Economic Independence of Elderly Females in North-East India: A Statistical Review

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Abstract :
It has been observed that the elderly populace of 60+ is increasing all over the world. Such increase in elderly population is also seen in the states of North-East. The percentage share of the elderly populace to the general population is projected to be 8.2% (8.8%) and 11.6% (12.7%) in 2021 and 2031 respectively for Assam (NE States). This study attempts to review the disparities in the state of economic independence of aged people among male-female and urban-rural population of the eight North-East states of India. Here we have identified that rural aged females of 60 years and above of Meghalaya state are more vulnerable in respect to economic dependence.
Keywords: *Aged people, State of Economic Independence, Male-Female and Urban-Rural Population, North-East States, Assam.*

Introduction :

In all over the world it has been observed that population of older population i.e 60 years and above is increasing. This is mainly due to increase in life expectancy. This increment in the 60+ populace is due to a decrement observed in the mortality rate. Another factor that accelerates this increment is the advancement of science and technology that cure many diseases which were considered to be deadly earlier. The increased life span of people results in low mortality and thus increases the proportion of the elder population in a country. A decrement in the fertility rate also increases the portion of the population of senior citizens in the total population of a country.

Globally the aged populace of 60+ is estimated to be increased by 56% from 2015 to 2030. It has also been projected that by 2050 the older population will be approximately 2.1 billion all over the world. Elderly women of 60+ contribute 54 % of the global populace in 2015 and is projected to be 53% by 2050. A very slight improvement is projected for the sex ratio of the older population of 60+ of 89 males per 100 females in 2050 as compared to 86 males per 100 females in 2015. It has also been noticed that urban elderly people of 60 years and above are increasing faster than their rural counterparts. All over the world, this number is increased by 68% and 25% in urban and rural areas respectively. (World Population Ageing, 2015)

In Asia, 56% of the elderly lived in 2015 which is estimated to be increased to 60% in 2030 and then to 62% in 2050. In this continent, a very

big increment of 106% for urban areas is observed whereas it is only 28% in rural areas between 2000-2015. (World Population Ageing, 2015)

In 2015, only five countries namely China, India, United States, Japan and Russia accounts for half of the elderly populace of 60+ of the world. In India, the number of older people is projected to be increased by 64% from 2015 to 2030. (World Population Ageing, 2015)

As a country, India is in a state of transition, moving from the younger to the older generation. In India, a 35.8% increase in the elderly population is observed in 2011-21 as compared to 12.4% in general population. It has been projected that 40.5% of elderly people will increase by 2031 as compared to 8.4% in the general population. The share of elderly females to that of the general population is projected to be 10.7% and 14% in 2021 and 2031 respectively which is higher as compared to 9.6% and 12.3% for males. The sex ratio of the elderly population of India is estimated to be 1065 females per 1000 males in 2021 and 1085 in 2031. Thus the females would seem to outnumber the males in this elderly age group of 60+. However, it is also clear that this portion of the elderly populace of India varies state wise, region wise etc. This kind of scenario is also observed in the states of north-east India. The percentage share of the elderly population to that of the general population is projected to be 8.2% (8.8%) and 11.6% (12.7%) in 2021 and 2031 respectively for Assam (NE States). (NSO, 2021).

Under this backdrop, we can see a steady increase in life expectancy among aged people across the world. Although it is a welcome change, we should not forget the fact that an increase in the span of life does not necessarily mean a stable, healthy, morbidity and stress-free life. Aged people face many physical and mental complications. Not only health but other factors like state of economic independence will also influence life of 60+ people. As we know that a person's state of economic independence act as one of the important markers of mental and physical health. This also holds for elderly people of a place. Financial dependence will lead to many adverse effects on the overall health of the elder. Elders will feel neglected, which in turn increases frustration and despair. Economic dependence will automatically lead to a decrease in loss of authority and hence they will have no say on the key home issues. This kind of state also influences their relationship with family and society and their role as advisers.

A numbers of scholarly literature related to the broad area of the present work have been methodically consulted. A brief overview of the existing literature on the subject has been discussed below. Banerjee, 2021 studied the disparities in healthcare utilization among the senior citizen living in rural and urban areas of India and observed that economic status is acting as one of the factor as rural-urban inequality in assessing healthcare utilization. Muhammad et al., 2021 studied the association of the economic condition of the elderly with preference for living alone and found that economic factors along with health were a significant marker for elderly preference for living alone. Johnson et al., 2019 observed that the females were having a lower quality of life than the males among 60+ populace in Bengaluru South. Barua, et al., 2017 studied the morbidity pattern of elderly living in slums of Jorhat district of Assam. They observed

that lack of money was one of the factor for the elderly slums for not affording proper health care. Dutta, 2017 found that the socioeconomic conditions are affecting the life of the old women belonging to the middle and poor families in Siliguri town of West Bengal. Agarwal et al., 2016 observed the gender wise disparities in the life expectancy at age 60 in the 17 most populous states of India for 2011 using data set from the United Nations (2015) and the Government of India (2013 and 2015). They also felt that these differences in the sex divisions in the older population will increase the need for focused programs and policies. Alam et.al., 2015 observed that economic independence is a key factor in determining the well being of the elders. Siva Raju, 2011 in his study found that care received by the 60+ people of India varies according to their place of residence and gender. He also felt that India should focus not only on the quality of life of the elders but women elders in particular. Alam and Karan, 2011 observed that poverty was one of the determining factors in the health outcomes of the elderly population. It has been observed that economically independent elders have better health outcomes than economically dependent.

Although there are a number of works conducted on the aged population of India and her states, no systematic study have been found to be devoted to the status of elderly population of North-Eastern states with special focus on the elderly females. Hence it has become imperative to study the elderly people especially women of North-East region of India according to the state of their economic independence. The present study examines the status of elderly people aged 60^{+} according to the state of economic independence. The male-female and urban-rural populations of eight North-Eastern states of India were taken as the study population.

Objectives :

The objective of the present study is:

1. To examine the disparities in the state of economic independence of aged people with gender over the eight states of North-East namely Arunachal Pradesh, Assam, Manipur, Meghalaya Mizoram, Nagaland, Sikkim and Tripura and compares them to India.
2. To study the change in the percentage of economically fully dependent females for both rural and urban populace of 8 NE states and India between 2004 and 2017-18.
3. To explore this variation among the urban and rural aged population.

Data and Methods :

The data used in this paper is secondary taken from the National Sample Survey and Sample Registration System. The data used for computing association between state of economic independence and gender is taken from NSS 75th Round (July 2017-June 2018)-Social Consumption in India: Health. This association is studied by computing Chi square test.

Chi-Square test is given by

$$\chi^2 = \sum_i \frac{(O_i - E_i)^2}{E_i}$$

Where O_i and E_i are the observed and expected values respectively.

The state of economic independence is taken as not dependent on others (ND), partially dependent on others (PD) and fully dependent on others (FD). The percentage change in economically fully dependent females over the years is taken from NSS 60th round and 75th round. The inequality in the length of life among

the aged people of Assam and India is studied by computing Gini Coefficient. Data used for computing the Gini coefficient is taken from abridged life tables (page no. 20 and 22) computed by Sample Registration System (SRS). But, life tables were constructed by sex and residence for India and only for bigger States/UTs till now. Hence the present study restricts the computation of the Gini coefficient only for Assam and India of 2014-18.

The following formula is used to compute the Gini coefficient for the population aged 60+. Here it is computed up to age 100.

$$G_{x/X} = 1 - \frac{\int_{x}^{X} \{l(t)\}^2 dt}{e(x/X)\{l(x)\}^2}$$

Where e(x/X) is the temporary life expectancy and l(x) is the number of survivors at the beginning of the interval x. (Detail formula can be assessed from the work mentioned in appendix.) Gini coefficient lies between 0 and 1. It will take value zero if all die at the same age and one if one dies at very old age and others die in the same age. Thus zero means there is no inequality in the length of life and equal to one if there is maximum inequality.

The differences in the length of life among the male and female of 60+ aged people are also computed.

Karl Pearson's Correlation Coefficient formula is used to calculate the association between state of economic independence and expectation of life for 60+ population of Assam.

Discussion :

Based on the aforementioned data and methodology the present study constructed the requisite tables to discuss the findings.

Table1: Gender wise Urban-Rural Populace of 60 + according to their state of economic independence of eight NE States

State			ND	PD	FD	Chi Square Value
Arunachal Pradesh	Urban	M	69	16	16	39.55*
		F	28	56	16	
	Rural	M	28	41	31	9.33**
		F	12	42	46	
Assam	Urban	M	47	29	24	44.84**
		F	9	26	65	
	Rural	M	28	30	42	26.41**
		F	8	15	77	

State			ND	PD	FD	Chi Square Value
Manipur	Urban	M	46	40	14	31.38**
		F	18	34	48	
	Rural	M	37	40	24	8.23*
		F	19	55	26	
Meghalaya	Urban	M	74	9	18	27.45**
		F	40	8	53	
	Rural	M	49	18	33	69.24**
		F	0	19	81	
Mizoram	Urban	M	58	13	29	13.5**
		F	32	24	43	
	Rural	M	63	21	16	30.31**
		F	28	23	49	
Nagaland	Urban	M	38	24	38	39.17**
		F	3	28	69	
	Rural	M	53	43	4	67.17**
		F	5	60	35	
Sikkim	Urban	M	47	8	45	61.46**
		F	0	16	84	
	Rural	M	32	28	40	15.85**
		F	11	50	39	
Tripura	Urban	M	69	13	17	62.35**
		F	18	11	70	
	Rural	M	58	24	18	69.93**
		F	9	18	73	
India	Urban	M	57	19	24	52.26**
		F	11	21	68	
	Rural	M	48	25	27	41.27**
		F	10	24	66	

Source: NSS 75th Round (July 2017-June 2018)-Social Consumption in India: Health 7th column: Author computation from data. (** Significant)

The above table depicts the state of economic independence of 60 years and above for male and female population of urban and rural populace of eight Northeast states of India along with the nation. The data also reveals that rural females are more economically dependent. In this category, Meghalaya tops the list followed by Assam and Tripura. These figures are higher than its national figure. The other five states are below this national figure. From the sixth column, we observed the variation in the economically fully dependent among the states. This disparity is more prominent for females aged 60+. Except for the elderly urban population of Arunachal Pradesh, we observed very high economically fully dependent females as to the males. This significant association can be seen in the chi-square value computed in the 7th column. The aforesaid table also depicts a higher economically fully dependent rural population for both genders as to its urban populace. Studies done by Swaminathan, et al., 2012 also observed the gender discrimination in the case of paid employment and the amount held among elders of India. Dreze and Srinivasan, 1995 also observed that elderly females economic status are not good. Capoor, 2008 saw that financial security is lacking among Indian aged females. Prakash, et al., 2004 also observed that elderly women are less financially independent than elderly men.

Table2: Gini Value for the Male-Female and Combined, Urban-Rural Population of Assam and India

Region	Type of Population	Gender	Gini Value at age 60+	e^{60}	Difference
India	Combined	Male	0.28	17.4	-1.5
		Female	0.3	18.9	
	Urban	Male	0.31	18.8	-1.2
		Female	0.32	20	
	Rural	Male	0.26	16.9	-1.6
		Female	0.29	17.6	
Assam	Combined	Male	0.27	16.5	-1.1
		Female	0.29	18.5	
	Urban	Male	0.34	20.5	0.8
		Female	0.26	17.6	
	Rural	Male	0.27	15.9	-1.3
		Female	0.25	17.2	

Source: SRS Based Abridged Life Tables 2014-18 (2020)

4th and 6th Column: Author computation from data

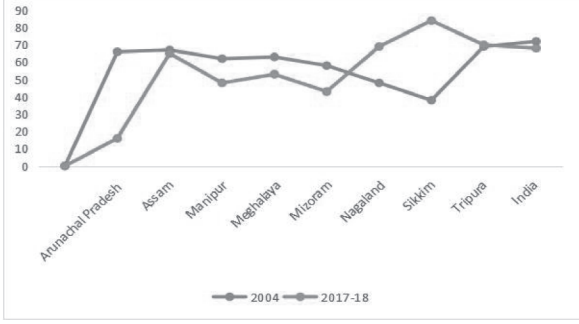
In table 2 Gini value for 60 years and above is computed for the urban-rural and male-female population of Assam and India. From the above table, we observed a slightly higher value of Gini for the female populace as compared to its male for India. However, a negligible large Gini coefficient is observed for the male population of Assam in comparison to females. A larger Gini value depicts a larger inequality in length of life. Thus Indian females have more disparities in their length of life as compared to females of Assam. A larger value of Gini is observed for the urban populace for both India and Assam.The 5th column of the above table is the expectation of life at age 60+ taken from SRS. For example, a figure of 15.9 shown in column 5 means on average after 60 years a person will live 15.9 years more. Here we see that elderly females lived longer than their male counterparts except for urban females of Assam. The difference in the male-female life expectancy at age 60 as shown in column 6 varies from -1.6 years to 0.8 years. This means Indian elderly females living in rural areas lives 1.6 years longer than their male counterparts and urban elderly females of Assam lives 0.8 years less than the males.

Table 3: Association between State of Economic Independence and Expectation of life for 60+ Population of Assam

FD	24	65	42	77
ND	47	9	28	8
e^{60}	20.5	19.7	15.9	17.2
r1	-0.31			
r2	0.31			

As mentioned in methodology section we are restricted to compute association between state of economic independence and life expectancy only for the state of Assam. In table 3 r1 and r2 represents the correlation between FD and e^{60} and ND and e^{60} respectively. The negative value of r1 implies that increase of percentage of economically fully dependent will decrease the expectation of life at age 60 and vice versa. The positive r2 indicates that as the percentage of economically not dependent persons increase, the expectation of life at age 60 increases and vice versa. Thus state of economic independence will influence the expectation of life at age 60.

Graph 1: Percentage Change in economically fully dependent females for the urban populace of eight NE states and India between 2004 and 2017-18



Graph 2: Percentage Change in economically fully dependent females for rural populace of eight NE states and India between 2004 and 2017-18

Graph 1 and 2 shows the change in the percentage of economically fully dependent females for both rural and urban populace of eight NE states and India between 2004 and 2017-18. This percentage is decreasing over these two-periods among all the states except for Nagaland and Sikkim for its urban population. However, state Arunachal Pradesh and Meghalaya are experiencing a higher percentage of economically fully dependent rural females in 2017-18.

Conclusion :

The responsibility and care of a society can be discerned from the quality of life led by its senior citizens. As it has already been mentioned that the expectation of life of the elderly is being increased steadily across the world, it is therefore, high time to address the issues that hinders the elderly people to lead a quality life. It is pleasing to note that initial awareness in national and international levels has been seen in this regard. Although, the Government of India has undergone many policies to tackle the problems of the aged but it seems that these policies somehow failed to percolate to the needy.

In NE India, we have observed that the elders are increasing steadily but their increase is below the national average. This study also shows that aged females are more economically dependent than males. The chi square value computed in Table1 statistically supports this result, indicating significant gender disparities in the state of economic independence. Though this dependency decreases over the years this decrement may not be considered satisfactory. Here we have identified that rural aged females of 60 years and above of Meghalaya state are more vulnerable. Thus we are encouraged to reassess the existing policies to address this kind of people and if needed introduce some more policies to improve their quality of life. The rural aged females of Meghalaya may be further stratified according to district wise or block wise or village wise and a small area may be first considered as a study area and implement the policies and study the outcomes. This may be considered as a model study and thus encourage one to implement such policies in other areas also.

The present study shows that the senior female population aged 60+ and above of North East India has not faced much hindrance in leading a good life till now in comparison to other parts of India. But time is changing rapidly and hence the policy makers should plan apposite policies to safeguard the interest of this section of society so that they can lead a happy, safe and comfortable life.

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Appendix :

Details about Gini Formula used in this study can be assessed from the paper in 'Measurement of Health Inequality in India by computing Gini Coefficient' published in Middle East Journal of Age and Ageing (ME-JAA) Vol.13, Issue 2, December 2016 PP 28-35 ISSN 1449-8677.