Decomposition of caste differential in life satisfaction among older adults in India

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Abstract

Background: Being a multi-cultured country, India has varied social groups which largely shape the lives of individuals. Literature has shown that life satisfaction is highly associated with the social status of individuals. However, changing age dynamics (growing older) and definition of life among people presses the need to understand whether the additional years of life in older adults are manifested with the disparity in life satisfaction among the Scheduled Caste (SC)/Scheduled Tribes (ST) and non-SC/ST social groups in recent years. The present study explored the factors contributing to such differences in life satisfaction across social groups.

Methods: This study used data from the Longitudinal Aging Study in India conducted during 2017-18. The analytical sample of the study was 30,370 older adults. Life satisfaction was the outcome variable with a score ranging from 5 to 35. Descriptive statistics and bivariate analysis were conducted. Simple linear regression analysis was used to establish the association between the outcome and explanatory variables. Further, the Blinder-Oaxaca decomposition model was used to analyse the role of explanatory factors in the caste difference in life satisfaction among older people.

Results: Overall, the life satisfaction score among older adults in the study was 23.9 (SD 7.3). Older adults from non-SC/ST group had significantly higher likelihood of having life satisfaction in comparison to older adults from SC/ST group [Coef: 0.31; CI: 0.14, 0.49]. The decomposition results showed that the model explained 74.3% of the caste gap (between SC/ST and non-SC/ST) in life satisfaction among older adults in India. Subjective social status (39.0%) was widening the gap for life satisfaction among older adults from SC/ST and non-SC/ST group. Similarly, level of education (15.2%) followed by satisfaction with living arrangement (13.2%) and place of residence (5.3%) contributed for widening the gap for life satisfaction among older adults from SC/ST and non-SC/ST group. Region of country (−11.5%) followed by self-rated health (−3.0%) and major depression (−2.7%) contributed for narrowing down the gap for life satisfaction among older adults from SC/ST and non-SC/ST group.

Conclusion: Older adults belonging to non-SC/ST groups were more likely to have a higher level of life satisfaction than those from the SC/ST group. Factors like subjective social status, educational level, living arrangement satisfaction, and place of residence explained the caste differential in life satisfaction among older adults. In addition, factors such as psychological health and perceived health status should be the area of concern and special focus for policy makers and researchers in terms of reducing social inequalities in wellbeing among older population.

Keywords: Caste, Life satisfaction, Older adults, India
role occurs at old age in the form of health, work status, household headship, autonomy accompanied by psychological distress [4–6]. Life satisfaction is highly associated with old-age [3]. Although individual's life satisfaction can be associated with their interpretation of present or past life and their criteria for satisfaction and happiness [7]. Research has also linked social class with life satisfaction [8, 9]. Evidence shows that upper-class individuals are more satisfied in their lives than bottom-class individuals as they have better education, healthier and longer life, economic well-being, and more opportunities for their children [10–13]. Intergenerational downward mobility in education and income was highly associated with life satisfaction [14, 15]. However, ample evidence found that those in higher working classes often suffer from dissatisfaction in their lives [16–19].

Being a multi-cultured country, India has varied social groups, namely Other Backward Class (OBC), General/Others, Scheduled caste (SC), and Scheduled tribes (ST), divided as per social stratification [20]. With 16.6 and 8.6% of the total population, SC and ST are considered disadvantaged socio-economic groups, respectively [21]. Different measures have tried to bring equity in the living condition and health of lower-class individuals; however, constant discrimination and deprivation blur such effort. Besides caste being a prominent indicator of wellbeing in India, a question arises whether caste also affects the individual's life satisfaction. Is there any disparity in evaluating life through “the thoughts that people have about their life when they think about it” across the SC/ST and OBC/other groups? If yes, then who is more satisfied; those with higher privileges (non-SC/ST) or those who face discrimination (SC/ST).

Notably, the meaning of life satisfaction in older people is entirely different from those in the working or younger age group. Old age life satisfaction is often associated with living arrangement, social participation, and the care they receive from their family members [22, 23]. However, such factors may vary across older adults belonging SC/ST and non-SC/ST groups in India, leading to cross-cultural variations in life satisfaction [24]. For instance, SC/ST populations are mostly restricted to nature’s resources for their daily requirement [25]. The older adults in SC/ST groups are economically disadvantaged with lesser opportunities, but the strong community network can help in their upliftment [26–28]. On the other hand, the non-SC/ST population who enjoy a prosperous life are usually not required to do all the difficult chores [27]. However, their children often leave them behind, leading to social isolation, and the changing living arrangements which are often associated with subjective well-being [29, 30].

Although literature shows lower life satisfaction among under-privileged social groups in India due to their long-standing history of deprivation and discrimination [31, 32]. A recent evidence found that the average life satisfaction of individuals belonging to OBC was lowest compared to those from SC/ST individuals [33]. The changing definition of happiness and life evaluation among SC/ST and non-SC/ST populations in India presses the need to understand whether the additional years of life in older adults are manifested with the disparity in life satisfaction among the social groups in recent years. Topics like subjective well-being, mental health, life satisfaction have gained wide recognition in India [34, 35]. However, their better measurement and associated factors remained poorly understood. The wide source of information about participants’ socio-demographic, health and household characteristics from the recently released data of the Longitudinal Aging Study in India (LASI) brings an advantage to overcome those issues. Thus, the present study adds prominent evidence by exploring how life satisfaction varies across SC/ST and non-SC/ST population sub-groups. We hypothesize that there is a significant difference in life satisfaction of SC/ST and non-SC/ST older adults in India. Besides understanding the disparities across the social groups, present study will be helpful for the policymakers to identify the factors leading to such differences. Thus, a decomposition technique is used to investigate the factors contributing to differences in life satisfaction across social groups. Based on the findings from existing studies, a theoretical framework has been developed and summarised in Fig. 1.

**Methods**

**Data**

This study used data from LASI, wave-I conducted during 2017-18. The LASI, which is the Indian version of the Health and Retirement Studies (HRS), is a nationally representative survey conducted by the International Institute for Population Sciences (IIPS) in collaboration with the Harvard T.H. Chan School of Public Health, and the University of Southern California (USC). LASI provides vital information on demography, chronic health conditions, symptom-based health conditions, functional health, mental health (cognition and depression), household economic status, healthcare utilization and health insurance, family and social networks, work and employment, retirement and life expectations of 72,250 adults aged 45 and above across all the states and union territories of India. LASI adopted a multistage stratified cluster sampling design intending to follow the sample biennially for 25 years. Further details regarding the sample design, survey instruments, fieldwork, data collection and processing, and response rates are publicly available elsewhere [36]. All methods
were performed in accordance with the relevant guidelines and regulations.

The current study is based on a sample of 31,464 older adults in India who were aged 60 years and above. However, information on life satisfaction score was unavailable for 1094 older adults. Therefore, the analytical sample of the current study is 30,370 older adults among whom 9935 and 20,435 belonged to the SC-ST group and non-SC-ST group respectively.

Outcome variable
The continuous measure of life satisfaction score is the outcome variable of this study. During LASI wave-I, the interviewers collected information on the following five life satisfaction indicators:

(a) In most ways, the respondents’ life is close to ideal.
(b) The conditions of the respondents’ life are excellent.
(c) The respondents are satisfied with their life.
(d) The respondents have achieved the essential things they want in their life so far.
(e) If the respondents could relive their life, they would change almost nothing.

The responses to these questions were recorded as strongly disagree (score 1), somewhat disagree (score 2), slightly disagree (score 3), neither agree nor disagree (score 4), slightly agree (score 5), somewhat agree (score 6) and strongly agree (score 7). Notably, all the five life satisfaction indicators had an excellent Cronbach’s alpha value of 0.90. Therefore, we summed the five indicators to obtain the life satisfaction score of older adults ranging from 5 to 35.

Group variable
The caste group was coded as Scheduled Caste/Scheduled Tribe (SC/ST) and non-SC/ST.

Explanatory variables
Based on existing research, we included the following socio-demographic, health-related and household characteristics in this study [22, 31, 33]. The socio-demographic characteristics of older adults include: age denoted as young-old (aged 60-69 years), old-old (aged 70-79 years) and oldest-old (aged 80 years or more); gender (male/female); marital status (currently married/currently not married); level of education (no formal education, up to primary, secondary and above); working status (never worked, currently not working, currently working, retired); subjective social status (very low, low, medium, high and very high); social participation (socially active/socially inactive); importance of religion (not important/very important); living arrangement satisfaction (satisfied,
neutral, not satisfied); faces discrimination in life (no/yes); received ill-treatment within 1 year from the interview (no/yes).

Next, the health-related characteristics of the older adults were – self-rated health (good, average, poor); chronic morbidity status (no condition, single condition and multiple conditions) based on ever-diagnosed disease information in LASI; depression (not diagnosed / diagnosed); physical activity status (physically inactive/physically active); difficulty in Activities of Daily Living (ADL) (no/yes); difficulty in Instrumental Activities of Daily Living (IADL) (no/yes); covered by any health insurance (yes/no).

Further, the household-related characteristics were – monthly per capita consumption expenditure (MPCE) quintile of household (poorest, poorer, middle, richer and richest); religion (Hinduism, Islam, Others); place of residence (urban/rural); regions (Southern, Northern, Central, Western, Eastern, North-eastern).

Statistical methods
We started by showing the absolute and weighted percentage distributions of older people depending on their background variables. The proportion test was used to look at the difference in life satisfaction between older adults from SC/ST and non-SC/ST groups. Simple linear regression analysis was used to establish the association between the outcome and explanatory variables. The coefficients along with 95% confidence interval (CI) were presented.

We used the Blinder-Oaxaca decomposition approach to investigate the importance of factors explaining life satisfaction inequality between the SC/ST and non-SC/ST groups.

The Blinder-Oaxaca decomposition approach is important in this study because it can distinguish outcomes attributed to unequal treatment across groups from outcomes attributable to group differences in fundamental traits like role and experience. This technique allowed us to distinguish between two causes of the outcome disparity between SC/ST and non-SC/ST older adults: (i) variations in the distribution of factors between the groups, and (ii) differences in the impact of these variables between the groups.

Following the decomposition analysis, two separate equations of the semi-log functional form for life satisfaction for SC/ST and non-SC/ST older adults are estimated based on ordinary least squares (OLS):

\[ e_{si} = \ln (y_{si}) = \beta_s X_{si} + \varepsilon_{si}, \]

\[ e_{ni} = \ln (y_{ni}) = \beta_n X_{ni} + \varepsilon_{ni}, \]

Where \( y_{ji} \) is the life satisfaction score for \( j^{th} \) type (\( j = (s, n) \), \( s \) denoting SC/ST and \( n \) denoting non-SC/ST) of \( i^{th} \) member, \( X_i \) is a vector consisting of background characteristics corresponding to the member \( i \).

The average gap in life satisfaction score can be divided into explained and unexplained components as:

\[ \bar{e}_s - \bar{e}_n = (\bar{X}_s - \bar{X}_n) \hat{\beta}_s + \bar{X}_n (\hat{\beta}_s - \hat{\beta}_n) = E + D \]

Where, the first component (E) measures the inequality due to the differences between SC/ST and non-SC/ST older adults in observed characteristics (characteristics effect). In other words, the expected difference in life satisfaction score if the non-SC/ST older adults were given SC/ST older adults characteristics. The second component (D) measures the inequality due to the different effects of the observed characteristics on SC/ST and non-SC/ST older adults (coefficients effect).

There was no evidence of multicollinearity between the independent variables when the variance inflation factor was calculated. The studies presented in the following sections were conducted using STATA 14. Because the LASI used a multi-stage sampling technique, standard errors for weighting and clustering were adjusted in all estimations.

Results
Figure 2 represents the median life satisfaction score of older adults (60+ years) by caste groups in India. The median life satisfaction score was 25 among older adults in India. The median score was lowest among older adults from Scheduled Caste (23) followed by Scheduled Tribe (24).

Figure 3 represents the life satisfaction score of all, young-old, old-old, oldest-old, male and female older adults across caste groups in India. It was found that the mean life satisfaction score was low among older adults from SC-ST caste group (23.3) in reference to older adults from non-SC-ST caste group (24.2). The similar trend was observed in age group and gender.

Table 1 represents the socio-demographic, health-related, and household characteristics profile of older adults in India. About 27.1% of older adults belonged to SC-ST category. Overall, life satisfaction score among older adults in the study was 23.9 (SD-7.3). Among the current sample of older adults, 38.2% were not currently married (SC/ST: 39.4% and non-SC/ST: 37.7%), and 56.4% older adults had no formal education (SC/ST: 72.4% and non-SC/ST: 50.5%). A proportion of 30.5% older adults were currently working (SC/ST: 37.8% and non-SC/ST: 27.8%). About 21.0% older adults had very low subjective social status (SC/ST: 30.6% and non-SC/ST: 17.4%). Nearly 8.7% older adults were socially inactive.
Fig. 2 Median life satisfaction score of older adults (60+ years) by caste groups in India

Fig. 3 Life satisfaction score of all, young-old, old-old, oldest-old, male and female older adults across caste groups in India 2017-18
| Characteristics                      | Older adults (60+ years) | SC/ST group | Non-SC/ST group | Caste difference |
|-------------------------------------|--------------------------|-------------|----------------|-----------------|
|                                     | All                      | SC/ST group | Non-SC/ST group |                 |
|                                     | Mean/N SD/WC_%           | Mean/N SD/WC_% | Mean/N SD/WC_% | p-value         |
| Life satisfaction score             | 23.9 7.3                 | 23.3 7.1     | 24.2 7.3       | <0.001          |
| Caste of household                  |                          |             |                |                 |
| SC/ST group                         | 9935 27.1                | – –         | – –           |                 |
| Non-SC/ST group                     | 20,435 72.9              | – –         | – –           |                 |
| Socio-demographic characteristics   |                          |             |                |                 |
| Age group                           |                          |             |                |                 |
| Young-old                           | 18,525 59.5              | 6221 61.8   | 12,304 58.6   | <0.001          |
| Old-old                             | 8753 29.8                | 2751 28.5   | 6002 30.3     |                 |
| Oldest-old                          | 3092 10.7                | 963 9.7     | 2129 11.1     |                 |
| Gender                              |                          |             |                |                 |
| Male                                | 14,553 47.2              | 4715 46.7   | 9838 47.4     | 0.263           |
| Female                              | 15,817 52.8              | 5220 53.3   | 10,597 52.6   |                 |
| Current marital status              |                          |             |                |                 |
| Currently not married               | 11,004 38.2              | 3758 39.4   | 7246 37.7     | <0.001          |
| Currently married                   | 19,366 61.8              | 6177 60.6   | 13,189 62.3   |                 |
| Level of education                  |                          |             |                |                 |
| No formal education                 | 16,224 56.4              | 6572 72.4   | 9652 50.5     | <0.001          |
| Upto primary                        | 7330 22.8                | 2144 16.6   | 5186 25.1     |                 |
| Secondary and above                 | 6816 20.8                | 1219 10.9   | 5597 24.4     |                 |
| Working status                      |                          |             |                |                 |
| Currently working                   | 8798 30.5                | 3535 37.8   | 5263 27.8     | <0.001          |
| Currently not working               | 10,475 35.6              | 3473 37.7   | 7002 34.8     |                 |
| Never worked                        | 8489 26.5                | 2253 18.9   | 6236 29.4     |                 |
| Retired                             | 2608 7.3                 | 674 5.6     | 1934 8.0      |                 |
| Subjective social status            |                          |             |                |                 |
| Very low                            | 5384 21.0                | 2245 30.6   | 3139 17.4     | <0.001          |
| Low                                 | 11,137 36.7              | 4075 40.0   | 7062 35.5     |                 |
| Medium                              | 9267 28.3                | 2585 21.2   | 6682 30.9     |                 |
| High                                | 3678 10.9                | 834 6.5     | 2844 12.5     |                 |
| Very high                           | 904 3.2                  | 196 1.7     | 708 3.7       |                 |
| Social participation                |                          |             |                |                 |
| Socially active                     | 27,957 91.3              | 9012 90.0   | 18,945 91.8   | <0.001          |
| Socially inactive                   | 2413 8.7                 | 923 10.0    | 1490 8.2      |                 |
| Importance of religion              |                          |             |                |                 |
| Not important                       | 5959 21.3                | 2200 26.8   | 3759 19.2     | <0.001          |
| Very important                      | 24,411 78.7              | 7735 73.2   | 16,676 80.8   |                 |
| Living arrangement satisfaction     |                          |             |                |                 |
| Not satisfied                       | 1417 5.6                 | 501 7.6     | 916 4.9       | <0.001          |
| Neutral                             | 5160 19.4                | 1883 22.0   | 3277 18.4     |                 |
| Satisfied                           | 23,793 75.0              | 7551 70.3   | 16,242 76.7   |                 |
| Faces discrimination in life        |                          |             |                |                 |
| Yes                                 | 4662 17.6                | 1475 19.5   | 3187 16.9     | 0.089           |
| No                                  | 25,708 82.4              | 8460 80.5   | 17,248 83.1   |                 |
| Received ill-treatment              |                          |             |                |                 |
| Yes                                 | 1264 5.2                 | 426 6.0     | 838 4.9       | 0.444           |
| No                                  | 29,106 94.8              | 9509 94.0   | 19,597 95.1   |                 |
| Characteristics   | Older adults (60+ years) | All | SC/ST group | Non-SC/ST group | Caste difference |
|-------------------|--------------------------|-----|-------------|-----------------|-----------------|
|                   | Mean/N SD/WC_%           | Mean/N SD/WC_% | Mean/N SD/WC_% | Mean/N SD/WC_% | p-value         |
| **Health characteristics** |                       |     |             |                 |                 |
| **Self-rated health** |                       |     |             |                 |                 |
| Poor              | 6663                     | 23.1 | 1948        | 24.0            | 4715            | 22.7            | < 0.001         |
| Average           | 19,420                   | 63.3 | 6578        | 63.7            | 12,842          | 63.1            |                 |
| Good              | 4287                     | 13.6 | 1409        | 12.3            | 2878            | 14.1            |                 |
| **Chronic morbidity status** |                       |     |             |                 |                 |
| No condition      | 13,929                   | 47.1 | 5537        | 55.2            | 8392            | 44.0            | < 0.001         |
| Single condition  | 8957                     | 29.1 | 2702        | 28.0            | 6255            | 29.6            |                 |
| Multiple conditions | 7484                    | 23.8 | 1696        | 16.8            | 5788            | 26.4            |                 |
| **Major depression** |                       |     |             |                 |                 |
| Depressed         | 2101                     | 8.5  | 582         | 8.4             | 1519            | 8.5             | < 0.001         |
| Not depressed     | 28,269                   | 91.5 | 9353        | 91.6            | 18,916          | 91.5            |                 |
| **Physical activity status** |                       |     |             |                 |                 |
| Physically active | 7951                     | 27.6 | 2909        | 30.6            | 5042            | 26.5            | < 0.001         |
| Physically inactive | 22,419                  | 72.4 | 7026        | 69.4            | 15,393          | 73.5            |                 |
| **Difficulty in ADL** |                       |     |             |                 |                 |
| Faces difficulty  | 6207                     | 22.7 | 1834        | 23.1            | 4373            | 22.5            | < 0.001         |
| No difficulty     | 24,163                   | 77.3 | 8101        | 76.9            | 16,062          | 77.5            |                 |
| **Difficulty in IADL** |                       |     |             |                 |                 |
| Faces difficulty  | 13,186                   | 47.5 | 4205        | 47.9            | 8981            | 47.3            | 0.007           |
| No difficulty     | 17,184                   | 52.5 | 5730        | 52.1            | 11,454          | 52.7            |                 |
| **Covered by health insurance** |                       |     |             |                 |                 |
| Yes               | 6424                     | 18.4 | 2462        | 21.5            | 3962            | 17.2            | < 0.001         |
| No                | 23,946                   | 81.6 | 7473        | 78.5            | 16,473          | 82.8            |                 |
| **Household characteristics** |                       |     |             |                 |                 |
| Household MPCE Quintile |                       |     |             |                 |                 |
| Poorest           | 6221                     | 21.8 | 2758        | 29.9            | 3463            | 18.7            | < 0.001         |
| Poorer            | 6248                     | 21.8 | 2167        | 24.4            | 4081            | 20.8            |                 |
| Middle            | 6203                     | 20.7 | 1958        | 19.2            | 4245            | 21.3            |                 |
| Richer            | 5974                     | 19.2 | 1704        | 15.6            | 4270            | 20.6            |                 |
| Richest           | 5724                     | 16.5 | 1348        | 10.8            | 4376            | 18.6            |                 |
| Religion of household |                       |     |             |                 |                 |
| Hinduism          | 22,283                   | 82.7 | 6264        | 84.7            | 16,019          | 82.0            | < 0.001         |
| Islam             | 3582                     | 10.7 | 635         | 1.5             | 2947            | 14.1            |                 |
| Others            | 4505                     | 6.6  | 3036        | 13.7            | 1469            | 3.9             |                 |
| Place of residence |                       |     |             |                 |                 |
| Rural             | 20,036                   | 71.1 | 7627        | 84.3            | 12,409          | 66.2            | < 0.001         |
| Urban             | 10,334                   | 28.9 | 2308        | 15.7            | 8026            | 33.8            |                 |
| Country region    |                         |     |             |                 |                 |
| Southern          | 7291                     | 22.2 | 1792        | 14.7            | 5499            | 24.9            | < 0.001         |
| Northern          | 7726                     | 25.2 | 2184        | 27.3            | 5542            | 24.4            |                 |
| Central           | 2017                     | 8.5  | 641         | 10.1            | 1376            | 8.0             |                 |
| Western           | 4133                     | 17.2 | 1206        | 16.0            | 2927            | 17.7            |                 |
| Eastern           | 5601                     | 23.9 | 1674        | 27.4            | 3927            | 22.6            |                 |
| North-eastern     | 3602                     | 3.0  | 2438        | 4.6             | 1164            | 2.4             |                 |
| Overall           | 30,370                   | 100.0| 9935        | 100.0           | 20,435          | 100.0           |                 |

Note – (a) N Sample size, SD Standard deviation, WC % Weighted column percentage; (b) Caste difference of life satisfaction score was tested using Mann-Whitney-Wilcoxon test while the caste difference of explanatory variables was tested using the chi-square test for independence; (c) ADL Activities of daily living, IADL Instrumental activities of daily living, MPCE Monthly per capita consumption expenditure
(SC/ST: 10.0% and non-SC/ST: 8.2%). Also, 21.3% older adults reported that religion was not important to them (SC/ST: 26.8% and non-SC/ST: 19.2%). A proportion of 5.6% older adults were not satisfied with their living arrangement (SC/ST: 7.6% and non-SC/ST: 4.9%).

Table 2 presents the linear regression model showing multivariate association between life satisfaction and socio-demographic, health-related and household characteristics of older adults in India. It was revealed that older adults from non-SC/ST group had significantly higher likelihood for having higher life satisfaction in comparison to older adults from SC/ST group [Coef: 0.31; CI: 0.14, 0.49].

Table 3 depicts the overall Blinder-Oaxaca decomposition of the caste differential in life satisfaction among older adults in India 2017-18. It was found that the model explained 74.3% of the caste gap (between SC/ST and non-SC/ST) in life satisfaction among older adults in India. However, 25.7% of the caste gap remains unexplained by the variables taken into consideration. This might be possible due to some unobserved factors which were not controlled during the analysis.

Table 4 reveals the detailed Blinder-Oaxaca decomposition of the caste differential in life satisfaction among older adults in India 2017-18. Firstly, the differences due to explained component (E) are interpreted. A negative contribution presents that the factor was minimizing or narrowing the gap between SC/ST and non-SC/ST group and vice-versa. Subjective social status (39.0%) was widening the gap for life satisfaction among older adults from SC/ST and non-SC/ST group. Similarly, level of education (15.2%) followed by satisfaction with living arrangement (13.2%) and place of residence (5.3%) contributed for widening the gap for life satisfaction among older adults from SC/ST and non-SC/ST group. Region of country (−11.5%) followed by self-rated health (−3.0%) and major depression (−2.7%) contributed for narrowing down the gap for life satisfaction among older adults from SC/ST and non-SC/ST group.

**Discussion**

The present study explored the caste differential in life satisfaction among older population in India using the secondary data of the LASI, wave-1. There was a significant difference between SC/ST and non-SC/ST groups in terms of life satisfaction. Older adults belonging to non-SC/ST group showed a higher mean score of life satisfaction than SC/ST group. In addition, the regression model showed a significantly higher likelihood of life satisfaction among non-SC/ST individuals as compared to SC/ST people. In India, the caste system continues to have a significant influence on people’s lives. It determines their social status as well as their access to a variety of resources throughout life [37]. This indicates the existence of caste-based socioeconomic disparities in the Indian society. The upward trend in socioeconomic indicators across the hierarchy of caste demonstrates how higher social status brings advantages and opportunities in life [38]. As a result, people who belong to the upper castes are more satisfied than those from the lower castes, like the SC/ST group.

The findings of the study indicated a positive association between older age and higher life satisfaction, both in case of SC/ST and non-SC/ST groups. The result is in line with the findings of a study from China, which showed a higher level of life satisfaction among older individuals than their younger counterparts [39]. However, it is inconsistent with the study by Kim & Sok [40]. The higher degree of life satisfaction among the elderly people can be explained by the phenomenon known as paradox of ageing [41]. With the increase in age, individuals develop a tendency to disregard irrelevant negative stimuli, respond less negatively to unfavourable events, and recall more positive information than negative information as they become older [42]. They even use fewer interpersonal comparisons than younger people. All these factors contribute positively to achieving a higher level of satisfaction in life among older adults.

In case of SC/ST group, the female population had shown greater likelihood of life satisfaction than their male counterparts. This corroborates with the findings by Ng et al. [43] and Zhou et al. [44], but contradicts with other studies that reported higher level of life satisfaction among older men [45]. One of the possible explanations could be the advantage of females in adopting to older age complications than males [46], who are more impacted by instrumental aspects of life. Further, marital status and level of education were found to be major contributors to caste differences in life satisfaction and are positively related to life satisfaction in both SC/ST and non-SC/ST groups. The analysis revealed that older adults with a marital status of “currently married” had higher life satisfaction. This is consistent with other studies [47, 48]. Marriage is linked to an increase in self-esteem, and married people are more likely to benefit from a supportive relationship [49]. This could be the possible explanation for the association between marital status and life satisfaction. Furthermore, more educated individuals were significantly more likely to have a higher degree of life satisfaction than their less educated counterparts. Also, education significantly contributed to the caste differences in life satisfaction (15.2%). This is consistent with previous studies [4, 50]. Education has an impact on socioeconomic status and life opportunities, and hence, life satisfaction is the outcome of the accumulated benefits [51].
### Table 2  Linear regression models showing multivariate association between life satisfaction and socio-demographic, health-related and household characteristics of older adults in India 2017-18

| Characteristics | Life satisfaction among older adults (60+: years) | SC-ST group | Non-SC-ST group |
|-----------------|-----------------------------------------------|-------------|-----------------|
|                 | Coefficient | 95% CI  | Coefficient | 95% CI  | Coefficient | 95% CI  |
| Caste of household |                         |             |             |             |             |             |
| SC/ST group     | (Ref)          |             | (Ref)      | (Ref) |             | (Ref) |
| Non-SC/ST group | 0.31*** (0.14, 0.49) |             |             |             |             |             |
| Socio-demographic characteristics |             |             |             |             |             |             |
| Age group       |                         |             |             |             |             |             |
| Young-old       | (Ref)          |             | (Ref)      | (Ref) |             | (Ref) |
| Old-old         | 0.19** (0.02, 0.36) | 0.12 (-0.17, 0.42) | 0.21* (0.00, 0.42) |             |             |             |
| Oldest-old      | 0.64*** (0.37, 0.91) | 0.86*** (0.40, 1.32) | 0.55*** (0.22, 0.87) |             |             |             |
| Gender          |                         |             |             |             |             |             |
| Male            | (Ref)          |             | (Ref)      | (Ref) |             | (Ref) |
| Female          | 0.28*** (0.08, 0.47) | 0.43*** (0.13, 0.74) | 0.17 (-0.08, 0.42) |             |             |             |
| Current marital status |             |             |             |             |             |             |
| Currently not married | (Ref)          |             | (Ref)      | (Ref) |             | (Ref) |
| Currently married | 0.32*** (0.15, 0.49) | 0.31** (0.02, 0.60) | 0.30*** (0.09, 0.51) |             |             |             |
| Level of education |                         |             |             |             |             |             |
| No formal education | (Ref)          |             | (Ref)      | (Ref) |             | (Ref) |
| Uptp primary    | 0.41*** (0.22, 0.60) | 0.80*** (0.46, 1.14) | 0.23* (-0.01, 0.47) |             |             |             |
| Secondary and above | 0.82*** (0.59, 1.05) | 0.87*** (0.40, 1.33) | 0.73*** (0.46, 1.01) |             |             |             |
| Working status  |                         |             |             |             |             |             |
| Currently working | (Ref)          |             | (Ref)      | (Ref) |             | (Ref) |
| Currently not working | -0.073 (-0.28, 0.13) | -0.40** (-0.74, -0.07) | 0.12 (-0.13, 0.38) |             |             |             |
| Never worked    | -0.044 (-0.28, 0.19) | -0.31 (-0.70, 0.09) | 0.14 (-0.16, 0.44) |             |             |             |
| Retired         | 0.64*** (0.32, 0.95) | 0.27 (-0.32, 0.85) | 0.80*** (0.43, 1.17) |             |             |             |
| Subjective social status |             |             |             |             |             |             |
| Very low        | (Ref)          |             | (Ref)      | (Ref) |             | (Ref) |
| Low             | 0.99*** (0.77, 1.20) | 1.33*** (0.99, 1.67) | 0.74*** (0.46, 1.02) |             |             |             |
| Medium          | 2.66*** (2.42, 2.89) | 3.19*** (2.80, 3.57) | 2.37*** (2.07, 2.67) |             |             |             |
| High            | 3.37*** (3.08, 3.67) | 3.39*** (2.85, 3.93) | 3.25*** (2.89, 3.61) |             |             |             |
| Very high       | 5.00*** (4.52, 5.47) | 3.77*** (2.83, 4.72) | 5.22*** (4.66, 5.77) |             |             |             |
| Social participation |             |             |             |             |             |             |
| Socially active | (Ref)          |             | (Ref)      | (Ref) |             | (Ref) |
| Socially inactive | 0.16 (-0.12, 0.44) | 0.67*** (0.23, 1.12) | -0.12 (-0.47, 0.24) |             |             |             |
| Importance of religion |             |             |             |             |             |             |
| Not important   | (Ref)          |             | (Ref)      | (Ref) |             | (Ref) |
| Very important  | 1.03*** (0.84, 1.22) | 0.77*** (0.46, 1.09) | 1.19*** (0.95, 1.44) |             |             |             |
| Living arrangement satisfaction |             |             |             |             |             |             |
| Not satisfied   | (Ref)          |             | (Ref)      | (Ref) |             | (Ref) |
| Neutral         | 2.93*** (2.54, 3.32) | 3.58*** (2.94, 4.21) | 2.53*** (2.04, 3.02) |             |             |             |
| Satisfied       | 5.91*** (5.55, 6.28) | 6.21*** (5.60, 6.81) | 5.72*** (5.26, 6.19) |             |             |             |
| Faces discrimination in life |             |             |             |             |             |             |
| Yes             | (Ref)          |             | (Ref)      | (Ref) |             | (Ref) |
| No              | 1.63*** (1.42, 1.85) | 1.43*** (1.05, 1.80) | 1.72*** (1.46, 1.99) |             |             |             |
| Received ill-treatment |             |             |             |             |             |             |
| Yes             | (Ref)          |             | (Ref)      | (Ref) |             | (Ref) |
| No              | 0.79*** (0.41, 1.18) | 0.99*** (0.34, 1.64) | 0.73*** (0.25, 1.21) |             |             |             |
Table 2 (continued)

| Characteristics                                    | Life satisfaction among older adults (60+ years) |
|----------------------------------------------------|-----------------------------------------------|
|                                                    | All                                           | SC-ST group                                   | Non-SC-ST group                                |
|                                                    | Coefficient 95% CI | Coefficient 95% CI | Coefficient 95% CI |
| **Health characteristics**                         |                                                      |                                              |
| **Self-rated health**                              |                                                      |                                              |
| Poor                                               | (Ref)                                             | (Ref)                                         | (Ref)                                          |
| Average                                            | 1.01*** (0.82, 1.20)                               | 1.13*** (0.78, 1.48)                          | 0.98*** (0.74, 1.21)                           |
| Good                                               | 0.98*** (0.70, 1.25)                               | 0.99*** (0.51, 1.47)                          | 1.01*** (0.67, 1.35)                           |
| **Chronic morbidity status**                       |                                                      |                                              |
| No condition                                       | (Ref)                                             | (Ref)                                         | (Ref)                                          |
| Single condition                                   | −0.055 (−0.23, 0.12)                              | −0.17 (−0.47, 0.13)                           | 0.010 (−0.21, 0.23)                            |
| Multiple conditions                                | 0.16 (−0.04, 0.36)                                | 0.30 (−0.08, 0.68)                            | 0.13 (−0.11, 0.37)                             |
| **Major depression**                               |                                                      |                                              |
| Depressed                                          | (Ref)                                             | (Ref)                                         | (Ref)                                          |
| Not depressed                                       | 1.71*** (1.41, 2.01)                              | 2.16*** (1.61, 2.71)                          | 1.55*** (1.20, 1.91)                           |
| **Physical activity status**                       |                                                      |                                              |
| Physically active                                  | (Ref)                                             | (Ref)                                         | (Ref)                                          |
| Physically inactive                                | 0.17* (−0.02, 0.35)                               | 0.26* (−0.04, 0.57)                           | 0.10 (−0.13, 0.33)                             |
| **Difficulty in ADL**                              |                                                      |                                              |
| Faces difficulty                                   | (Ref)                                             | (Ref)                                         | (Ref)                                          |
| No difficulty                                       | 0.10 (−0.10, 0.31)                                | 0.17 (−0.19, 0.53)                            | 0.060 (−0.19, 0.31)                            |
| **Difficulty in IADL**                             |                                                      |                                              |
| Faces difficulty                                   | (Ref)                                             | (Ref)                                         | (Ref)                                          |
| No difficulty                                       | 0.31*** (0.14, 0.48)                              | 0.071 (−0.22, 0.36)                           | 0.42*** (0.21, 0.63)                            |
| **Covered by health insurance**                    |                                                      |                                              |
| Yes                                                | (Ref)                                             | (Ref)                                         | (Ref)                                          |
| No                                                 | 0.60*** (0.41, 0.78)                              | 0.63*** (0.33, 0.93)                          | 0.59*** (0.36, 0.83)                           |
| **Household characteristics**                      |                                                      |                                              |
| Household MPCE Quintile                            |                                                      |                                              |
| Poorest                                            | (Ref)                                             | (Ref)                                         | (Ref)                                          |
| Poorer                                             | 0.21* (−0.02, 0.44)                               | 0.34* (−0.02, 0.70)                           | 0.11 (−0.18, 0.41)                             |
| Middle                                             | 0.19 (−0.04, 0.42)                                | 0.35* (−0.02, 0.73)                           | 0.088 (−0.21, 0.39)                            |
| Richer                                             | 0.10 (−0.13, 0.34)                                | 0.11 (−0.29, 0.50)                            | 0.061 (−0.24, 0.36)                            |
| Richest                                            | 0.084 (−0.16, 0.33)                               | −0.26 (−0.69, 0.17)                           | 0.15 (−0.16, 0.46)                             |
| **Religion of household**                          |                                                      |                                              |
| Hinduism                                           | (Ref)                                             | (Ref)                                         | (Ref)                                          |
| Islam                                              | −0.26** (−0.50, −0.03)                            | −0.42 (−1.01, 0.17)                           | −0.23* (−0.50, 0.03)                           |
| Others                                             | 0.13 (−0.11, 0.37)                                | −0.23 (−0.58, 0.12)                           | 0.43** (0.07, 0.79)                            |
| **Place of residence**                             |                                                      |                                              |
| Rural                                              | (Ref)                                             | (Ref)                                         | (Ref)                                          |
| Urban                                              | 0.10 (−0.07, 0.28)                                | 0.30* (−0.03, 0.62)                           | 0.036 (−0.17, 0.24)                            |
| **Country region**                                 |                                                      |                                              |
| Southern                                           | (Ref)                                             | (Ref)                                         | (Ref)                                          |
| Northern                                           | 0.64*** (0.42, 0.85)                              | 0.91*** (0.48, 1.33)                          | 0.50*** (0.24, 0.75)                           |
| Central                                            | 1.39*** (1.06, 1.72)                              | 1.24*** (0.62, 1.85)                          | 1.43*** (1.03, 1.83)                           |
| Western                                            | 3.16*** (2.91, 3.42)                              | 3.61*** (3.12, 4.11)                          | 2.93*** (2.62, 3.24)                           |
| Eastern                                            | −0.038 (−0.27, 0.20)                              | −0.16 (−0.62, 0.31)                           | 0.0025 (−0.28, 0.29)                           |
| North-eastern                                      | 0.65*** (0.36, 0.94)                              | 0.98*** (0.50, 1.45)                          | 0.53** (0.11, 0.96)                            |
| **Adjusted R-squared**                             | 0.204                                              | 0.203                                         | 0.203                                          |
Considering the association between working status and life satisfaction, our analysis indicated that retired individuals were more likely to show higher life satisfaction as compared to older adults who were currently working. One probable explanation could be the financial stability of retired people due to their pensions which give them financial security and resources to mitigate the challenges of life in older ages. In accordance with the findings of previous studies [47, 52], our study confirmed that subjective social status has a strong influence on life satisfaction of older adults, both among SC/ST and non-SC/ST groups. In the hierarchical culture of India, it is quite expected to find a greater level of life satisfaction among older adults enjoying a higher social status. The greater contribution of subjective social status to the caste differences in life satisfaction (39%) indicates the higher levels of caste-based discrimination that deprives individuals from lower castes of the modes of social capital, which is vital part of mental wellbeing as they age [33, 53]. It appears that people who compare their social status with others and find themselves in a lower position, are more prone to feel pessimistic and despairing [54]. This can make them unhappy and lead to a lower level of life satisfaction. Similarly, lower subjective social status is related to older individuals’ cognitive abilities [55], which can affect their level of wellbeing.

Further, the results of this study showed a significant and positive effect of religiosity on life satisfaction in older ages. However, the association is stronger among the non-SC/ST group than the SC/ST group. Several studies have also documented a higher level of life satisfaction among religious people than non-religious individuals [56]. Thus, alternative social support mechanisms such as religious participation can be promoted in terms of enhancing mental wellbeing among older Indian adults [57]. Furthermore, the study has found that living arrangement satisfaction plays an important role in determining life satisfaction in older age. In addition, older individuals who had never experienced any kind of discrimination or ill treatment were more likely to have a higher degree of life satisfaction.

Our findings also reflect earlier studies indicating that health plays a significant role in people’s perceptions of how satisfied they are with their life [43, 45, 50]. The present study has found poor self-rated health as a risk factor for a lower level of life satisfaction among older adults in both SC/ST and non-SC/ST groups. The finding is in agreement with previous studies reporting a significant positive association between self-rated health and life satisfaction [47, 58, 59]. However, our analysis did not show any significant association between co-morbidity and life satisfaction among older adults. The greater influence of perceived or subjective health status over objective health measures is consistent with earlier research [43, 60]. Another important factor that affects the life satisfaction of the elderly people is depression. Kim et al. [45], Onishi et al. [61], and Puvill et al. [62], have also reported a similar result. Good health boosts one’s self-esteem, sense of belonging, and gives a purpose to life, resulting in a greater degree of life satisfaction. Moreover, the significant contribution of self-rated health, depression and health insurance coverage to caste differences in life satisfaction provide insights that can be used to inform targeted policies and programs in the country.

Previous studies have shown that there is a significant rural-urban differential in terms of life satisfaction [43, 63]. In accordance with this finding, the present study has also documented a higher level of life satisfaction among urban elderly people belonging to SC/ST group than their rural counterparts. However, no significant association between place of residence and life satisfaction was found among non-SC/ST group. The caste system is still prevalent in rural India and people get discriminated on the basis of their caste. However, urbanization undermines caste. This
Caste decomposition in life satisfaction among older adults

Unexplained component (U)

IADL
Monthly per capita consumption living,
Instrumental activities of daily living,
ST). On the other hand, individuals from comparatively
health for individuals belonging to lower castes (SC/ST). In addition,
greater access to healthcare services, modern facilities, and
good infrastructure in urban areas also explain the signifi-
gnant contribution of residential status to the caste differ-
ences in life satisfaction in this study.

Although the current findings are limited by the
cross-sectional design of the study which prohibits from
any causal inferences, they are indicative of societal and
decision-making changes that may be in order. They
imply that the caste system which is a type of social
stratification in the Indian society; is a hurdle for social
mobility and socioeconomic changes along with better
health for individuals belonging to lower castes (SC/ST). On the other hand, individuals from comparatively
higher castes (non-SC/CT) might acquire more power
and privilege and have better health outcomes. Caste is
strongly correlated with socioeconomic and health ine-
quities and low caste groups encounter significantly
more deprivation than higher castes across India [64].
In spite of many changes that have occurred in modern
India, the existence of discrimination among people
becomes the basis of socioeconomic and health-related
inequality. Discrimination based on caste is also associ-
dated with different value for individuals, leading to their
vulnerability to health risks [65]. Therefore, the current
findings can help identify the sub-populations with

Table 4 Detailed Blinder-Oaxaca decomposition of the caste differential in life satisfaction among older adults in India 2017-18

| Characteristics                      | Caste decomposition in life satisfaction among older adults |  |
|-------------------------------------|----------------------------------------------------------|---|
|                                     | Explained component (E)                                  | Unexplained component (U) |
|                                     | Coefficient 95% CI Percent                               | Coefficient 95% CI Percent |
| Socio-demographic characteristics   |                                                          |                             |
| Age group                           | -0.008*** (-0.014, -0.003) 0.9                          | 0.0057 (-0.317, 0.432) -6.1 |
| Gender                              | 0.002 (-0.001, 0.005) -0.2                               | 0.174* (-0.021, 0.368) -18.4 |
| Current marital status              | -0.008*** (-0.014, -0.002) 0.9                           | 0.035 (-0.197, 0.267) -3.7 |
| Level of education                  | -0.143*** (-0.183, -0.104) 15.2                         | 0.301 (-0.091, 0.694) -32.0 |
| Working status                      | -0.013 (-0.033, 0.007) 1.4                               | -0.597*** (-0.986, -0.208) 63.4 |
| Subjective social status            | -0.367*** (-0.405, -0.329) 39.0                         | -0.027 (-0.447, 0.394) 2.8 |
| Social participation                | 0.002 (-0.004, 0.009) -0.2                               | 0.066** (0.009, 0.123) -7.0 |
| Importance of religion              | -0.042*** (-0.055, -0.029) 4.5                           | -0.442*** (-0.758, -0.125) 46.9 |
| Living arrangement satisfaction     | -0.125*** (-0.166, -0.084) 13.2                         | -0.122 (-1.009, 0.765) 13.0 |
| Faces discrimination in life        | 0.011* (-0.002, 0.025) -1.2                              | -0.281 (-0.684, 0.122) 29.8 |
| Received ill-treatment              | -0.002 (-0.007, 0.003) 0.2                               | 0.380 (-0.438, 1.198) -40.4 |
| Health characteristics              |                                                          |                             |
| Self-rated health                   | 0.028*** (0.016, 0.040) -3.0                             | -0.088 (-0.672, 0.495) 9.4 |
| Chronic morbidity status            | -0.021 (-0.047, 0.005) 2.2                               | -0.017 (-0.386, 0.352) 18 |
| Major depression                    | 0.026*** (0.015, 0.036) -2.7                             | 0.714** (0.028, 1.399) -75.8 |
| Physical activity status            | -0.004 (-0.012, 0.004) 0.4                               | 0.058 (-0.206, 0.321) -6.1 |
| Difficulty in ADL                   | -0.004 (-0.010, 0.002) 0.4                               | 0.121 (-0.226, 0.469) -12.9 |
| Difficulty in IADL                  | 0.006** (-0.001, 0.012) -0.7                             | -0.260** (-0.467, -0.053) 27.6 |
| Covered by health insurance         | -0.033*** (-0.044, -0.021) 3.5                           | 0.069 (-0.222, 0.359) -7.3 |
| Household characteristics           |                                                          |                             |
| Household MPCE Quintile             | -0.023* (-0.047, 0.002) 2.4                              | -0.144 (-0.479, 0.190) 15.3 |
| Religion of household               | -0.040* (-0.080, 0.000) 4.2                              | -0.370** (-0.690, -0.050) 39.3 |
| Place of residence                  | -0.050*** (-0.078, -0.022) 5.3                           | 0.054 (-0.052, 0.161) -5.8 |
| Country region                      | 0.108*** (0.077, 0.140) -11.5                            | -0.101 (-0.411, 0.210) 10.7 |
| Constant                            | - - - - - - - - - - - - - - - - - - - - - - - - - - - - - | 0.178 (-1.407, 1.762) -18.9 |

Note – (a) CI Confident interval; (b) Statistical significance denoted by asterisks where * p-value<0.1, ** p-value<0.05 and *** p-value<0.01; (c) ADL Activities of daily living, IADL Instrumental activities of daily living, MPCE Monthly per capita consumption expenditure

could be one of the probable explanations for the higher
likelihood of increased life satisfaction among urban
elderly people belonging to SC/ST group. In addition,
greater access to healthcare services, modern facilities, and
good infrastructure in urban areas also explain the signifi-
cant contribution of residential status to the caste differ-
ences in life satisfaction in this study.
lower wellbeing among SC/ST groups and frame policies that can address their vulnerabilities.

Conclusion
The findings demonstrated a significant caste differential in life satisfaction among older adults. Older adults belonging to non-SC/ST groups were more likely to have a higher level of life satisfaction than those from the SC/ST group. Factors like subjective social status, educational level, living arrangement satisfaction, and place of residence explained the caste differential in life satisfaction among older adults. In addition, factors such as psychological health and perceived health status should be the area of concern and special focus for policy makers and researchers in terms of reducing social inequalities in wellbeing indicators among older population. Proper designing of the policies and welfare programmes for older people needs a better understanding of the relationship between socioeconomic characteristics and individuals’ perceptions regarding life satisfaction.

Abbreviations
SC: Scheduled Caste; ST: Scheduled Tribe; OBC: Other backward class; CI: Confidence interval; ADL: Activities of daily living; IADL: Instrumental activities of daily living; MPCE: Monthly per capita consumption expenditure.

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Authors’ contributions
Conceived and designed the research paper: SS, RP and T Muhammad; analyzed the data: RP; Contributed agents/materials/analysis tools: T Muhammad, SS and RR; Wrote the manuscript: RP, SS, Trupti Meher, T Muhammad and RR; Refined the manuscript: SS, RP, T Muhammad, Trupti Meher and RR. All authors read, reviewed and approved the manuscript.

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Availability of data and materials
The study uses secondary data which is available in the public repository of International Institute for Population Sciences, Mumbai, accessible through:
https://www.iipsindia.ac.in/content/lasi-wave-i.

Declarations
Ethics approval and consent to participate
The survey agencies that conducted the field survey for the data collection have collected prior informed consent (written and verbal) from all the participants. The Indian Council of Medical Research (ICMR) extended the necessary guidance and ethical approval for conducting the LASI survey. All methods related to the current analysis were carried out in accordance with relevant guidelines and regulations by the Indian Council of Medical Research (ICMR).

Consent for publication
Not applicable.

Competing interests
The authors declare that there is no competing interest.

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