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RESEARCH ARTICLE

EXPLORING THE DIFFERENTIAL EFFECTS OF PHYSICAL, MENTAL, AND FUNCTIONAL HEALTH ON LIFE SATISFACTION IN INDIAN OLDER ADULTS

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ABSTRACT

India's demographics are changing quickly, and the country's senior citizens face difficulties. This study explores how sociodemographic characteristics and physical, mental, and functional health dimensions influence life satisfaction in older Indians, using data from the Longitudinal Ageing Study in India (LASI). Ordered logistic regression analysis was used to evaluate a large sample of 30,370 people who were 60 years of age or older in order to explain the associations.

Findings underscore a significant correlation between health dimensions and life satisfaction among the elderly. Notably, better self-rated health, absence of depressive symptoms, and functional independence emerged as key determinants of higher life satisfaction. Individuals reporting good overall health exhibited notably greater life satisfaction levels, while those experiencing depressive symptoms or functional disabilities reported lower satisfaction.

Moreover, sociodemographic factors exerted substantial influence on life satisfaction. Education emerged as a significant predictor, with higher levels associated with increased life satisfaction. Marital status played a pivotal role, with married individuals exhibiting higher satisfaction levels, possibly attributed to enhanced social support and companionship. Economic standing, reflected by monthly per capita consumption expenditure, positively impacted life satisfaction, particularly among wealthier individuals.

Regional disparities were evident, with some states exhibiting higher life satisfaction levels compared to others. For instance, Gujarat reported notably higher satisfaction rates, while Andhra Pradesh exhibited lower levels. These regional differences highlight the complex interactions between environmental and sociocultural elements that influence older individuals' well-being.

Despite limitations inherent in cross-sectional data and reliance on self-reported measures, findings offer valuable insights into the intricate determinants of life satisfaction among India's elderly population. Addressing disparities in health access and socioeconomic factors holds promise in enhancing overall well-being among older Indians. Future research endeavours should explore comprehensive health measures and tailored interventions to optimize life satisfaction in aging populations.

This study contributes to the growing body of literature on aging and underscores the imperative of holistic approaches to promote well-being among older adults in India and beyond.

KEYWORDS

Older adults, life satisfaction, multidimensional health, socio-demographic factors, regional disparities, and well-being.

1. INTRODUCTION

India's population is aging faster than ever before and going through noticeable changes. According to the 2011 Census, nine percent of India's total population, or 104 million people, are 60 years and above (Census Commissioner, India, 2011). According to UN projections, this percentage will reach about 19 percent, or 330 million, by 2050, three times the amount found in the 2011 Census of India (Department of International Economics, 2022). The World Health Organization (WHO) reports that there are around 650 older adults 60 years and above in the world today, and in 2050 there will be two billion. At present, 60% of the elderly population worldwide will reside in emerging developing nations, which will reach 80% By 2050.

The entire assessment of a person's attitudes and sentiments regarding their life at any given moment, ranging from negative to positive, is known as life satisfaction. Life satisfaction is one of the three main indicators of well-being, along with positive and negative affect (Sarafat and Akter, 2018).

The social, physical, and psychological losses that come with growing older are the reason why many scholars and the general public believe that increasing age is associated with a decline in subjective well-being. Stated differently, significant life events encountered during the aging process are thought to influence the quality of life of older adults significantly. However, the examined survey research results indicate that there is a weak and inconsistent link between age and subjective well-being across studies (Chen, n.d.).

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The evaluation of senior people's life satisfaction with their existing circumstances is based only on personal standards or unique situations, rather than just externally imposed standard criteria. Stated differently, an individual's degree of life satisfaction is ascertained by their own evaluation instead than adhering to specific criteria that the researchers consider essential. (Diener et al., 1985). Many life satisfaction measurements have been created over time, but most of them have been based on a single criterion that hasn't been able to capture all the aspects of life satisfaction, especially when it comes to older people. Diener et al., defined life satisfaction as an individual's "perception of their overall socioeconomic and cultural position and reflections of their goals and expectations in life" (Diener et al., 1985).

The way a person's life satisfaction varies over time is depicted as an inverted U-shaped pattern. Prior to the age of 60, it is often lower, gradually rises, and then diminishes sharply in later years due to increasing dependency, health issues, and the loss of close social contacts. (Uma Devi et al., 2015).

An elderly person's level of life satisfaction is influenced by a variety of socioeconomic factors, in addition to health-related ones. A few of these are age, gender, marital status, level of education attained, work status, financial situation, social involvement, living arrangements, relationship with spouse and children, and support for the elderly. (Mandi and Bansod, 2023).

Researchers have attempted to investigate how older persons in India's socio-demographic profile and self-rated health relate to life satisfaction. These studies, however, were limited in their scope and could not adequately represent the elderly population in India as a whole. Furthermore, to the best of the authors' knowledge, no consideration has been given to the relationship between the functional health (functional disability), mental health, and physical health of older persons and their level of life satisfaction, as this relationship may provide insight into the general health and well-being of India's aging population. Thus, the purpose of the current study was to investigate the connections among older Indian individuals' socio-demographic characteristics, multidimensional health features, and life satisfaction.

1.1 Objectives

- Investigate the relationship between life satisfaction and multidimensional health variables (physical, mental, and functional health) in the older Indian population.
- Analyse how sociodemographic characteristics impact the connection between older Indians' multidimensional health and life satisfaction.

2. Materials and Methods

2.1 Source of data

This study was based on data from the first wave of the Longitudinal Ageing Study in India (LASI), which ran from 2017 to 2018. The Longitudinal Ageing Study in India (LASI) is a nationally representative study of 72,250 persons 45 years of age and older living in Indian states and union territories. A thorough methodology and all the information pertaining to the survey's design and data collection were included in the survey report (IIPS, Mumbai, 2020). The participants in this study must be older individuals (60 years of age and above) who have finished all five life satisfaction surveys. 30,370 is the total sample size used in this study, taking into consideration all of the variables included.

2.2 Measurement

2.2.1 Dependent variable

Our dependent variable was determined to be life satisfaction. The Satisfaction with Life Scale (SWLS), an instrument developed from a 1-to-7 response scale, was used to measure a participant's degree of life satisfaction (Diener E et al., 1985). In several different socio-demographic groups, the SWLS has been used extensively to assess the Life Satisfaction component of subjective well-being. A separate component of the LASI questionnaire dealing to life satisfaction contains the following five statements: "I am satisfied with my life," "I have all the important things I want in life so far," "My life is almost ideal in most ways," "My life is in excellent condition," and "If I could live my life over again, I would almost change nothing." The participants were instructed to use a scale of 1 to 7 to indicate how much they agreed with each of the following five statements: Seven: Strongly agree; six: Somewhat agree; five: Slightly agree; four: Neither agree nor disagree; three: Slightly disagree; two: Somewhat disagree; one: Strongly disagree. Based on the replies to the five life satisfaction statements, a continuous scale with a score ranging from 5 to 35 was created. With a Cronbach's Alpha of 0.91, the scale's internal consistency in this sample is high. Elderly people who scored less than 20 were considered to be low satisfied, those who scored between 20 and 25 as medium satisfied, and those who scored 26 or more as highly satisfied.

2.2.2 Explanatory variables

2.2.2.1 Multidimensional health variables

The multidimensional health of the elderly was measured in this study using three different health dimensions. Three states of health: functional, mental, and physical. The question "How is your health in general?" was used to collect data on physical health. Response categories ranged from very good to very poor (5-level response); they were then converted into three-level responses: poor, fair, and good. Mental health was assessed using the Centre for Epidemiologic Studies Depression Scale (CES-D). The CES-D is a short self-report measure designed to be used as a screening tool for symptoms of depression in the general population (Radloff et al,. 1977). Unlike the 20-item original CES-D scale, the LASI used a modified 10-item scale with four scale choice categories. The ten symptoms are comprised of three positive (feeling happy, satisfied, and hopeful) and seven negatives (having trouble concentrating, low energy, feeling depression, fear of something, feeling alone, bothered by things, and everything is an effort). Response options included rarely or never (less than one day), sometimes (one or two days); by combining both the above-mentioned options, one option was created, which is named the "Not Depressed" category, and on the other hand, by combining the options included often (three or four days), and most of the time (five to seven days) in the week before the interview, another option was created as the "Depressed" category was created.

The activities of daily living (ADLs) score, which was derived from questions about the respondents' difficulties with ADLs (dressing, walking across the room, bathing, eating, getting in and out of bed, and using toilets) and IADLs (making phone calls, grocery shopping, hot meal preparation, medication administration, money management, and locating addresses in unfamiliar places), was used to assess functional health.

2.2.2.2 Socio-demographic variables

Due to their possible correlation with life satisfaction, the following sociodemographic and economic data were obtained: Considerations included age, sex, caste, religion, living situation, place of residence, marital status, level of education, employment status, and MPCE-quintile. Table 1 displays a description of the control and explanatory variables.

Table 1: Definition/Codes of the socio-economic, demographic and Health Variables.

Variables	Code/Definition
Age-Groups	0 = (60-64 years), 1= (65-69 years), 2 = (70-74 years), 3 = (75 & above)
Sex	0 = Female, 1= Male
Caste	0 = Others, 1= OBC, 2 = ST, 3 =SC
Religion	0 =Hindu, 1 = Muslim, 2 = Christian, 3 = Sikh, 4 = others
Residence	0 = Rural, 1 = Urban
Marital Status	0 = Others, 1 = Currently Married
Living Arrangement	0 = Empty Nester (living alone or with spouse or with others), 1 = Non-Empty Nester (Living with spouse and Childrens)
Educational Status	0 = No Education, 1 = Primary, 2 = Secondary, 3 = Higher
Work Status	0 = Not Working, 1 = Currently Working
MPCE-Quintile	0 = Poor, 1= Middle, 2 = Rich
Self-Rated Health	0 = Poor, 1 = Fair, 2 = Good
Mental Health (Depressive Symptom)	0 = No, 1 = Yes
Functional Health	0 = No, 1 = Yes

2.3 Statistical analysis

Descriptive statistics were used initially to illustrate the features of the socio-demographic and economic variables. Second, the relationship

between multidimensional health, socio-demographic and economic factors, and life satisfaction as a dependent variable was examined using ordered logistic regression analysis. STATA version 18 has been used for all analyses. When modelling the link between an ordinal dependent variable and one or more independent variables, ordered logistic regression is a useful tool. Even though the intervals between categories aren't always equal, it sheds light on how these variables affect how the dependent variable is ordered. Through the use of ordered logistic regression analysis, three models had been developed. Life satisfaction was included as the dependent variable in the models, whereas the independent factors included depressive symptoms, present health state, functional disability, and socio-demographic and economic variables. In Table 6, Model-1 and 2 were an unadjusted model whereas Model-3 provided the adjusted estimates. Model-2 was controlled for age, sex, religion, caste, education, working status, living arrangements, marital status, residence, MPCE quintile, self-rated health, depressive symptoms, difficulty in ADL and difficulty in IADL, among the elderly population (60 years and above).

3. Results

Table 2 presents the socioeconomic, demographic, and health characteristics of the study participants alongside their level of life satisfaction. Each characteristic, such as age group, sex, religion, caste, education, work status, marital status, living arrangements, MPCE-quintile, self-rated health, mental health (depressive symptoms), and functional disability (ADL & IADL), is categorized, and the corresponding level of life satisfaction is indicated in terms of high, medium, or low. The sample size (N) and percentages (%) are provided for each category, along with the Chi-square (χ^2) statistic and associated p-value, indicating the significance of the relationship between the characteristic and life satisfaction level. The data shows that India's rural areas have a higher share of low- LS senior citizens than its urban parts (19.09%), with 26.20% in rural areas. Education and monthly per-capita consumption expenditures were found to have a positive linear proportionate association with life high life satisfaction, among other significant factors. It was also shown that marriage significantly affected the level of life satisfaction. Married people currently make up 47.46% of the high life satisfaction in the older adult population; others (widowed and divorced/separated persons) report 42.36% of the older adults, respectively. Low life satisfaction was more common in SCs (29.37%) than in OBCs (25.40%) and STs (21.91%) across castes and tribes. Sikhs (55.29%) reported the greatest percentage of high life satisfaction among all religions, followed by Christians (47.13%) and Hindus (45.99%). In the case of living arrangements, empty nester elderly reported a higher prevalence of low-satisfied elderly (27.60%).

Table 2: Socio-Economic, Demographic & Health characteristics of the study participants and their level of life satisfaction.

Characteristics & Their Categories	Level of Life Satisfaction in%			Sample Size N (%)	Chi2 (P Value)
Age Group	**Low**	**Medium**	**High**		5.078 (<0.534)
60-64	24.01	30.72	45.27	9908 (32.6)	
65-69	22.98	30.61	46.41	8617 (28.4)	
70-74	24.16	30.46	45.38	5538 (18.2)	
75 & above	24.18	30.54	45.28	6307 (20.8)	
Sex					28.69 (<0.0001)
Male	23.01	29.79	47.21	14553 (47.92)	
Female	24.49	31.36	44.15	15817 (52.08)	
Religion					168.63 (<0.0001)
Hindu	24.70	29.33	45.97	22283 (73.37)	
Muslim	23.56	36.91	39.53	3582 (11.79)	
Christian	19.47	33.40	47.13	3009 (9.91)	
Sikh	17.12	27.59	55.29	946 (3.12)	
Others	22.95	30.97	46.08	549 (1.81)	
Caste					287.34 (<0.0001)
OBC	25.40	29.25	45.35	11491 (37.90)	
Others	19.68	29.59	50.73	8892 (29.33)	
ST	21.91	34.81	43.28	4970 (16.39)	
SC	29.37	31.30	39.34	4965 (16.38)	
Education					803.32 (<0.0001)
No Education	28.60	32.25	39.69	16224 (53.42)	
Primary	22.59	31.28	46.13	3670 (12.08)	
Secondary	20.44	30.27	49.29	5837 (19.22)	
Higher	23.78	30.61	45.61	30370 (15.27)	
Work Status					13.83 (<0.001)
Currently Working	25.17	30.09	44.74	9099 (29.96)	
Not Working	23.19	30.38	45.98	21268 (70.04)	
Marital Status					103.67 (<0.0001)
Currently Married	22.11	30.43	47.46	19366 (63.77)	
Others	26.73	30.92	42.36	11004 (36.23)	
Residence					275.71 (<0.0001)
Rural	26.20	31.27	42.53	20036 (65.97)	
Urban	19.09	29.32	51.59	10334 (34.03)	
Living Arrangements					103.82 (<0.0001)
Empty Nester	27.60	28.96	43.43	9039 (29.76)	
Non- Empty Nester	22.16	31.30	46.54	21331 (70.24)	
MPCE-Quintile					224.54 (<0.0001)
Poor	26.23	32.90	40.87	12469 (41.06)	
Middle	22.67	31.11	46.22	6203 (20.42)	
Rich	21.76	27.89	50.35	11698 (38.52)	
Self-Rated Health					748.61 (<0.0001)
Good	18.18	28.17	53.65	10164 (33.48)	

Table 2 (Cont.): Socio-Economic, Demographic & Health characteristics of the study participants and their level of life satisfaction.

Fair	23.11	31.83	45.06	13194 (43.47)	
Poor	33.23	31.83	34.93	6996 (23.05)	
Mental Health Depressive Symptoms					83.8095 (<0.0001)
Not Depressed	23.15	30.29	46.56	26427 (87.17)	
Depressed	28.11	32.82	39.07	3888 (12.83)	
Functional Health (ADL Disability)					51.7617(<0.0001)
No	23.09	30.31	46.59	24158 (79.56)	
Yes	26.45	31.75	41.79	6207 (20.44)	
Functional Health (IADL Disability)					276.61 (<0.0001)
No	21.11	29.41	49.48	17179 (56.58)	
Yes	27.26	32.17	40.57	13186 (43.42)	

Table 3 The older population's state-by-state life satisfaction levels are shown in this table. Around 45.61% of elderly people reported high life satisfaction, while around 30.61% reported medium and 23.78% reported low life satisfaction in India. The central area of India has the highest percentage of low life satisfaction (LS), while the western region reports the highest percentage of high LS. Life satisfaction levels vary significantly across states. Gujarat has the highest percentage (78%) reporting high satisfaction, while Andhra Pradesh has the highest percentage (40%) reporting low satisfaction.

Table 3: State-Wise level of life satisfaction and their odds ratio among elderly population.

States	Level of Life Satisfaction among Elderly Population, N (%)			
	Low	**Medium**	**High**	**Sample N (%)**
Jammu & Kashmir	190 (26.95)	325 (46.10)	190 (26.95)	705 (2.32)
Himachal Pradesh	36 (5.94)	121 (19.97)	449 (74.09)	606 (2.00)
Punjab	191 (19.67)	257 (26.47)	523 (53.86)	971 (3.20)
Chandigarh	25 (6.81)	66 (17.98)	276 (75.20)	367 (1.21)
Uttarakhand	108 (17.03)	176 (27.76)	350 (55.21)	634 (2.09)
Haryana	214 (25.97)	251 (30.46)	359 (43.57)	824 (2.71)
Delhi	113 (23.11)	172 (35.17)	204 (41.72)	489 (1.61)
Rajasthan	347 (32.70)	374 (35.25)	340 (32.05)	1061 (3.49)
Uttar Pradesh	550 (26.58)	765 (36.97)	754 (36.44)	2069 (6.81)
Bihar	447 (25.43)	551 (31.34)	760 (43.23)	1758 (5.79)
Arunachal Pradesh	55 (17.46)	134 (42.54)	126 (40.00)	315 (1.04)
Nagaland	132 (23.16)	203 (35.61)	235 (41.23)	570 (1.88)
Manipur	138 (23.92)	194 (33.62)	245 (42.46)	577 (1.90)
Mizoram	34 (6.94)	172 (35.10)	284 (57.96)	490 (1.61)
Tripura	63 (14.06)	188 (41.96)	197 (43.97)	448 (1.48)
Meghalaya	64 (15.65)	123 (30.07)	222 (54.28)	409 (1.53)
Assam	159 (20.05)	284 (35.81)	350 (44.14)	793 (2.61)
West Bengal	466 (31.21)	597 (39.99)	430 (28.80)	1493 (4.92)
Jharkhand	349 (30.51)	356 (31.12)	439 (38.37)	1144 (3.77)
Odisha	391 (32.42)	396 (32.84)	419 (34.74)	1206 (3.97)
Chhattisgarh	159 (21.00)	268 (35.40)	330 (43.59)	757 (2.49)
Madhya Pradesh	355 (28.17)	315 (25.00)	590 (46.83)	1260 (4.15)
Gujarat	64 (6.84)	134 (14.32)	738 (78.85)	936 (3.08)
Daman & Diu	39 (9.40)	63 (15.18)	313 (75.42)	415 (1.37)
Dadar and Nagar Haveli	52 (12.04)	123 (28.47)	257 (59.49)	432 (1.42)
Maharashtra	237 (13.64)	381 (21.92)	1120 (64.44)	1738 (5.72)
Andhra Pradesh	426 (39.81)	196 (18.32)	448 (41.87)	1070 (3.52)
Karnataka	293 (30.81)	295 (31.02)	363 (38.17)	951 (3.13)
Goa	104 (16.99)	236 (38.56)	272 (44.44)	612 (2.02)
Lakshadweep	52 (10.66)	233 (47.75)	203 (41.60)	488 (1.61)
Kerela	315 (27.34)	376 (32.64)	461 (40.02)	1152 (3.79)
Tamil Nadu	428 (28.61)	374 (25.00)	694 (46.39)	1496 (4.93)
Puducherry	132 (21.43)	245 (39.77)	239 (38.80)	616 (2.03)
Andaman & Nicobar Island	116 (23.58)	132 (26.83)	244 (49.59)	492 (1.62)
Telangana	378 (36.84)	219 (21.35)	429 (41.81)	1026 (3.38)
Total	7222 (23.78)	9295 (30.61)	13853 (45.61)	30370 (100%)

Table 4 This table illustrates regional disparities in the percentage of the elderly population experiencing low levels of satisfaction. The categories range from "Very High" to "Very Low" percentages of low-satisfied elderly individuals. "Very High" represents regions where the percentage of low-satisfied elderly population ranges from 33.11% to 39.81%."High" indicates percentages between 26.32% to 33.10%. "Medium" ranges from 19.53% to 26.31%. "Low" ranges from 12.74% to 19.52%. "Very Low" indicates the lowest percentages, ranging from 5.94% to 12.73%. Each category lists the states falling within that range. For example, in the "High" category, states like Andhra Pradesh and Telangana are mentioned, indicating that the percentage of low-satisfied elderly population in these states falls within the specified range. Figure 1 is a choropleth map showing the regional disparities in terms of the percentage of low-satisfied elderly in India.

Table 4: Regional disparities in the percentage of low satisfied elderly population

Categories	Range (%)	States
Very High	33.11 - 39.81	Andhra Pradesh, Telangana
High	26.32 - 33.10	Jammu & Kashmir, Rajasthan, Uttar Pradesh, Jharkhand, Odisha, Madhya Pradesh, Kerela, Tamil Nadu, Karnataka
Medium	19.53 - 26.31	Punjab, Haryana, Delhi, Bihar, Nagaland, Manipur, Assam, Chhattisgarh, Puducherry, A & N Island
Low	12.74 - 19.52	Uttarakhand, Arunachal Pradesh, Tripura, Meghalaya, Maharashtra, Goa
Very Low	5.94 - 12.73	Himachal Pradesh, Chandigarh, Mizoram, Gujarat, Daman & Diu, Dadar & Nagar Haveli, Lakshadweep

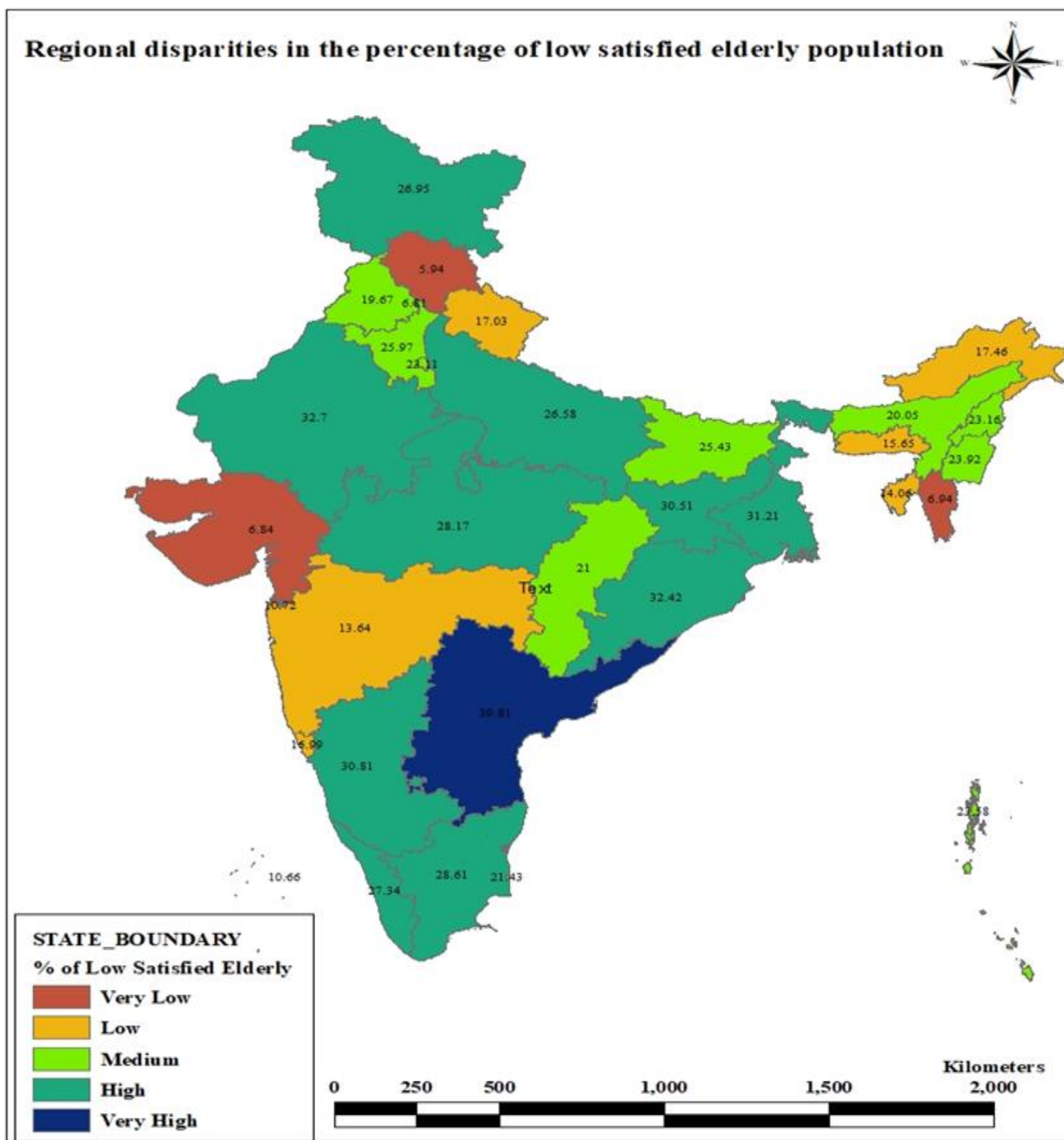

Figure 1: Region disparities in the percentage of low satisfied elderly population

3.1 Logistic regression models of life satisfaction among older adults by sociodemographic and health characteristics in India.

Table 5 shows three models that were created by ordered logistic regression analysis. Model 1 is the result of an ordered logistic regression model that examined the variables affecting the odds ratios for life satisfaction across various socio-demographic and socioeconomic categories. Age Groups, Sex, Religion, Caste, Marital Status, Residence, Living Arrangement, Educational Status, Employment Status, and MPCE-Quintile (a gauge of economic standing) are among the characteristics included in the table. The table shows the coefficients, standard errors, t-values, and p-values for each variable, demonstrating how significant they are in predicting odds ratios for life satisfaction. First, when all modifying variables are taken into account in the model, LS among older persons rises with age.

The odds ratio estimates of life satisfaction among older persons (60 years and above) by their different background characteristics are shown in

Table 5 logistic regression models. Three models 1, 2, and 3 have been used. The unadjusted impact of sociodemographic and economic factors on life satisfaction is shown by Model 1. Additionally, the unadjusted impact of multidimensional health variables on life satisfaction was incorporated in model 2. The adjusted effects of sociodemographic, economic, and multidimensional health factors on life satisfaction are displayed in model 3.

Model-1 represents unadjusted estimates and reveals that older adult in comparison to the reference age group (those 60–64 years old), older age groups (65–69, 70–74, 75 & above) have a higher likelihood of reporting better levels of life satisfaction [UOR: 1.116,1.152,1.177]. When compared to female elders, male elders had a reduced likelihood of reporting a lower level of life satisfaction [UOR:0.858, CI 0.782-0.94]. Older adults who were residing in urban areas had higher odds [UOR: 1.161; CI 1.037-1.298] more likely to have higher LS in reference to those older adults who were residing in rural areas. Compared to older individuals in other categories (widowed, divorced or separated), married older adults had a higher likelihood of having a higher LS [UOR: 1.249, CI 1.138-1.37]. When comparing illiterates to older persons with ten or more years of education, those with greater LS were more than twice as likely [UOR: 2.35, CI 1.998-2.776). Compared to older individuals in the Others, OBC and ST category, those in the SC categories had reduced likelihood of reporting a lower level of life satisfaction [UOR: 0.744, CI 0.666-0.832]. Sikh Older people had a [UOR:1.21, CI 0.874-1.677] higher likelihood of having higher LS as compared to other religious groups. Non-empty nester older adults (living with spouses and children) are [UOR:1.328, CI 1.219-1.447] times more likely to have higher LS than those empty nest elders (living alone). It was additionally found that older adults who were currently working were had a higher likelihood [UOR:1.042, CI 0.955-1.138] of higher LS as compared to not working group. Compared to the poor quintile, rich MPCE-quintile elders are more likely to report better levels of life satisfaction [AOR: 1.28, CI 1.162-1.409].

Model-2 also represents unadjusted estimates of multidimensional health characteristics and reveals that older adults who were good self-rated health (SRH) had higher odds [UOR: 2.147, CI 1.926-2.394] more likely to have higher LS. Older adults who suffered from depressive symptoms had lower odds [UOR: 0.845, CI 0.719-0.993] reporting a lower level of life satisfaction. The respondents who can perform their daily tasks independently are expected to have greater LS than the older individuals with ADL [UOR: 0.97, CI 0.872-1.1] and IADL [UOR:0.851, CI 0.765-0.946] disabilities.

Model-3 represents the interaction effect of socio-demographic, economic status along with multidimensional health variables on life satisfaction among older adults (adjusted for all the background characteristics). Even after adjusting for all the variables, there is not much variation in the results, a slight difference can be seen in the odds ratio. Similarly, life satisfaction among older persons rises with age. When compared to older adults between the ages of 60-64 years, respondents in the age groups 65-69, 70-74, and 75 and above had odds of [AOR: 1.13, 1.18, and 1.29] respectively, higher life satisfaction. In adjusted model elderly people who were currently working did not substantially correlate with greater life satisfaction [AOR: 0.96, CI 0.882-1.051]. Compared to the poor quintile rich MPCE-quintile elders are more likely to report better levels of life satisfaction [AOR: 1.282, CI 1.162-1.415]. Elderly with good SRH report higher LS [AOR: 2.08, CI 1.867-2.336] than those with low SRH. Likewise, with regard to the mental health domains, there is an inverse relationship between LS and responders who exhibit signs of depression, poor cognitive function, and other mental health issues. Older adults who were suffer from depressive symptoms had lower odds [AOR: 0.857, CI 0.742-0.99] reporting a lower level of life satisfaction. In functional health, higher LS is more common in elders without IADL and ADL disabilities than in those with these disabilities [AOR: 0.95, CI 0.86-1.062] for ADL and [AOR: 0.93, CI 0.852-1.053] for IADL. Therefore, higher probabilities of reporting higher life satisfaction are linked to better mental health (absence of depressive symptoms), better self-rated health, and total and partial disability-free ADL and IADL.

Table 5: Logistic regression models of life satisfaction among older adults by sociodemographic and health characteristics in India.

Life Satisfaction	Model 1	[CI at 95%]	Model 2	[CI at 95%]	Model 3	[CI at 95 %]
Age Groups						
60-64 Years	1	.			1	.
65-69 Years	1.116**	1.01-1.233			1.132**	1.022-1.253
70-74 Years	1.152**	1.026-1.293			1.187***	1.057-1.334
75 & above	1.177***	1.047-1.322			1.292***	1.146-1.457
Sex						
Female	1	.			1	.
Male	0.858***	0.782-0.94			0.843***	0.769-0.924
Religion						
Others	1	.			1	.
Hindu	0.907	0.679-1.211			0.879	0.662-1.166
Muslim	0.841	0.62-1.142			0.833	0.617-1.124
Christian	0.855	0.615-1.189			0.898	0.649-1.243
Sikh	1.211	0.874-1.677			1.166	0.846-1.606
Caste						
Others	1	.			1	.
OBC	0.947	0.855-1.049			0.959	0.865-1.064
ST	0.864**	0.753-0.991			0.829***	0.722-0.953
SC	0.744***	0.666-0.832			0.77***	0.688-0.861
Residence						
Rural	1	.			1	.
Urban	1.161***	1.037-1.298			1.135**	1.012-1.273
Marital Status						
Others	1	.			1	.
Currently Married	1.249***	1.138-1.37			1.219***	1.11-1.338
Living Arrangements						
Empty Nester	1	.			1	.
Non-Empty Nester	1.328***	1.219-1.447			1.296***	1.188-1.414
Educational Status						
No Education	1	.			1	.

Table 5 (Cont.) : Logistic regression models of life satisfaction among older adults by sociodemographic and health characteristics in India.

Primary	1.21***	1.068-1.371			1.216***	1.068-1.383
Secondary	1.526***	1.343-1.733			1.51***	1.321-1.725
Higher	2.355***	1.998-2.776			2.226***	1.884-2.63
Working Status Not Working	1	.			1	.
Currently Working	1.042	0.955-1.138			0.963	0.882-1.051
MPCE-Quintile Poor	1	.			1	.
Middle	1.201***	1.084-1.33			1.17***	1.056-1.297
Rich **Physical Health**	1.28***	1.162-1.409			1.282***	1.162-1.415
Self-Rated Health Poor			1	.	1	.
Fair			1.611***	1.449-1.79	1.587***	1.434-1.756
Good **Mental Health**			2.147***	1.926-2.394	2.088***	1.867-2.336
Depressive Symptom Not Depressed			1	.	1	.
Depressed **Functional Health**			0.845**	0.719-0.993	0.857**	0.742-0.99
ADL Disability No			1	.	1	.
Yes			0.979	0.872-1.1	0.956	0.86-1.062
IADL Disability No			1	.	1	.
Yes			0.851***	0.765-0.946	0.939	0.852-1.053
cut1	-0.564	-0.898-(-0.23)	-0.759	-0.862-(-0.655)	-0.284	-0.643-0.76
cut2	0.747	0.412-1.082	0.533	0.434- 0.631	1.052	0.692-1.412

Significance Level: *** p<.01, ** p<.05, * p<.1

Note: Model-1: Unadjusted figure of socio-economic and demographic characteristics, Model-2: Unadjusted figure of multidimensional health (physical, mental, and functional health), Model-3: Adjusted figure of all the factors included.

4. Discussion

Self-rated life satisfaction is a commonly used measure of subjective well-being that is acceptable (Banjare et al., 2015). Six primary dimensions of life satisfaction in old age have been identified by prior research: health behaviour, health status, physical and cognitive health, social support, and a number of morbidities (Bernice et al., 1961). Modern research on life satisfaction has, however, taken into account a number of other factors in addition to the previously mentioned as significant life satisfaction predictors, particularly when it comes to the elderly population. These variables include ability to function with regard to ADLs, perceived safety at home and in the neighbourhood, social integration, and headship position in the family (Vargas et al., 2019; Banjara et al., 2015). Therefore, we focused our analysis on the relationship between health and life satisfaction in the older population of India, based on previous studies.

When evaluating self-reported life satisfaction, health is an important factor. Even after taking into account the impact of socioeconomic correlates, research on general well-being and quality of life continues to emphasize the importance of health. Previous Chinese scholars have conducted considerable research on the importance of health as a determinant element in overall well-being among the elderly population (Xu et al., 2021). This study examined the association between multidimensional health parameters and life satisfaction in older adults in India. We believed that the primary determinants of life satisfaction in the elderly were the mental, physical, and functional aspects of health. The overall mean life happiness score of the study sample is 23.68, indicating a higher life satisfaction score.

This life satisfaction score is greater than that of many other nations that use the same SWLS measure, including China, Mexico, and Spain, and it is comparable to earlier studies conducted in Thailand (Vargas et al., 2019; Lopez-Ortega et al., 2016; Vázquez et al., 2013). Our results are consistent with earlier studies' findings that among older people in China, Mexico, and Vietnam, Life satisfaction showed a favourable correlation with all three dimensions of health (Vargas et al., 2019; Lopez-Ortega et al., 2016; Trinh et al., 2022). Furthermore, lower ADL scores, psychological discomfort, and disability were associated with lower life satisfaction in older adults. (Sato et al., 2002). Furthermore, low self-rated health, restricted functionality, and reliance on others for everyday tasks can all contribute to the decline of psychological well-being, depression symptoms, and psychological discomfort, all of which lower overall life satisfaction. Higher life satisfaction is positively correlated with self-reported health, consistent with the previous research in Turkey, Mexico, and China Celik et al., 2018; Lopez-Ortega et al., 2016; Ng et al., 2017).

One explanation could be that individual perceptions of life satisfaction increases as they get closer to age-related changes in their physical functioning, and that this can lead to a more favourable self-perception of aging overall (Pan et al., 2019). According to our research, there is a substantial correlation between psychological depression and reduced life satisfaction, which is consistent with the Socioemotional Selectivity Theory (Strine et al., 2008). According to study results, older people who have lower rates of depression or better mental health report higher levels of life satisfaction. One reason could be that having depressive symptoms can make people feel more distressed about things like their sexual life, job, or responsibilities. This could then have a negative effect on their overall quality of life and other subjective well-being aspects (Gigantesco et al., 2019). Japanese elderly people reported similar experiences, but the study indicates that life satisfaction and general quality of life are also significantly influenced by the intensity of depression symptoms. Thus, more research is necessary in light of this relationship. According to

socioeconomic position, people's life satisfaction varies in this study. Table 5 provides an overview of the findings related to the life satisfaction-related criteria. Life satisfaction is correlated with respondents' money, education, living situation, employment status, caste system, and marital status. The respondent's life satisfaction increased with education level. Our survey revealed that older respondents are generally satisfied when they are married and reside with their family. For the simple reason that as people move towards ageing, may encounter various chronic diseases and declining their functional abilities.

Consequently, living with family or in a married relationship might provide one the assurance that their spouses will look after them when they are older. Furthermore, there is a favourable correlation between an individual's financial condition and life satisfaction. The explanation could be that those who are wealthy enough to have a high monthly per capita consumption expenditure can afford more of the essentials for a satisfying existence, such as enough food, shelter, security, leisure, and social standing. Prior research has indicated that life satisfaction rises with increased financial status for married couples, but this relationship is less pronounced for singles and divorced category (Van Damme-Ostapowicz et al., 2021).

The significance of health as a major predictor of life satisfaction and contentment among India's elderly population was underlined by this study. In addition to socioeconomic factors, health is a significant determinant of life quality. Because everyone's health deteriorates with age, and because older persons may have multiple co-morbid illnesses, which can potentially impair life satisfaction. A report from the International Institute for Population Sciences (IIPS), Mumbai, states that 20% of elderly people have mental health problems, 40% have one or more disabilities, and 75% have one or more chronic conditions.

Elderly people may occasionally accept the emergence of chronic illness as a typical aspect of aging. Successful symptom management may prevent crises and increase life satisfaction, according to those who have experienced it. We took into account several limitations in our analysis. First off, one-item measure may have omitted several important features; our study is cross-sectional and determines life satisfaction only based on subjective assessment questions from LASI. Notwithstanding the limitations of the study, there is a dearth of research on this topic that is largely based on a large-scale, nationally representative dataset on older adults, which strengthens the validity of our findings.

For example, all of the self-reported measures employed in our research to assess functional, mental, and physical health are health domains. We have taken into account the self-reported perceived physical health without taking the illness into consideration. Although the Centre for Epidemiological Studies' Depression Symptoms were used to evaluate mental health, mental health status encompasses more than just depression symptoms. Furthermore, the utilization of the SWLS tool, which is extensively employed in cross-sectional research, contributes to the validity and reliability of our key endpoint, which is life satisfaction. It is our belief that the satisfaction with life scale (SWLS) is a subjective assessment tool that may not fully capture an individual's total well-being if it is solely based on questions pertaining to subjective domains. As a result, the findings might be applied broadly.

The aging population in India poses a complex challenge that necessitates a thorough comprehension of the variables influencing older individuals' quality of life. In addition to taking sociodemographic factors into account, this study explores the complex relationship between life satisfaction and multidimensional health markers (physical, mental, and functional health) in older Indians. The results shed light on a number of important aspects of the factors influencing life satisfaction in older Indian persons. First of all, the study confirms how crucial it is to take into account multiple dimensions of health when evaluating life pleasure. Higher life happiness was significantly predicted by better self-rated health, which is consistent with other research highlighting the critical role that physical well-being plays in overall life satisfaction. Higher levels of life satisfaction were also linked to the absence of depressive symptoms and functional impairments, highlighting the intricate interplay between mental and functional health dimensions in shaping well-being among the elderly. in shaping well-being among the elderly.

Furthermore, among elderly Indians, sociodemographic characteristics have a major impact on life satisfaction. In line with previous research emphasizing the complex nature of social determinants of well-being, age, gender, marital status, education, and economic status were found to be important predictors. The life satisfaction ratings of older age groups were notably higher, indicating the possibility of resilience and adaptation in later life stages. Higher life satisfaction was indicated by married people, educated people, and wealthy people, who emphasized the positive benefits of education, financial security, and social support on wellbeing.

There were clear regional differences in life satisfaction, with some states showing higher levels of happiness than others. Gujarat, for example, reported significantly greater satisfaction percentages, which may be related to regionally specific cultural, social, and economic aspects. Targeted interventions that are adapted to the unique requirements and difficulties faced by older persons in various geographic contexts are necessary to address these regional differences.

The Longitudinal Ageing Study in India (LASI) data were used in the study's methodological approach, which provides solid insights into the intricate dynamics of aging and well-being. The study effectively examines the connections between several health variables, sociodemographic characteristics, and life happiness by utilizing ordered logistic regression analysis, offering practitioners and policymakers valuable empirical evidence.

But it's important to take into account a few limitations. Because the data are cross-sectional in nature, longitudinal research is required to clarify temporal dynamics and causal pathways. Furthermore, using self-reported measures creates biases that should be considered in future research endeavours that require objective health assessments. Additionally, the study's emphasis on older persons 60 years of age and older may have overlooked the variety within this demographic group, requiring subgroup analyses to account for a range of needs and experiences.

5. Conclusion

In conclusion, this research advances our knowledge of the complex factors that influence life satisfaction in older Indian persons. The results emphasize the critical role that sociodemographic variables and multidimensional health indicators play in promoting well-being in aging populations, emphasizing the significance of holistic approaches. Future research and policy efforts should prioritize interventions addressing both physical and mental health dimensions while also addressing socioeconomic inequalities to enhance the quality of life for older adults across India.

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