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Active and Healthy Ageing among Scheduled Tribes in India

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Abstract

Active ageing is the key word in any debate on ageing of population around the globe. But research on aging have seldom considered the plight of marginalized groups nor tried to quantify the overall wellbeing of aged among tribal community in India. On this perspective this paper tries to explore the data available on tribal elderly population in an attempt to quantify the active ageing process of the tribal elderly population in India. Scheduled tribes in India have a lesser proportion of aged with 6.9% of the population above 60 years compared to 8.6 among the general population in India. Employing McGahan composite index normalization the composite indices is estimated. The health index values indicate that only one in ten elderly have good health. Community participation index depicts a better scenario with more elderly being scored under the 'moderate' and 'good' participation index. Distribution of elderly population by security index shows that 'good' security index values are observed among the medium wealth quintile category of elderly. Overall the Scheduled Tribe population in India shows a moderate level of active ageing. Females are slightly at disadvantage in the overall active ageing index. Welfare of the tribal elderly population demands attention in par with the general population in promoting active ageing among the tribal elderly population in India. A holistic approach encompassing health, social, economic and psychological aspects could be promoted with strong government support for the active and healthy ageing of the tribal population in India.

Keywords: Active ageing Index; Healthy ageing; Scheduled tribes; India; Security; Community participation

Introduction

'Active Ageing', 'Healthy Ageing', 'Productive Ageing' etc are some of the concepts being discussed greatly in the recent past in India. All these concepts gained importance with rapid ageing process in the country and a positive approach to the ageing process. However, a universal definition to these concepts is rather difficult to find as these concepts differ depending on the purpose of the definition. WHO defines 'Active Ageing' as the process of optimizing opportunities for health, participation and security in order to enhance quality of life as people age? It applies to both individuals and population groups [1]. Active ageing encourages the involvement of older adults in society and highlights the capability and knowledge that older people own [2].

Healthy ageing is about "optimizing opportunities for good health, so that older people can take an active part in society and enjoy an independent and high quality of life" (http://www.healthyageing.eu). Robert Butler [3] introduced the concept of 'Productive Ageing' when he addressed the issue of elderly productivity [3]. Productive ageing refers to any activity by an elderly person that contributes to producing goods and services or develops the capacity to produce them [4].

Every country in the World is experiencing increase in aged population both in numbers and proportion. With increasing numbers of aged population economic and social changes are essential to ensure progress in development. These changes are vital in achievement of the goals outlined in the 2030 Agenda for Sustainable Development. The SDGs on poverty eradication, third goal on ensuring healthy lives and well-being at all ages, promoting gender equality, decent work and employment for all, reducing inequalities, and the goal of making sustainable cities and communities are interlinked and population ageing is particularly relevant for the achievement of these goals.

As per the World Population Prospects: The 2015 Revision, one in eight people worldwide was aged 60 years or over in 2015. One in six people globally would be 'older persons' by 2030 as per the projections which mean an increase of 56 per cent in the number of aged people (60+ years) in the World during 2015-30. This will be one in five by the middle of the twenty-first century. The report shows that globally, in 2050 the oldest-old (aged 80 years or over) will number 434 million, having more than tripled in number since 2015, a growth rate much faster than growing even faster than the number of aged persons overall. The ageing process is most advanced in high-income countries. Japan is home to the World's most aged population with a ratio of 1: 33% aged 60 years or over in 2015.

Developing countries are expected to experience faster pace of population ageing than that which occurred in developed countries in the past. India is home to 13% of the World's older population. In India, the number of older persons is projected to grow by 64 per cent during 2015-30 [5]. Aged population (60+ years) in India as per Census of India 2011 data is 10,38,49,040 which is 8.6% of the total population. This is an increase from 7.45% in 2001. Wide interstate variations are observed in the proportion of aged population. Decreasing fertility and increasing life expectancy leads to continued ageing of population. So, in the States that are already into replacement levels of fertility the proportion of aged population is higher. Kerala, the first State to achieve replacement levels of fertility 3 decades earlier (in 1987) has the highest proportion of aged population (12.6%). Goa (11.2%), Tamil Nadu (10.4%), Punjab (10.3%) and Himachal Pradesh (10.2%) are closely placed in the list of States that are rapidly ageing.

Such higher aged population proportional to the total population raises concerns primarily on quantum of the active work force population who have to support the aged population. The immediate concerns are the type of living arrangement, participation in society, social security, proportion of elderly with functional limitations and disability and the disease burden among the elderly. With increasing longevity and debilitating chronic diseases, many elder citizens now need better access to physical infrastructure. So, it is the geriatric

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services that require strong emphasis under public health system. Some studies highlight that despite an aging population, geriatric care is relatively new in many developing countries like India and very few physicians have specialized in geriatric care and are also unaware of the clinical and functional implications of aging [6-8]. The other issues of the public health system are lack of infrastructure, limited manpower, poor quality of care and overcrowding of facilities due to insufficient focus on elderly care. Patel and Prince [9] points out the stigma associated with aging as another social barrier to access of health care services in addition to the health and social conditions the elderly commonly face such as dementia, depression, incontinence and widowhood. When recent studies continue to highlight the key challenges to be the reduced mobility, social and structural barriers, wage loss, familial dependencies, and declining social engagement [10], poverty is mentioned as the single most pressing challenge to the welfare of older person and also a multiplier of risk for abuse [11].

Measurement of various issues related to ageing has been attempted in numerous studies. However, developing a conceptual framework that includes all these aspects and the development of an 'Active Ageing Index' has been possible with the research using the WHO framework in 2002. According to the WHO's concept of active aging, health, community participation and security are inextricably linked. Here we attempt to quantify this aspect using different sources of data available on the aged population.

Yet another aspect to be considered is that among the studies on ageing in India, the research on ageing among the marginalized groups the Scheduled tribes has been neglected. Their welfare is equally important in every program. Although they constitute only 8.63% of India's total population, they are a massive group of 10.45 crores in terms of sheer numbers. ST population is spread out throughout the country and some of the smaller North Eastern States in India have around 90% of its population as Scheduled Tribes. Mizoram (94.4%), Nagaland (86.1%) and Meghalaya (86.1%) are the three such States. On the other side the larger North Indian States of Madhya Pradesh has 15.3 million Scheduled Tribes forming 21.1% of the State's population. Maharashtra (10.5 million), Odisha (9.6 million) and Rajasthan (9.2 million) are the other States in this group.

Several programs in India have attempted to improve the conditions of the tribal population recognizing that their overall upliftment is essential for the development of the country. The Tribal Sub Plan, Institutions programs, special educational programs for children etc. are the most recent ones. The National Program for the Health Care of the elderly is a national level program which addresses the health care access of the elderly. These and other programs have been quite successful in improving the welfare of the elderly, but little is known about the reach of such programs to the tribal elderly. Assessment of the development of tribal elderly can be made only from a few studies that concentrate on the tribal elderly. A community-based

India	Population	Sex Ratio	Percentage population 60+ to total	Population	Sex Ratio	Percentage population 60+ to total
	India*			Scheduled Tribes		
	103,849,040	1,033	8.6	7,194,383	1,120	6.9
Jammu & Kashmir	922,656	912	7.4	98,025	789	6.6
Himachal Pradesh	703,009	1,062	10.2	38,258	1,082	9.8
Uttarakhand	900,809	1,039	8.9	26,300	926	9.0
Rajasthan	5,112,138	1,102	7.5	585,858	1,098	6.3
Uttar Pradesh	15,439,904	921	7.7	77,945	910	6.9
Bihar	7,707,145	877	7.4	86,360	958	6.5
Sikkim	40,752	813	6.7	14,872	860	7.2
Arunachal Pradesh	63,639	917	4.6	48,497	1,017	5.1
Nagaland	102,726	875	5.2	93,714	905	5.5
Manipur	200,020	1,004	7.0	68,731	943	5.9
Mizoram	68,628	998	6.3	66,546	1,014	6.4
Tripura	289,544	1,040	7.9	79,173	961	6.8
Meghalaya	138,902	1,075	4.7	118,715	1,113	4.6
Assam	2,078,544	971	6.7	238,564	972	6.1
West Bengal	7,742,382	1,010	8.5	368,959	1,130	7.0
Jharkhand	2,356,678	994	7.1	584,273	1,153	6.8
Odisha	3,984,448	998	9.5	743,156	1,163	7.7
Chhattisgarh	2,003,909	1,159	7.8	581,617	1,214	7.4
Madhya Pradesh	5,713,316	1,063	7.9	950,143	1,142	6.2
Gujarat	4,786,559	1,132	7.9	594,095	1,151	6.7
Daman & Diu	11,361	1,331	4.7	885	1,329	5.8
Dadra & Nagar Haveli	13,892	1,185	4.0	9,568	1,321	5.4
Maharashtra	11,106,935	1,114	9.9	792,251	1,177	7.5
Andhra Pradesh	8,278,241	1,119	9.8	450,744	1,107	7.6
Karnataka	5,791,032	1,108	9.5	353,798	1,162	8.3
Goa	163,495	1,200	11.2	14,473	1,486	9.7
Lakshadweep	5,270	971	8.2	5,197	981	8.5
Kerala	4,193,393	1,226	12.6	44,473	1,137	9.2
Tamil Nadu	7,509,758	1,051	10.4	57,118	976	7.2
Andaman & Nicobar Islands	25,424	792	6.7	2,075	874	7.3

*Only States/Union Territories with tribal population are given although the total for India includes all.

Table 1: Aged population among scheduled tribes in India in 2011.

cross-sectional study in Orissa [12] among the elderly populations showed the severity of the health conditions with three illnesses per person, vision and hearing impairment and mobility-related problem, prevalence of hypertension among one in three elderly, severe anemia of the level of 70% etc. An examination of the diet and nutritional status of the tribal elderly in Integrated Tribal Development Project (ITDP) villages of 9 provincial States in India revealed the mean consumption of all the foods and the median intakes of all the nutrients to be below the Recommended Dietary Intakes (RDI) among both elderly men and women [13]. Sinha [14] stressed the need for improvement in the nutritional status of elderly person by disseminating low cost sustainable agriculture technologies along with nutrition education. Such studies account for specific aspects and are either tribe specific or area specific. No attempt has been made to quantify the wellbeing of overall ageing process of tribal community in India. On this perspective this paper tries to explore the data available on tribal elderly population in an attempt to quantify the active ageing process of the tribal elderly population in India.

Objectives

The objectives of the study are

- To examine the distribution of scheduled tribe elderly population in India and explore the indicators of active aging as revealed by the census of India 2011 data.
- To understand the active ageing process of Scheduled Tribe Elderly in India using the Active Ageing Index developed by the UNDP (2005).

Data and Methods

Data for the study are from the Census of India 2011 and the National level survey Building Knowledge Base on Ageing in India (BKPAI) carried out by ISEC, Bangalore, TISS Mumbai, IEG, New Delhi and UNFPA in 2011. Data available from this survey is the only source of data during the period that provides scope to measure the active aging process among scheduled tribes in India in terms of community participation, security and health dimensions and also identify the correlates of active ageing process.

Active aging index was used to measure the quality of aging among scheduled tribes in India. A total of 13 indicators reflecting the three dimensions of active ageing identified by the World Health Organization, namely, health, community participation and security was used. The composite indices of health, community participation and security were constructed, and the active ageing index was

India	Aged Working Population	Percentage 60+ Workers to total Workforce	Percentage 60+ Workers to total Aged Population	Aged Working Population	Percentage 60+ Workers to total Workforce	Percentage 60+ Workers to total Aged Population
	India Total			Scheduled Tribes		
	4,31,93,342	9.0	41.6	39,16,668	7.7	54.4
Jammu & Kashmir	3,29,700	7.6	35.7	48,008	9.0	49.0
Himachal Pradesh	3,51,917	9.9	50.1	21,978	10.5	57.4
Uttarakhand	3,91,472	10.1	43.5	15,406	11.6	58.6
Rajasthan	22,57,419	7.6	44.2	3,32,070	7.4	56.7
Uttar Pradesh	73,21,329	11.1	47.4	41,347	9.9	53.0
Bihar	39,10,365	11.3	50.7	50,020	9.1	57.9
Sikkim	21,543	7.0	52.9	7,726	7.5	51.9
Arunachal Pradesh	38,336	6.5	60.2	29,837	7.8	61.5
Nagaland	72,391	7.4	70.5	67,240	8.0	71.8
Manipur	1,11,385	8.5	55.7	47,091	8.5	68.5
Mizoram	35,342	7.3	51.5	34,215	7.5	51.4
Tripura	1,10,007	7.5	38.0	43,336	8.5	54.7
Meghalaya	78,640	6.6	56.6	70,139	6.8	59.1
Assam	9,02,194	7.5	43.4	1,32,424	7.7	55.5
West Bengal	24,27,401	7.0	31.4	1,42,039	5.7	38.5
Jharkhand	10,68,755	8.2	45.4	3,21,385	7.9	55.0
Odisha	15,17,920	8.7	38.1	3,55,200	7.4	47.8
Chhattisgarh	9,61,881	7.9	48.0	3,22,520	7.8	55.5
Madhya Pradesh	27,46,318	8.7	48.1	5,58,942	7.3	58.8
Gujarat	16,98,578	6.9	35.5	3,30,187	7.4	55.6
Daman & Diu	2,832	2.3	24.9	301	4.5	34.0
Dadra & Nagar Haveli	5,698	3.6	41.0	4,315	5.8	45.1
Maharashtra	46,55,710	9.4	41.9	4,52,900	8.5	57.2
Andhra Pradesh	35,40,337	9.0	42.8	2,59,397	8.1	57.5
Karnataka	23,61,181	8.5	40.8	1,70,522	8.0	48.2
Goa	35,610	6.2	21.8	4,383	6.9	30.3
Lakshadweep	646	3.4	12.3	614	3.7	11.8
Kerala	10,23,490	8.8	24.4	17,023	7.4	38.3
Tamil Nadu	32,81,578	10.0	43.7	35,258	8.1	61.7
Andaman & Nicobar Islands	7,212	4.7	28.4	845	7.2	40.7

Table 2: Percentage distribution of aged workforce, scheduled tribes in India, 2011.

constructed by combining these three indices. Each dimension of active ageing (health, community participation and security) was constructed separately.

Based on the data available from the BKPAI survey, five variables are included to derive the composite health index: self-rated health status, psychological wellbeing, disability measuring the health and wellbeing, activity of daily living and the functional limitations measuring the physical activities. The composite measure of the 'participation index'

India	Disabled Aged Population	Aged Disabled Population(%) to total disabled	Aged Disabled to total Aged population	Disabled Population	ST Aged Disabled to total tribal disabled Population	ST Aged Disabled to total ST Aged population
	India Total			Scheduled Tribes		
	53,76,619	20.1	5.2	469,419	21.9	3.1
Jammu & Kashmir	83,887	23.2	9.1	9,224	22.1	5.3
Himachal Pradesh	48,776	31.4	6.9	2,588	32.4	3.2
Uttarakhand	44,373	24.0	4.9	1,581	24.6	3.1
Rajasthan	5,58,192	35.7	10.9	73,997	35.7	5.5
Uttar Pradesh	6,60,245	15.9	4.3	3,487	15.1	2.4
Bihar	3,27,172	14.0	4.2	3,522	12.9	2.2
Sikkim	4,527	24.9	11.1	1,548	26.7	5.5
Arunachal Pradesh	4,846	18.1	7.6	4,062	20.0	4.0
Nagaland	7,145	24.1	7.0	6,698	25.5	3.7
Manipur	9,013	15.4	4.5	3,487	14.7	2.7
Mizoram	2,877	19.0	4.2	2,801	19.5	2.2
Tripura	13,324	20.7	4.6	3,475	21.1	2.1
Meghalaya	5,460	12.3	3.9	4,598	12.1	1.9
Assam	1,07,682	22.4	5.2	12,181	22.7	2.5
West Bengal	3,65,892	18.1	4.7	20,466	18.6	2.7
Jharkhand	1,47,684	19.2	6.3	36,284	20.1	2.9
Odisha	3,28,352	26.4	8.2	61,827	24.4	3.8
Chhattisgarh	1,74,926	28.0	8.7	50,496	29.5	3.9
Madhya Pradesh	3,33,712	21.5	5.8	58,082	19.8	2.9
Gujarat	1,91,513	17.5	4.0	21,591	16.7	1.7
Daman & Diu	400	18.2	3.5	40	20.0	1.9
Dadra & Nagar Haveli	430	13.1	3.1	341	16.4	1.6
Maharashtra	5,13,756	17.3	4.6	35,472	16.4	2.2
Andhra Pradesh	4,91,816	21.7	5.9	29,523	19.9	3.2
Karnataka	2,19,668	16.6	3.8	15,596	16.8	2.1
Goa	9,234	28.0	5.6	936	26.4	2.4
Lakshadweep	318	19.7	6.0	313	19.9	2.9
Kerala	2,24,855	29.5	5.4	3,275	25.5	3.6
Tamil Nadu	1,90,254	16.1	2.5	1,765	15.3	1.7
Andaman & Nicobar Islands	1,480	22.2	5.8	163	29.6	4.3

Table 3: Percentage distribution of disabled aged population, scheduled tribes India in 2011.

Household Characteristics		Percent	Household Characteristics		Percent
Type of House	Kachha	52.2	**Wealth Quintile**	Low	83.4
	Semi-pucca	29.6		Medium	10.0
	Pucca	18.3		High	6.6
Type of toilet	Public latrine	2.1	**Income Category**	APL	26.1
	Septic tank/ Flush	18.0		BPL	57.6
	Pit latrine	9.6		Antyodaya	6.6
	Open ground/field	69.7		No	9.7
	Other	0.7	**Owns agricultural land**	Yes	40.9
				No	58.5
Main source of drinking water	Own piped water	5.6	**Cooking Fuel**	Electricity	0.4
	Public piped water	29.3		LPG/Natural gas	7.8
	Own well/ borewell	9.6		Wood	79.5
	Public well/borewell	49.1		Straw/Shrub/crop waste	8.8
	Others	6.4		Others	3.4

Table 4: Housing characteristics of Scheduled Tribe elderly population, India 2011.

Background Characteristics		Percent	Background Characteristics		Percent
Age	60-69	64.9	Marital Status	Never married	1.0
	70-79	27.9		Currently married	55.6
	80+	7.2		Separated/divorced	1.0
Sex	Male	45.2		Widowed	42.2
	Female	54.8			
Ever attended school	Yes	29.1	Ever done any paid work	Yes	66.3
	No	70.9		No	33.7

Table 5: Background characteristics of the aged population, Scheduled Tribe Elderly population, India in 2011.

Active Ageing Index- 3 Dimensions – 13 variables						
Health Index	Health and Wellness					
	Self-rated health status	Excellent	Very good	Good	Fair	Poor
		1.5	11.8	39.5	34.6	12.6
	Psychological wellbeing	Good	Moderate	Poor		
		20.7	59.0	20.3		
	Disability	One or more disability	No disability			
		74.5	25.5			
	Physical Activities					
	Activity of daily living	One or more limitation	No limitation			
		5.5	94.5			
	Functional limitations	One or more limitation	No limitation			
		86.9	13.1			
Community Participation Index	Participation in work force	Currently working	Not working			
		36.4	63.6			
	Participation with family	Participate in one or more matters	No participation			
		93.5	6.5			
	Participation with clubs/ groups	Participate in one or more matters	No participation			
		81.9	18.1			
Security Index	Financial security					
	Annual Income	Above poverty line	Below poverty line	No income		
		19.0	41.5	39.5		
	Sufficiency of income	Fully sufficient	Partially sufficient	No income		
		19.5	41.0	39.5		
	Sources of income received	Two or more sources	Only one source	No income		
		11.5	49.0	39.5		
	Physical security					
	House ownership	Own house	Does not own house			
		73.1	26.9			
	Living Arrangement	With Spouse	With Spouse and other members	Alone		
		15.5	77.8	6.7		

Table 6: Active ageing index: The three dimensions, scheduled tribe elderly population, India in 2011.

Active Ageing Index- 3 Dimensions		
Health Index	**Community Participation Index**	**Security Index**
0.49	**0.70**	**0.47**
AAI		
0.55		

Table 7: Active ageing index, scheduled tribe elderly population, India in 2011.

is estimated with three data elements: participation in work force, participation with family and participation with clubs/ groups. The third index namely 'security index' includes annual income, sufficiency of income and sources of income received measuring financial security and house ownership, living arrangement measuring physical security. Each of the three dimensions here show variability in the range of answers recorded in the survey. So, a simple summation of answers would be inappropriate statistically. To overcome the inequality in the contribution of each data element, a composite score was estimated first. Employing McGahan [15] composite index normalization the composite indices for the three dimensions have been estimated.

The composite score on health dimension is composed of five indicators (X_1–X_5).

Composite score for health=

$$X_1/(M\times T) + X_2/(M\times T) + X_3/(M\times T) + X_4/(M\times T) + X_5/(M\times T)$$

The composite score on health dimension is composed of three indicators (X_1–X_3).

Composite score for participation $= \frac{X_1}{M\times T} + \frac{X_2}{M\times T} + \frac{X_3}{M\times T}$

The composite score on security dimension is composed of five indicators (X_1–X_5).

Composite score for health $= \frac{X_1}{M\times T} + \frac{X_2}{M\times T} + \frac{X_3}{M\times T} + \frac{X_4}{M\times T} + \frac{X_5}{M\times T}$

Health Index					
Variables		**Poor**	**Moderate**	**Good**	
Age	60-69	13.2	75.9	10.9	p<0.001
	70-79	14.9	79.1	6.1	
	80+	20.5	69.2	10.3	
Sex	Male	13.3	79.3	7.5	
	Female	15.0	74.1	10.9	
Marital Status	Currently married	12.5	80.5	7.1	p<0.05
	Widowed	15.9	71.7	12.4	
	Divorce/separated/never married	45.4	54.5	0.1	
Education	Ever attended school	16	80.8	3.2	p<0.001
	Not attended school	13.5	74.4	12.1	
Work Status	Ever worked	13	75.4	11.6	p<0.05
	Not worked	16.7	78.3	5	
Wealth Quintile	Low	11.8	78	10.2	p<0.001
	Medium	20	74.5	5.5	
	High	31.6	60.5	9.6	
All		13.2	75.9	10.9	

Table 8: Percentage distribution of Scheduled Tribe elderly population classified by Health Index and background characteristics, India in 2011.

Community Participation Index					
Variables		**Poor**	**Moderate**	**Good**	
Age	60-69	10.9	51.6	37.5	p<0.001
	70-79	27.2	52.4	20.4	
	80+	36.8	44.7	18.4	
Sex	Male	13.7	40.2	46.2	p<0.001
	Female	20.3	60.3	19.3	
Marital Status	Currently married	13.3	47.4	39.2	p<0.001
	Widowed	23.6	56.4	20.0	
	Divorce/separated/never married	8.3	50.0	41.7	
Education	Ever attended school	12.0	48.7	39.3	P<0.001
	Not attended school	19.7	52.3	28.0	
Work Status	Ever worked	11.6	40.9	47.5	P<0.001
	Not worked	28.5	71.5	--	
Wealth Quintile	Low	18.6	46.9	34.5	P<0.001
	Medium	9.6	69.2	21.2	
	High	16.2	75.7	8.1	
All		17.5	51.3	31.2	

Table 9: Percentage distribution of scheduled tribe elderly population classified by community participation index and background characteristics, India

Security Index					
Variables		**Poor**	**Moderate**	**Good**	
Age	60-69	22.5	59.5	17.9	p<0.05
	70-79	31.8	51.4	16.9	
	80+	38.5	41.0	20.5	
Sex	Male	18.7	55.6	25.7	p<0.001
	Female	32.5	56.2	11.3	
Marital Status	Currently married	24.7	55.7	19.6	p<0.001
	Widowed	28.0	56.4	15.6	
	Divorce/separated/never married	36.4	54.5	9.1	
Education	Ever attended school	20.1	57.1	22.7	p<0.05
	Not attended school	28.7	55.5	15.8	
Work Status	Ever worked	19.5	56.9	23.5	p<0.001
	Not worked	39.4	54.4	6.1	
Wealth Quintile	Low	25.2	57.0	17.7	p<0.001
	Medium	31.5	48.1	20.4	
	High	28.9	57.9	13.2	
All		26.1	56.2	17.7	

Table 10: Percentage distribution of Scheduled Tribe elderly population classified by Security Index and background characteristics, India in 2011.

Active Ageing Index					
Variables		**Poor**	**Moderate**	**Good**	
Age	60-69	12.1	64.8	23.1	p<0.001
	70-79	25.7	61.5	12.8	
	80+	21.1	65.8	13.2	
Sex	Male	11.5	61.5	26.9	p<0.001
	Female	21.0	65.9	13.1	
Marital Status	Currently married	17.9	57.7	24.4	p<0.001
	Widowed	15.8	72.4	11.8	
	Divorce/separated/never married	8.3	58.3	33.3	
Education	Ever attended school	12.7	66.0	21.3	--
	Not attended school	18.2	63.4	18.4	
Work Status	Ever worked	11.6	59.1	29.3	p<0.001
	Not worked	26.8	73.2	--	
Wealth Quintile	Low	16.4	62.7	21.0	p<0.05
	Medium	15.4	73.1	11.5	
	High	24.3	67.6	8.1	
All		16.8	63.9	19.3	

Table 11: Percentage distribution of scheduled tribe elderly population classified by active ageing index and background characteristics, India in 2011.

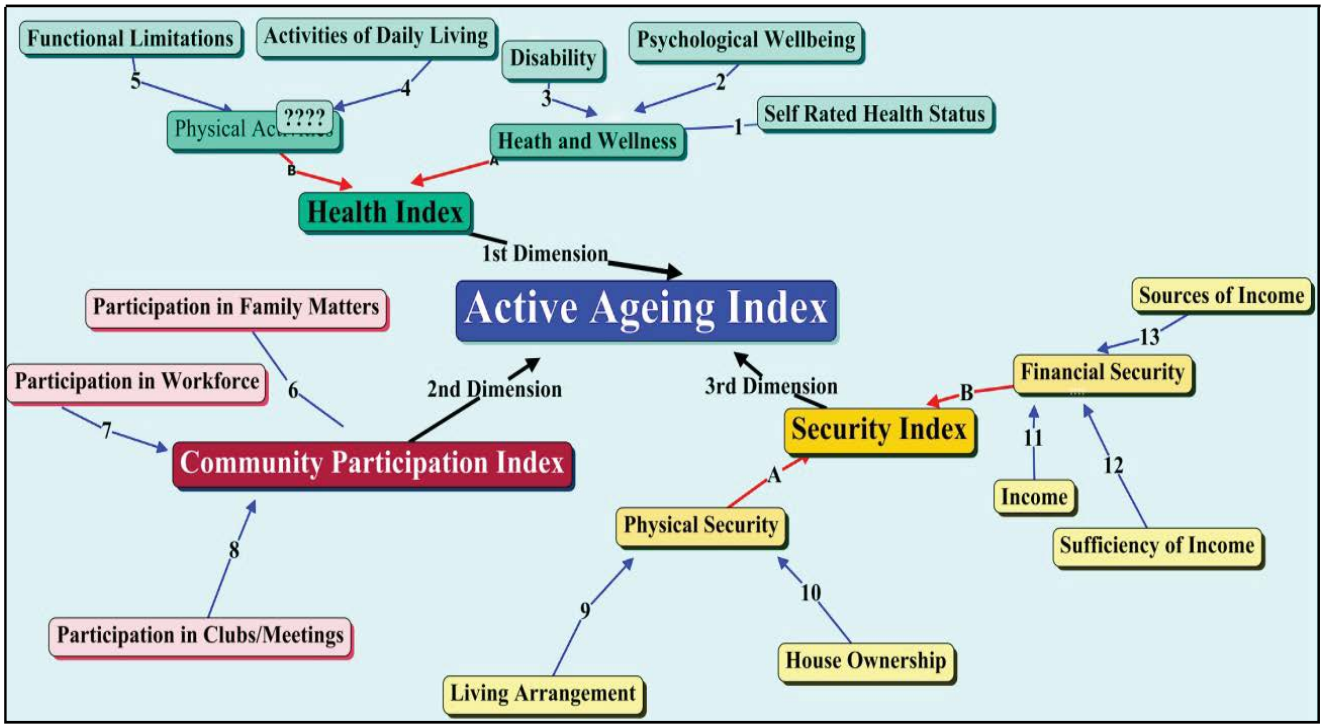

Figure 1: Concept map showing the active ageing index.

Where: X = the score of each indicator

M = the maximum answer value of each indicators

T = the total number of indicators of a dimension

$$\text{The Dimension Index} = \frac{\text{Actual Value-Minimum Value}}{\text{Maximum Value-Minimum Value}}$$

The active ageing index (AAI) is now calculated as the simple average of the three indices: Health index, Community Participation index and the Security index.

Active ageing index = 1/3 (Health index + Community Participation index + Security index)

UNDP (2005) has classified the index values into 3 levels. This classification is used in the Human Development Index also.

- Index score less than 0.5 is low level;
- Index score between 0.5 and 0.79 is moderate level;
- Index score equal or higher than 0.8 is high level (Figure 1).

The indices are further analyzed by simple bivariate classification with the background characteristics of the aged population to understand the distribution of aged population by the AAI score.

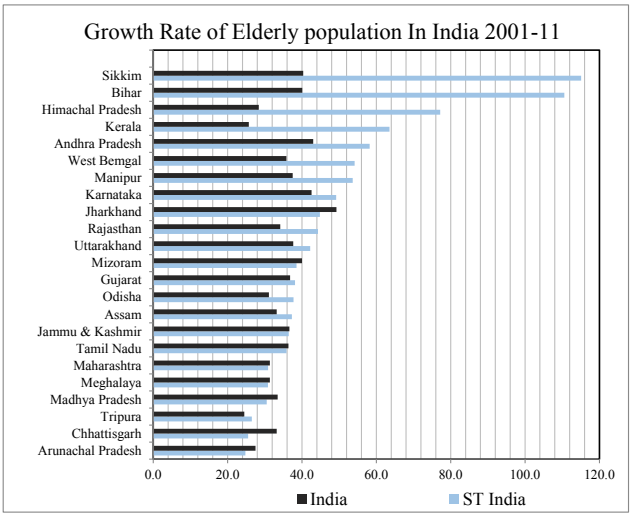

Figure 2: Growth of elderly population in India (2001-2011).

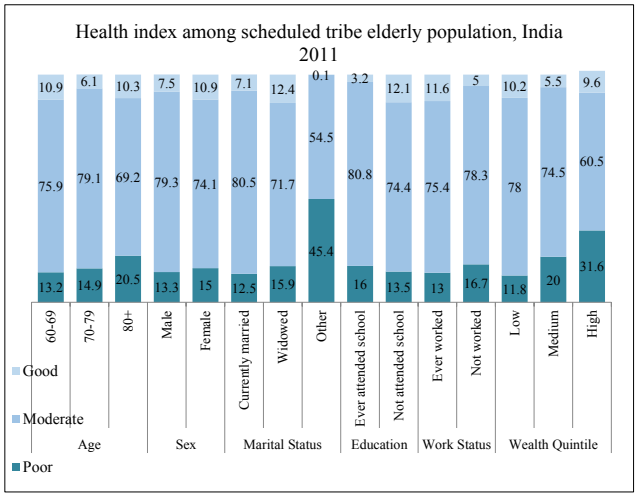

Figure 3: Health index among scheduled Tribe elderly population in India in 2011.

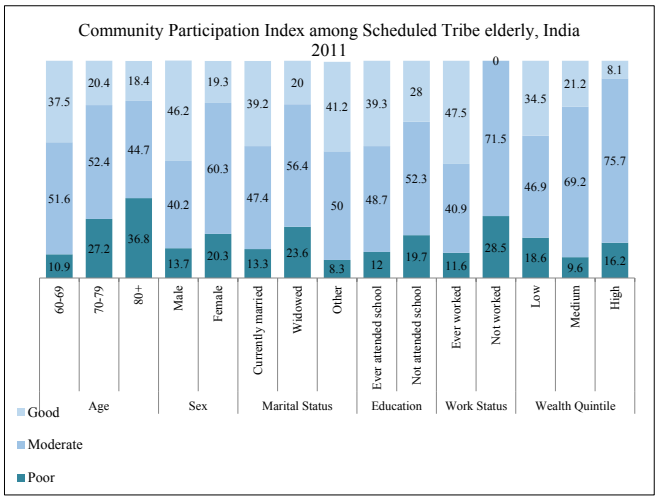

Figure 4: Community participation index among scheduled tribe elderly in India in 2011.

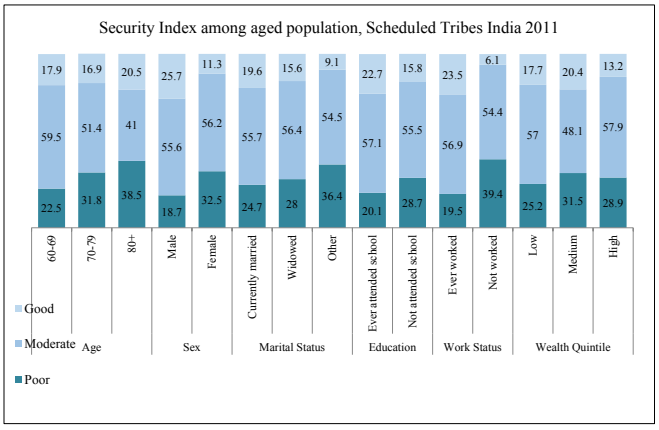

Figure 5: Security index among aged population, scheduled tribes India in 2011.

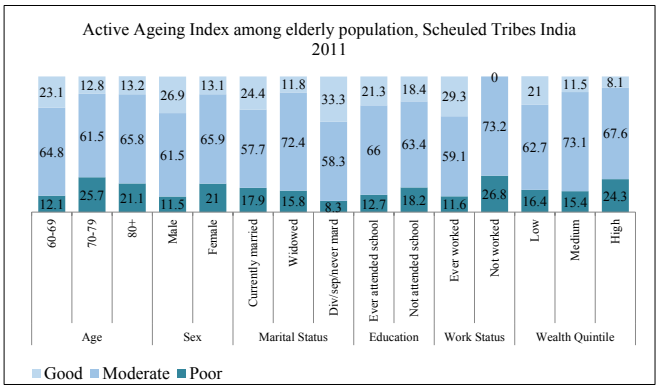

Figure 6: Active ageing index among elderly population, scheduled tribes India in 2011.

Results and Discussion

The distribution of aged population in India, the sex ratio and the proportion of aged population to total population of India based on the data available from the Census 2011 are accounted in this section. The scheduled tribe population in India as per the 2011 Census is 10.42 crores which is 8.63% of the total population. The growth rate of ST population has declined during the past few decades. During 1991-2001 the Scheduled Tribe growth rate was 24.45% and during 2001-11 it was 23.66%. The ST population within the total population of India has increased from 8.2% in 2001 to 8.6% in 2011.

Aged population is increasing steadily in India. Increase in proportion of aged in the 2001-11 period is more among the ST population and the general population typically in the four southern States of Kerala, Tamil Nadu and Andhra Pradesh. Proportion of tribal aged population has increased relatively more in Himachal Pradesh and Uttarakhand during 2001-11. In the smaller North-Eastern States where the tribal population dominates, one cannot expect much differentials between general population and the tribals. However, two observations demand attention. One is the comparatively lower proportion of aged population and the second being the negligible change in proportion of aged population proportion during 2001-11 period (Table 1).

Table 1 shows the population of tribals both in numbers and proportion to total population in India during 2011 based on the information provided by the Census of India. India has 8.6% of its

population in the 60+ year age group. Scheduled tribes have a lesser proportion of aged with 6.9% of the population above 60 years. Proportion of aged is highest in Kerala among the general population whereas Himachal Pradesh (6.8%) tops the list among Scheduled tribes. In all the States and UTs, the proportion of aged tribal population is lesser than the general population. Goa (11.2%), Tamil Nadu (10.4%) and Himachal Pradesh (10.5%) have more than one in ten persons as an aged person. The corresponding proportion among tribals is also relatively higher in these States. In Uttarakhand, Sikkim, and North–Eastern States of Arunachal Pradesh, Nagaland and Mizoram and all the UTs, the aged population percentage is slightly higher than the general population.

Now we look at the sex ratio of population among tribal aged population (Table 1). Since life expectancy is generally favourable to females, we expect sex ratio favorable to females. The States with higher life expectancy like Kerala has a sex ratio of aged population at 1137 females per 1000 males among the tribals and 1226 among the general population. The highest sex ratio is found among tribals in Goa (1486). The least tribal aged sex ratio is found in Jammu & Kashmir (789). Among the tribal population in some other States too, the sex ratio is favorable to males: Jammu & Kashmir, Uttarakhand, larger Northern States of Uttar Pradesh, Uttarakhand and Bihar; the tribal dominated States of Nagaland, Manipur, Tripura and also Sikkim and Assam. These States also show similar sex ratio among the general population except in Arunachal Pradesh, Mizoram Jharkhand and Orissa where the sex ratio is favorable to females. The observed differentials in tribal sex ratios in different States could perhaps be due to either higher mortality among the male aged population or better survival chances of female's empirical evidence for which is not found. Lack of data on life expectancy or mortality rates among tribals restricts further analysis into the cause of observed sex ratio trends in general.

With regard to the growth rate of elderly population formation of new state carved out of Bihar and Uttar Pradesh has resulted in major changes. But the growth rate of elderly population among the general population in India does not show much inter-state variations. In Sikkim, although the elderly population is only a few thousands, the elderly population more than doubled during 2001-11. Himachal Pradesh and the southern States of Kerala and Andhra Pradesh witnessed more than 60% growth in tribal population (Figure 2).

Maximum increase in aged population in India is seen in Jharkhand. The tribal dominated States in the North-Eastern part of India donot show much differences in growth rate between its ST population and general population.

Active ageing

Active ageing is most commonly measured in terms of the participation of the aged in work force. research studies show that the longer the participation of the aged in work force the longer the lives and better health in later life [16-18]. these studies provide ample evidence to the positive psychological impact of remaining in or re-entering of older people in the workforce. some authors argue that improved health and functioning for older people is due to productive engagement [18]. one advantage of continued activity in labour force is the availability of steady income of older people which in turn improves their material wellbeing in later life [19].

Elderly working population

One of the major problems associated with the labour force participation in India is that those working in informal sectors form a major share. Rajan [20], puts this figure as over 90% between 1987- 1988 and 2004-2005. The study argues that this large part of the workforce remains devoid of any post-retirement benefits and these workers turn up being financially dependent at older ages. So, they are forced to work for monetary benefits [21]. Such economically productive aged members are also likely to be more favorably treated by their family members [22]. In India, the Census is a vital source of information on labour force participation classified as 'main workers' and 'marginal workers' thereby accounting the economic activity of the population. Table 2 furnishes information on the participation of the aged persons in work force among scheduled tribes (Table 2).

India has around 39.16 lakh tribal aged persons actively engaged in work force which is nearly 9.1% of the total India work force of 4.3 crore in the 60+ age group. This is 7.7% of the total tribal workers and more than half of the total aged population. An interesting aspect is that in almost all the States the proportion of tribal aged workers to total aged population and that to the total working population is greater when compared to that of the counterparts in the general population.

Among the tribal population, Uttarakhand (11.6%) and Himachal Pradesh (10.5%) have higher proportion of aged absorbed in labour force among the total workforce whereas Meghalaya (6.8%) and Goa (6.9%) appear at the bottom list in this category. Nearly 72% of the aged tribal population in Nagaland is absorbed in the workforce.

The other States with more than three-fifths of the aged population reported as working are Manipur (68.5%), Tamil Nadu (61.7%) and Arunachal Pradesh (61.5%). Fifteen States have 50-60% of their aged tribal population in workforce. So economic activity, as depicted by Census data, among aged population is better than the general population in India.

Disabled elderly population

The proportion of disabled population is yet another indicator of the active ageing which is the process of optimizing opportunities for health, participation and security. So, an assessment of the levels and trends in the prevalence and severity of disability is necessary as it has a direct link to the active ageing process. It is argued that for the world as a whole in 2013, people lost an average of approximately nine years of healthy life due to disability [5]. In general, the number of healthy life years lost due to disability tends to be greater in countries with a higher life expectancy at birth. However, people living in countries with longer average life spans tend to spend a smaller proportion of their lives with disability compared to countries where life expectancy is shorter [5].

Disability free life expectancy has been a topic of concern in India in the recent years. Older people can continue to contribute actively in the absence of disabilities. Indian Census data throws up ample evidence on the disability of population among tribals, a rather unaccounted aspect, in terms of disability in seeing, hearing, speech, movement, mental illness and also multiple disabilities. Table 3 delves this aspect among ST population and State-wide picture in India (Table 3).

There are 4.7 lakh aged disabled tribal people in India which is 8.7% of the aged disabled population in India and 21.9% of the total tribal disabled population. Although this number is just 3.1% of the tribal aged population, one cannot ignore this group especially when development of tribal population is one of the most important parameters in India's effort to achievement of Sustainable Development Goals. Around one in three disabled among tribal population in Himachal Pradesh,

Rajasthan and Chhattisgarh is an aged person. Also, around one in four disabled among tribal population in Uttarakhand, Nagaland, Odisha, Goa and Kerala is an aged person. The same observations are discernible among general population in India. One finding that requires further investigation is the one that proportion of tribal aged population disabled to total aged tribal population (3.1%) is nearly half when compared to the corresponding percentage among general population in India.

Due to lack of evidence from research studies in disability specifically among the tribal population in India, arriving at a conclusion that tribals are better off than the general population with regard to disability status would be inappropriate. It could perhaps be explained in terms of differentials in life style. However, if the type of disability is assessed, speech disability and mental illness/retardation is more among the aged tribals than the general population whereas movement disability is substantially lesser among the aged ST population. Sunil Kumar Raina evaluated the prevalence of dementia in tribal elderly population in which he found that no individual above 60 years of age in the studied population was diagnosed as a case of dementia. He argued that societies living in isolated hilly and tribal areas was less predisposed to dementia, particularly age related neurodegenerative and vascular dementia, which are the most common causes for dementia in elderly. This he contended could be due to some environmental risk factors which are much less prevalent in these settings.

Analysis so far is restricted to data from Census. The findings are useful in the sense that it includes the total headcount of the tribal population and provides a reliable picture. But most of the indices try to capture many aspects of health including the psychological aspects, interaction with family and security parameters which are not available from the Census. So, we use the information from BKPAI survey during the same period.

Table 4 provides the household characteristics of the ST population covered in the sample. The data elements that have direct or indirect bearing on health of the population are assessed. Over half of the tribal population lives in Kachha households, one third have semi-pucca household and only nearly one in five have a pucca house. More than four-fifths of the households are from low socio-economic category as explained by the wealth quintile scores. Only 10% come under the medium wealth quintile and 6.6% enjoy high status (Table 4).

Empirical studies by different researchers have shown a gradual decline in the standard of life of the aged with high rates of dependency and lack of basic needs [23,24]. As the survey also collected information on the income status as indicated by the holders of APL/BPL card, one can find evidence to these findings which shows that only one in four tribal households have an APL card and almost three fifths have a BPL card. Also, two-fifths of the households own agricultural land.

Sanitation facility among the tribal population is very poor as nearly 70% of the household do not have sanitation facilities and defecate in open ground/field. Only less than one in five households has a proper septic tank/flush. Availability of safe drinking water is a basic indicator for good health. Here half of the tribal households depend on public well/borewell. Only one third households have access to piped water and one in ten have own well/borewell. As regards fuel used for cooking, nearly 80% of the households use wood as cooking fuel. Source of cooking fuel is straw/shrub/grass to 8.8% of the tribal households. So, the lesser access to facilities among tribal population are discernible.

A split up of the aged population (sample size 548) shows that 64.9% fall in the young-old group of 60-69 years and 7.2% are oldest-old (80+ years). A greater representation of females is found (54.8%) which is characteristic feature as implied by the sex ratio also which is favorable to females (Table 5). The poor educational background is also visible as only one in three tribal aged had ever attended school. Out of those who had schooling, one third had only primary level education (Table 5).

A breakup by marital status of the tribal aged group reveals only just over half the population in 'currently married' status and 42.2% are widows/widowers. The economic activity discernible from the participation in paid work reflects two third elderly reporting that they had during some time involved in paid work. But information on current work status provided in the survey points to 36% of the aged population currently working.

Active ageing index

Active ageing index is estimated as a simple average of composite measure of three indices. They are the 'heath index', the 'participation index' and the 'security index'. Based on the data available from the BKPAI survey, five variables are included to derive the composite health index: self-rated health status, psychological wellbeing, disability measuring the health and wellbeing, activity of daily living and the functional limitations measuring the physical activities. The composite measure of the 'participation index' is estimated with three data elements: participation in work force, participation with family and participation with clubs/ groups. The third index namely 'security index' includes annual income, sufficiency of income and sources of income received measuring financial security and house ownership, living arrangement measuring physical security.

Each of the three dimensions here show variability in the range of answers recorded in the survey. So, a simple summation of answers would be inappropriate statistically. To overcome the inequality in the contribution of each data element, a composite score was estimated first. Employing McGahan [15] composite index normalization the composite indices for the three dimensions have been estimated.

Health is one of the crucial factors that determine the quality of life among the elderly. Poor health in turn leads to increased economic burden. Here an attempt to construct the health index is made. Table 6 draws inference on the data elements used to construct the index (Table 6).

The self-rated health status of the tribal aged population is 'good' among only two-fifths of the respondents and fair among one in three respondents. Those reporting 'excellent' status is only 1.5%. One in ten elderly however report that their health status is very good. And almost a similar number of rates it as poor.

The psychological well-being encompasses aspects like the ability to concentrate on work recently, loss of sleep, experiencing strain, and ability to overcome difficulties, feeling of unhappiness or depression, losing self-confidence and considering oneself as a worthless person. The total score thus estimated is 'moderate' among three-fifths of the respondents and an equal share report the psychological well-being as 'good' and 'poor'. Disability in vision, hearing, walking, tooth problems leading to problems in food intake, in speaking and disability in memory are included in quantifying overall disability. We find almost three fourths of the aged reporting one or more disability.

Activities of daily living are scored using variables that measure level of dependence in carrying out daily activities like bathing, dressing, going to toilet, mobility in bed and control in urinating/

excreting. It's quite heartening to note that only 5.5% of the elderly have one or more limitations in carrying out daily activities. The rest report no limitations. The functional limitations are assessed in limitations in physical activities that involve shopping, food preparation, housekeeping, laundry, handling finances, transportation, and medication. Here almost 87% of the aged report of having one or more limitations.

Participation in labour force, in indoor and outdoor activities, participation in family matters and meetings and discussions outside home are all indicators of community participation. In India the elderly is found to work mostly in the informal sector with low levels of wages and deficient working conditions and this has also put the aged in a state of deprivation, vulnerability and distress in old age in terms of both health and economic security [25]. This lack of proper support puts most of the elderly in a condition of stress of work in their old age [23] that results in the higher Work Participation in the old age. Here we find that 36.4% of the tribal aged population in the survey report of currently working and earn income on their own. Majority of them are either self-employed or pursuing informal work on daily wages. Participation or interaction with family with family is accounted with respect to aspects like caring for grandchildren, help in cleaning/cooking, shopping for household, taking care of household chores, giving advice to children and involvement in settling disputes. Once again, we find good participation as 93.5% of the aged report that they involve in one or more such activities.

Participation in clubs/meetings are assessed by the involvement of the aged in aspects like attending public meetings, group or clubs, working with neighbors, frequency of attending religious programs and visiting friends or relatives. In this regard 8 out of 10 aged persons report of participation in one or more such matters.

Security index constructed in two dimensions of financial and physical security accounts among other variables the annual income of the aged. Only nearly one in five aged have income above poverty line (the income limit of households for qualifying as a beneficiary under BPL list was pegged at Rs. 27000/- in India in 2011). Two fifths of the aged fall in the income below poverty line category and an almost equal number do not having earned any income. As regards sufficiency of income, those earning income above poverty line report their income to be sufficient and those below the poverty line report that their income is insufficient. Large numbers of people have earnings that lie just above the poverty line, with little room for saving for retirement. Here we also find that nearly half of the aged had just one source of income. Only one in ten report of having two or more sources of income and these respondents are necessarily from the above poverty line group. As regards physical security, nearly three fourths of the aged own a house. Living arrangement is a direct indicator of the security in old age as those living with family are more secure. Here 6.7% aged persons live alone, 15.5% have only their spouse with them and more than three fourths have more family members living with them.

Based on the 3 dimensions accounted for in Table 6, composite scores were constructed for each of the three dimensions of health index, community participation index and security index (Table 7). These index values were constructed using the dimension index adopted in calculating the human development index developed by the UNDP in 2005 explained in the methodology section. An index score less than 0.5 is stated as 'low level', an index score between 0.5 and 0.79 is 'moderate level' and an index score equal or higher than 0.8 is 'high level' as per the UNDP (2005) classification. Index thus estimated shows that aged are better off in community participation with an index value of 0.70 which figures in the upper limit of the 'moderate level' (Table 7).

Tribal aged population has an index value of 0.49 with regard to the health index which is more or less assumed to be a 'moderate level'. Security index values estimated is 0.47 which is in the upper limit of the low level. The overall Active Ageing Index which is the simple average of the three dimensions considered is 0.55 which means that the tribal aged population has a moderate level of ageing actively in India (Table 8).

The health index constructed indicate that majority of the tribal elderly population have a moderate level health (75.9%). Only one in ten elderly have good health. When the elderly tribal population is classified by the health index and their background demographic and socio-economic characteristics, the proportion of elderly with poor health index is seen to be increasing with age. Over one in five elderly having poor health index are the oldest old whereas only 15% of the elderly aged 70-79 years show poor health index.

Males are slightly at a disadvantage with regard to good health index values but slightly better off in the moderate health index category. Currently married elderly are slightly healthier than widowed. But more divorced/separated elderly report poor health conditions. Similarly, elderly who had attended school and non-working elderly have better health (Figure 3).

With regard to the socio-economic status depicted by the wealth quintile, more elderly in the low wealth quintile group report moderate health status. Surprisingly poor health is more among higher wealth quintile group.

A similar assessment of community participation index depicts a better scenario with more elderly being scored under the 'moderate' and 'good' participation index. Participation in family and community decreases with age, is better among males and lesser among the currently married elderly (Table 9).

Those elderly who had some schooling show better participation in various activities in the family and community. Poor community participation index is observed among non-working elderly and good index values are observed among working group. Better participation in community, work and family are observed among the elderly in high wealth quintile in general as only 16.2% show poor participation (Figure 4).

It has long been proven that with social and economic changes in the society, negligence of the elderly population occurs [26]. Insecurity among the aged has been on an increase mostly in the Asian countries as the living arrangements change [27,28]. Studies also show that majority of the elderly are deprived of the basic necessities and are thus in chronic poverty [23]. In this context the level of security among the tribal population is analyzed. Table 10 presents the distribution of elderly tribal population by security index. The security index as assessed on the basis of both financial and security index becomes poorer as age increases, moderate index values decreases as age increases and better security is also found among the oldest old.

Security index is better among the males as the 'poor' security index is more among females and 'good' index values are observed more among the males. Moderate index values are comparatively same for both sexes (Table 10).

Elderly in their widowed status, in separated/divorced/never married have lesser security as indicated by the lesser 'poor' index values and greater proportion with 'good' index values among the

currently married. Distribution of elderly population by security index and wealth quintile shows that 'good' security index values are observed among the medium wealth quintile category of elderly. But this group also has more elderly in the 'poor' index values are also more in the same category of elderly. So, the elderly in the 'low' wealth quintile are more secure (Figure 5) [29-32].

Now the distribution of elderly by overall AAI is assessed. We find that the AAI decreases with age with the 'poor' index values more among the oldest old and ''good' index scores higher among young old (Table 11). Females are slightly at disadvantage in the overall AAI. Widow/Widowers have more 'moderate' AAI. Working status vary by AAI. Those who have not worked have poor AAI and no one in the sample seem to fall in the 'good' AAI category. Those in the high wealth quintile have experiences of poor AAI (Figure 6).

Active and healthy ageing could be promoted with greater participation of the elderly in income generating activities, greater participation within the community and better care giving within the family. Estimating AAI at individual level has helped to capture the true picture of the ageing process of the tribal population. A paradox to which further investigation is suggested is the association of low AAI with high socio-economic status.

Conclusion

In India the current demographic trends imply that the old age dependency would be increasing in the coming years as life expectancy has been improving and there would be lesser people in the work force to be the potential sources of support in old age. This phenomenon is widely applicable among the tribal population also although they form only less than ten% of India's population. A heavy burden falls on the Government also to design innovative policies. These policies have to address the needs of older persons. Here we find that the health index composite scores are below average among the tribal and does present a pleasant situation. Chronic morbidity, disability, psychological problems form a good proportion of the health problems and are more or less comparable or even more than the general population. The security index scores also is not an appreciable one. Although the living conditions of the tribal population have improved through the various developmental efforts, they still remain excluded.

The security index values also fall in the upper limit of the low-level category and portray the alarming situation. The majority of tribal elderly have financial security at a moderate level. In terms of living arrangement, the tribal elderly is better off as only a negligible proportion of elderly live alone. As the tribal live in settlements loneliness is seldom a problem here. House ownership which is one of the indicators in the construction of security index is also better among the tribal elderly. Financial security poses to be a real challenge as majority of the tribal elderly either are income-less or have income below poverty line. So, the provision of paid work for the elderly is greatly needed since this would allow older persons to be more economically self-sufficient. Although the Census figures portray a better picture regarding work participation among the tribal elderly compared to the general elderly population, efforts could be directed towards engaging the tribal elderly population in income generating schemes. The community participation index is the better one among the three indices. Greater level of participation in family matters, in clubs/meetings/outdoor events etc. is discernible. Good participation promotes active, healthy, secure and positive ageing and the overall active ageing index is inflated by the higher participation index values.

Overall the Scheduled Tribe population in India shows a moderate level of active ageing. Further in-depth surveys with a good representation of tribal are necessary. The index values estimated cover seven States with higher proportion of aged population which is one of the limitations of the study. A similar exercise in the smaller North Eastern States with more than 90% tribal population is necessary but lack of data again proves to be a limitation. Welfare of the tribal elderly population demands attention equally as the general population and measures need to be concentrated in promoting active ageing among the tribal elderly population in India. As majority of the tribal population are absorbed in non-formal employment and self-employment, financial security is a major challenge. Lack of financial security impairs good access to health care services and ultimately hinders active ageing process. The very finding that living arrangement among tribal by way of settlements ensures security in old age which resulted in better AAI scores is suggestive of the importance of family support to the elderly. Social transformations with family as the care givers to the elderly could be stressed. So, a holistic approach encompassing health, social, economic and psychological aspects could be promoted with strong government support for the active and healthy ageing of the tribal population in India.

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