing the rural-urban differences in depression among multimorbid older patients in India: Evidence from a cross-sectional study. BMC Psychiatry, 24(1), 60. https://doi.org/10.1186/s12888-023-05480-7
32. Shahi, V., Singh, U., Kaushal, S., Deo, S., Kumari, S., Lal, S. P., Lata, A., & Shahi, N. (2026). Understanding Ageing in India: A Multi-Dimensional Review of Problems and Prospects | Journal of Scientific Research and Reports. https://journaljsrr.com/index.php/JSRR/article/view/3728

33. Srivastava, S., Sulaiman, K., Drishti, D., & Muhammad, T. (2021). Factors associated with psychiatric disorders and treatment seeking behaviour among older adults in India. Scientific Reports, 11(1), 24085. https://doi.org/10.1038/s41598-021-03385-7
34. Subramaniam, S., Somasekar, S., & Manoharan, O. (2025). MENTAL AND PHYSICAL HEALTH CHALLENGES AMONG THE ELDERLY: AN INDIAN PERSPECTIVE. https://doi.org/10.5281/ZENODO.18067430
35. Sutin, A. R., Stephan, Y., Carretta, H., & Terracciano, A. (2015). Perceived discrimination and physical, cognitive, and emotional health in older adulthood. The American Journal of Geriatric Psychiatry: Official Journal of the American Association for Geriatric Psychiatry, 23(2), 171–179. https://doi.org/10.1016/j.jagp.2014.03.007
36. Zhang, D. (2023). Elder abuse and depressive symptoms among older adults in China: The moderating role of adverse childhood experiences. Journal of Affective Disorders, 339, 742–749. https://doi.org/10.1016/j.jad.2023.07.070
37. Zhang, L., Shooshtari, S., St. John, P., & Menec, V. H. (2022). Multimorbidity and depressive symptoms in older adults and the role of social support: Evidence using Canadian Longitudinal Study on Aging (CLSA) data. PLOS ONE, 17(11), e0276279. https://doi.org/10.1371/journal.pone.0276279

Figures

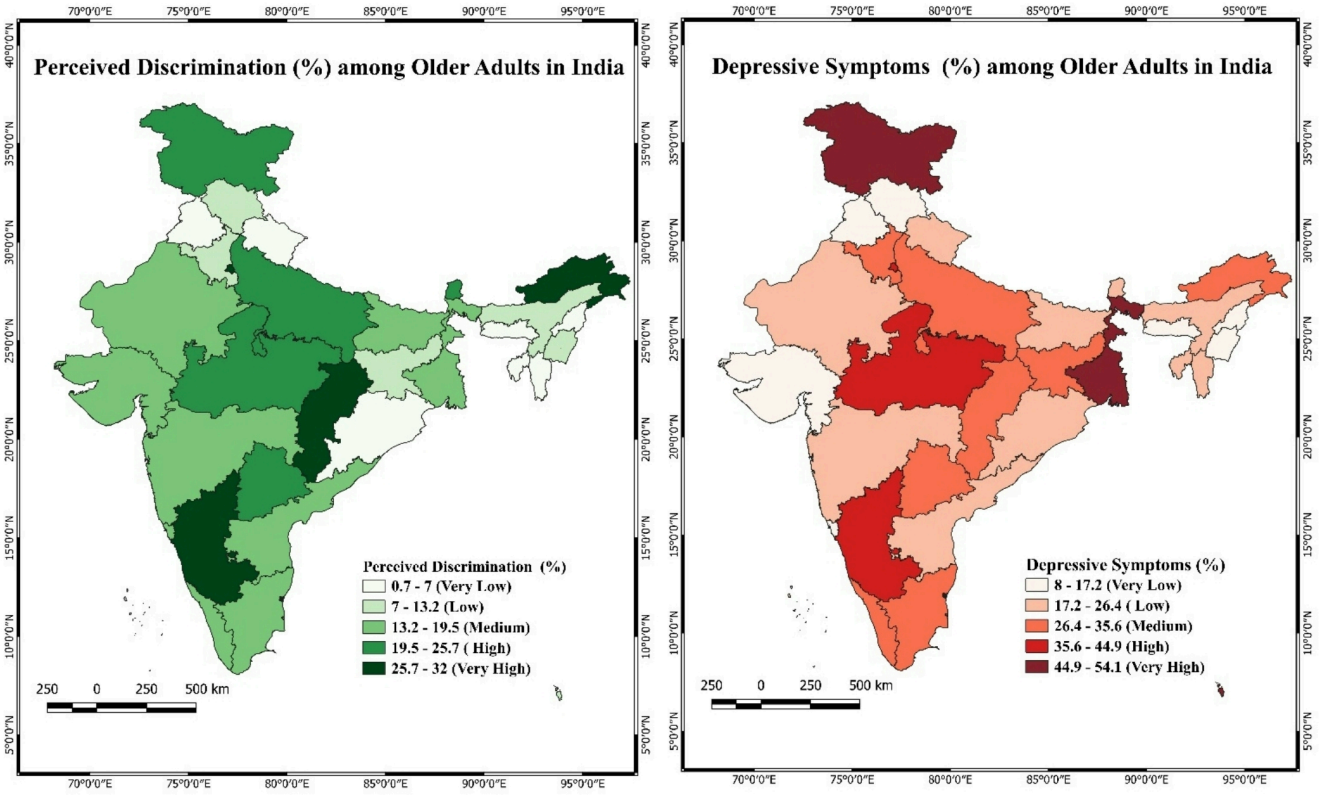

Figure 1

Spatial Distribution of Perceived Discrimination and Depressive Symptoms among Older Adults across States and Union Territories in India (LASI Wave 1)