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Exploring the nexus of health and happiness: A study on the life satisfaction of urban elderly in India

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ABSTRACT

Introduction: With increasing age, people experience various crisis like loss of physical, mental, and social status and modification in their roles and responsibilities within family and society and paving their way towards dependency in life. This dependency on others deteriorates quality of life and diminishes life satisfaction. The present study examines the influence of multidimensional health on life satisfaction among urban elderly in India.

Method: Based on wave-1 of Longitudinal Ageing Study in India (LASI) 2017–18, Life satisfaction was assessed among urban elderly aged 60 years and above using SWLS scale. Multivariate linear regression analysis was used to investigate the association between multidimensional health, sociodemographic variables and life satisfaction.

Results: The overall mean life satisfaction score was 24.94 (SD = 7.20) which is more than many developed countries like Spain, Mexico and China. Elderly having good self-rated health, having higher functional health, and good mental health have been associated with higher life satisfaction while having any depressive symptoms or any impairment was associated with lower life satisfaction among urban elderly. Apart from that, life satisfaction score differs significantly by socio-demographic characteristics.

Conclusion: During old age, a sense of companionship and good social networks are essential in enhancing life satisfaction, whereas, perceived physical, mental and functional health are equally important in facilitating self-perception of ageing. Therefore, life satisfaction among elderly should be looked not only from the perspective of individual factors (like health and socioeconomic status) but broad socio-cultural dimensions should be inquired extensively to achieve successful ageing.

1. Introduction

Population ageing is an inevitable and irreversible demographic reality that embraces physical, psychological, and social changes along with a range of challenges for health and social services.[1] It is projected that India will become the most populous country in 2023 surpassing China and by 2050, more than 350 million elderly will reside in India.[2] With the rapidly changing demographic scenario of the country, India is on the verge of shifting towards an ageing society. With increasing age, people experience various difficulties like loss of physical, mental, and social status, modification in their roles and responsibilities within family and society, and paving their way towards dependency. This dependency on others deteriorates the quality of life and diminishes life satisfaction. Life satisfaction is one of the most critical aspects of successful ageing. Shin and Johnson (1978) defined life satisfaction as "a person's quality of life according to his chosen criteria.[3]" This judgment of individuals' life satisfaction with the current set of affairs is not merely based on some externally imposed standard criteria but solely on specific circumstances or criteria that individuals set for themselves. In other words, individual life satisfaction centers on their own judgment, not based on specific criteria that are deemed necessary by the researchers.[4] Several scales of life satisfaction have been developed over the years. Still, many of them were based on a single parameter that failed to capture multiple dimensions of life satisfaction, especially among the geriatric population. Diener, 1985 defined life satisfaction as the "perception of individuals of their overall socio-economic and cultural position and reflections of their goals and expectations in life".[4] Therefore, life satisfaction in old age is broadly determined by individuals' socio-economic status, financial capabilities, health status, family structure, social support, amount of social interactions, and the

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surrounding social environment in which they live and interact. Life satisfaction varies over the life span with an inverted U-shape, remains relatively lower before age 60, increases after some time, and decreases substantially in later life due to increased dependency, health problems, and loss of close social relationships.[5–8] More specifically, life satisfaction decrease attaining the age 70.[9]

Apart from the health dimensions, studies also suggested that, socioeconomic dimensions of individual including age, marital status, gender, educational level, employment status, economic status, social participation, living arrangement, relationship with children, relationship with spouse and social support to the elderly greatly determines the level of life satisfaction among elderly.[10–19]

Based on previous research, this study investigate the association between multidimensional health (including physical health, mental health, and functional health) and life satisfaction among the urban elderly. In addition, this study also examined the association between the sociodemographic characteristics and life satisfaction among the urban elderly in India.

2. Materials and methods

2.1. Data sources

The present study is based on the first wave of Longitudinal Ageing Study in India (LASI), 2017–18. The LASI is a nationally representative survey of 72,250 older adults age 45 and above in India's states and union territories. The detailed methodology, with the complete information on the survey design and data collection, was published in the survey report.[20] The present study in restricted to elderly aged 60 and above residing in urban areas. The total sample size for the present study is 9790 corresponds to all the variables used in the study.

2.2. Measurements

2.2.1. Dependent variable: life satisfaction

Life Satisfaction was taken as our dependent variable. A participant's level of life satisfaction was assessed using the 1–7 response scale derived from Satisfaction with Life Scale (SWLS) instrument.[4] The SWLS has been widely used as a measure of Life Satisfaction component of subjective well-being in diverse population groups. LASI questionnaire has a separate section on Life Satisfaction, with five statements regarding life satisfaction: 'In most way my life is close to ideal'; 'the condition of my life are excellent'; 'I am satisfied with my life'; 'So far, I have got all the important thing I want in my life'; 'If I could live my life again, I would change almost nothing'. The participants were told to indicate their level of agreement with each five statements using 1–7 scale: '7- Strongly agree'; '6- Somewhat agree'; '5- Slightly agree'; '4- Neither agree nor disagree'; '3- Slightly disagree'; '2- Somewhat disagree'; '1-Strongly disagree'. The total score can range from 5 to 35 and higher score indicates higher life satisfaction. The internal consistency of the scale in this sample is high, with a Cronbach's Alpha of 0.91.

2.2.2. Multidimensional health variables

In this study, three dimensions of health were used to measure the multidimensional health of the elderly. Physical health, mental health, and functional health. Physical health was captured using the question "how is your health in general?" with response category ranging from very good to very poor. Mental health was captured using Centre for Epidemiologic Studies Depression Scale (CES-D). CES-D is a short self-report scale designed as a screening tool for depressive symptoms in the general population (Radloff, 1977). The original CES-D scale is a 20-item scale, while a shortened 10-item scale with four scale option categories was used in the LASI. The 10 items included seven negative symptoms (trouble concentrating, feeling depressed, low energy, fear of something, feeling alone, bothered by things, and everything is an effort), and three positive symptoms (feeling happy, hopeful, and satisfied). Response options included rarely or never (<1 day), sometimes (1 or 2 days), often (3 or 4 days), and most or all of the time (5–7 days) in a week prior to the interview. Functional health was assessed based on Activities of living score based on the Barthel index based on question related to the respondents difficulties in activities of daily living (ADL) living like dressing, walking across room, bathing, eating difficulties, getting in/out of bed, using toilet or the Instrumental activities of daily living like preparing hot meal, shopping for groceries, making telephonic calls, taking medicines, doing work around the house and garden, managing money, and getting around or finding address in unfamiliar place.[21]

2.2.3. Sociodemographic variables

The data on the following socio-demographic variables were obtained because of potential association with life satisfaction: Age, sex, marital status, household income, educational status, living arrangements, current working status and caste were taken into consideration. A description of the control variables is shown in Table 1.

2.2.4. Statistical analysis

First, descriptive statistics were conducted to show the characteristics of the socio-demographic variables. Second, a multivariate linear regression analysis was used to investigate the association between multidimensional health, sociodemographic variables and life satisfaction as dependent variable.

3. Results

3.1. Descriptive statistics

Table 2 summarizes the participants' socio-demographic characteristics. Among the 9790 study participants', more than half were females (56%), belong to the young-old (60–69) age group (60%) and old-old (70–79) age group (30%), currently married were 58%. One fifth of the study participants living alone and one third of them had no formal education. In terms of the working status, one in every five elderlies are currently working and belongs to the poorest wealth quintile (23%).

Table 3 shows the study participants' life satisfaction and multidimensional health characteristics. Overall, the elderly had a mean life satisfaction score of 24.94 (SD = 7.20). In terms of multifaceted health characteristics, self-reported physical, mental, and functional health were considered. The mean score for physical health, mental health, and functional health were 3.14 (SD = 0.88), 30.59 (SD = 4.19), and 5.95 (SD = 1.48), respectively. Considering the different dimensions of the variables and the different numbers of the variables used in the study, data normalization was further considered, and each variable's value range was 0–1. After normalization, the mean life satisfaction score among urban elderly is 0.67 (SD = 0.24). The mean score of physical, mental, and functional health among urban elderly in India is 0.53 (SD = 0.22), 0.68 (SD = 0.14), and 0.85 (SD = 0.21), respectively. Relative to other dimensions, i.e. self-reported health and mental health, the

Table 1
Definition/codes of the sociodemographic variables.

Variables	Code/Definition
Age	Categorical variable: young-old (60–69), old-old (70–79), oldest-old (80+)
sex	0 = Male, 1 = Female
Marital Status	1 = Currently married, 2 = Others
Living Arrangement	1 = Living alone, 2 = Living with family, 3 = Living with others
Education	0 = No education, 1 = Less than 5 years, 2 = 5–9 years, 3 = 10 years and above
Current Working Status	1 = Currently working, 2 = Others
MPCE Quintile	1 = Poorest, 2 = Poorer, 3 = Middle, 4 = Richer, 5 = Richest
Caste	1 = SC, 2 = ST, 3 = OBC, 4 = None of them

Table 2
Socio-demographic characteristics of the study participants.

Variables	Frequency	Percentage (%)
Age		
Young-old (60–69)	5872	60.0
Old-old (70–79)	2961	30.2
Oldest-old (80 +)	957	9.8
Sex		
Male	4345	44.4
Female	5445	55.6
Current Marital Status		
Currently Married	5716	58.3
Others	4074	41.7
Living Arrangement		
Living alone[a]	1988	20.2
Living with Spouse and children	7348	75.1
Living with others	454	4.7
Education		
No education	3285	33.6
Less than 5 years	1191	12.1
5–9 years	2361	24.1
10 and more	2953	30.2
Working Status		
Currently working	1977	20.2
Others	7813	79.8
MPCE Quintile		
Poorest	2227	22.7
Poorer	1997	20.3
Middle	1927	19.7
Richer	1939	19.8
Richest	1670	17.3
Caste		
SC	1189	12.1
ST	308	3.2
OBC	4705	48.1
Others	3588	36.6
TOTAL	**9790**	**100**

[a] Living alone includes living alone and living with a spouse.

Table 3
Life satisfaction and multidimensional health characteristics of the study participants.

Variable	Mean	SD	Minimum	Maximum
Before data normalization				
Life Satisfaction	24.94	7.20	5	35
Multidimensional Health				
Self-Rated Physical Health	3.14	0.88	1	5
Mental Health	30.59	4.19	10	40
Functional Health	5.95	1.48	0	7
After data normalization				
Life Satisfaction	0.66	0.24	0	1
Multidimensional Health				
Self-Rated Physical Health	0.53	0.22	0	1
Mental Health	0.68	0.14	0	1
Functional Health	0.85	0.21	0	1

Note: SD, Standard Deviation. Data Normalization: (X-Min Value)/(Max Value-Min Value).

functional health were found better among the study population.

3.2. Multivariate linear regression analysis

Table 4 presents the regression estimates of life satisfaction among urban elderly in India by, multidimensional health and socio-demographic characteristics. There were 949 missing cases in the total study sample therefore, the regression model was run on 9790 sample. In model 1, three dimensions of health i.e., physical health, mental health and functional health were taken into consideration. Among these health dimensions, physical health and mental health were significantly associated with life satisfaction among urban elderly. Elderly with better physical health were positively associated with life satisfaction ($\beta = 0.148$, SE $= 0.011$, $p < 0.001$). Similarly, mental health is also positively associated with life satisfaction ($\beta = 0.552$, SE $= 0.017$, $p < 0.001$). The regression estimation revealed that the effect of mental health on life satisfaction was larger than the physical health. However, no significant association was found between functional health and life satisfaction in model 1.

Table 4
Multivariate linear regression models of life satisfaction.

Variables	Model 1	Model 2
	β (SE)	β (SE)
Multidimensional Health		
Physical Health	0.148(0.011)***	0.141(0.011)***
Mental Health	0.552(0.017)***	0.519(0.017)***
Functional Health	0.016(0.011)	0.027(0.012)*
Age		
Young-old (60–69)®		
Od-old (70–79)		0.012(0.005)*
Oldest-old (80 +)		0.038(0.008)***
Sex		
Male®		
Female		0.010(0.005)
Current Marital Status		
Currently married®		
others		−0.015(0.006)**
Working Status		
Currently working®		
Others		0.026(0.006)***
Living Arrangement		
Living alone®		
Living with Spouse and children		0.027(0.006)***
Living with others		0.001(0.012)
Education		
No education®		
Less than 5 years		0.018(0.007)*
5–9 years		0.028(0.006)***
10 and more		0.061(0.007)***
MPCE Quintile		
Poorest®		
Poorer		0.005(0.007)*
Middle		0.010(0.007)*
Richer		0.011(0.007)*
Richest		0.013(0.008)*
Caste		
SC		
ST		0.023(0.009)*
OBC		0.018(0.007)*
None of them		0.020(0.008)**

Note: β, regression coefficient; SE, Standard error. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

In model 2, socio-demographic characteristics of the study population were added to examine the relationship between life satisfaction and multidimensional health characteristics adjusting for the socio-demographic characteristics among the urban elderly. The regression results show that, when socio-demographic variables were being controlled, all the three health dimensions i.e., physical health ($\beta = 0.141$, SE $= 0.011$, $p < 0.001$), mental health ($\beta = 0.519$, SE $= 0.017$, $p < 0.001$) and functional health ($\beta = 0.027$, SE $= 0.012$, $p < 0.05$) had a significant positive association with elderly individuals' life satisfaction. The effect of mental health on life satisfaction were higher than physical and functional health even after adjusting for other covariates. The estimation results show that the respondent's marital status, living arrangements, education and wealth status are significantly associated with life satisfaction among the urban elderly in India. Elderly co-residence with the family member is positively associated with life satisfaction ($\beta = 0.027$, SE $= 0.006$, $p < 0.001$). Similarly, with an increasing educational status of the elderly, life satisfaction also increases ($\beta = 0.061$, SE $= 0.007$, $p < 0.001$). Contrary to the conventional wisdom that "money cannot buy you happiness," we found that the perceived wealth status of the respondents plays a vital role in determining life satisfaction in old age ($p < 0.05$), with the increasing wealth

of the respondents' life satisfaction increases. Our study did not find any gender differentials in life satisfaction.

4. Discussion

Self-rated life satisfaction has been widely used as an appropriate indicator of subjective wellbeing.[4,11,15,22–24] Previous research identified six major domains of life satisfaction in old age, namely, demographic factors, socio-economic factors, health behavior, physical health status, cognitive health status, social support, and number of morbidities.[25] However, contemporary studies on life satisfaction have considered several other additional factors apart from the aforementioned as noteworthy predictors of life satisfaction, especially among the older population, like, social integration,[10,15] perceived safety at home and neighborhood,[10] household headship status[22] functional ability in terms of ADL,[11] etc. Therefore, based on the previous literatures, our study focused on the role of health in life satisfaction among the urban dwelling Indian elderlies.

Health plays a significant role in assessing self-reported life satisfaction. The relevance of health persists in overall well-being and quality of life research even after considering the effects of socioeconomic correlates. The primacy of health as a determinant factor in overall wellbeing among the oldest old has been extensively studied in earlier researchers from China.[26–28] This study investigated the relationship between multidimensional health characteristics and life satisfaction among the urban dwelling elderlies in India. We took three dimensions of health: physical, mental, and functional health, as the significant predictors of life satisfaction among elderlies. The overall mean life satisfaction score of the study sample is 24.9, which corresponds to higher life satisfaction. This life satisfaction score is similar to other studies performed in Thailand[23] and higher than many countries using the same SWLS scale, such as Spain29, Mexico[30] and China.[15]

Our findings are consistent with the previous research findings that all three dimensions of health were positively related to life satisfaction among the elderly in China, Mexico, and Vietnam.[10,15,31] Furthermore, disability, psychological distress, and low ADL scores were associated with lower life satisfaction, among older adults.[32] In addition, poor self-rated health, limited functionality, and depending on others for activities of daily living can also lead to the dilapidation of psychological well-being and can lead to depressive symptoms and psychological distress[11] which ultimately degrades the overall life satisfaction.

Self-reported health is positively associated with higher life satisfaction, consistent with the previous research in Turkey, Mexico, and China.[14,30,33] The possible explanation may be that, as individuals approach age-related changes in physical functioning, maintaining a consistent view of themselves and a positive self-perception of ageing can enhance the life satisfaction.[34] Our findings on mental health and its association with life satisfaction are in line with the Socioemotional Selectivity Theory and found a significant relationship between psychological depression and lower life satisfaction.[30,33,35–37] The study findings suggested elderly with better mental health or low depressive symptoms have higher life satisfaction. A possible explanation is that the presence of depressive symptoms can lead to increased levels of distress, such as difficulties with work, responsibility, or sexual life, which may ultimately have a greater impact on overall life satisfaction and other aspects of subjective wellbeing.[38] Similar experiences were also found among the Japanese elderly, but the study suggests that the severity of the depressive symptoms also plays a vital role in life satisfaction and overall quality of life. Therefore, this association calls for more research.

In this study, people's life satisfaction differs by socioeconomic status. The results of the factors associated with life satisfaction have been summarized in Table 4. Respondents' marital status, living arrangements, working status, education, wealth, and caste structure are related to the level of life satisfaction. The higher the respondent's education level, the higher the life satisfaction. Older respondents tend to be happier when they are currently married and live with their family members has been found in our study. The reasons being that, with ageing, individual may encounter various diseases and declining functional abilities. Therefore, being in marital union or living with family members may provide a sense of security that their counterparts will take care of them in old age. This is very true especially for urban areas where the social relationship is debilitating. In addition, the financial status of an individual is positively associated with life satisfaction. The possible reasons may be that, with adequate wealth, individuals can have more of basic necessities related to life satisfaction like adequate food, housing, security, recreation and social status. It has been found in the previous literature that among married couples, life satisfaction increases with increasing financial status, but for singles, this is not very prominent.[36]

This study reaffirmed the importance of health as a significant predictor of life satisfaction and wellbeing among the urban elderly in India. Apart from the socioeconomic conditions, health plays an important role in determining the quality of life. Because with increasing age, health status among every individual deteriorates, and older adults may have encountered several co-morbid conditions which may lead to lower life satisfaction. Sometimes, older adults may accept the onset of chronic disease as a normal part of ageing. Those who successfully managed their symptoms may avoid crisis and be more likely to report higher life satisfaction.

We considered several limitations to our analysis. First, our study is cross-sectional and establishes life satisfaction purely based on subjective assessment questions from LASI, and one item measure may have missed out on some critical dimensions. The study's limitations open the horizon to further research in this area; however, the lack of research on this area primarily based on such a large-scale nationally representative dataset on urban elderly increases the robustness of our findings. For instance, the health domains used in our research are all self-reported measures to assess the physical, mental and functional health. We have considered self-reported perceived physical health without considering the diseased condition. Mental health was assessed based on Centre for Epidemiological Studies Depression Symptoms, but mental health status extends beyond depressive symptoms. In addition, the reliability and validity of our primary endpoint, i.e., life satisfaction, are considered to be accurate because of the application of the SWLS tool, which has been widely used in cross-sectional research. However, we do believe that the satisfaction with life scale (SWLS) is a subjective assessment scale and purely based on questions related to subjective domains may not cover the overall individual wellbeing. Therefore, the results may be generalized but with caution.

5. Conclusion

The present study tried to focus on the individual's subjective wellbeing based on the life satisfaction model, which has been considered as one of the essential criteria for successful ageing. Life satisfaction among older adults has been positively associated with the individual's health status, in particular the physical, mental, and functional health in terms of activities of daily living. Findings also indicated differences in the respondents' socioeconomic condition might result in the difference in life satisfaction. Our study reaffirmed the importance of health and self-perception of ageing as a significant predictors life satisfaction. Because with increasing age, elderly may encounter with several co-morbid conditions and declining functional abilities. But to live-in with these conditions and having a positive self-perception of ageing may enhance the life satisfaction. Apart from health, a collective study is needed to identify other dimensions that may have impacted life satisfaction among the elderly like social networks to achieve successful ageing.

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 were carried out following relevant guidelines and regulations by the Indian Council of Medical Research (ICMR).

Availability of data and materials

The study uses secondary data, available on reasonable request through https://www.iipsindia.ac.in/content/LASI-data.

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Declaration of competing interest

The authors declare that there is no competing interest.

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List of abbreviations

MPCE	Monthly Per Capita Consumption Expenditure.
LASI	Longitudinal Ageing Study in India
ADL	Activities of Daily Living
SC	Scheduled Castes
ST	Scheduled Tribes
OBC	Other Backward Classes

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