Demographic Shifts: Exploring the Impacts of Population Ageing in North-West India

Reenu Devi*, Pankaj Aashish*and Arvind Paul**

[1]Assistant professor, Department of Geography, RKMV, Shimla
[2]Assistant professor, Department of Geography, St. Bede's College, Shimla
[3]Assistant professor, Department of Geography, RKMV, Shimla

ARTICLE INFO

ABSTRACT

The demographic landscape in Northwest India is undergoing a transformative shift characterized by population ageing, which poses significant challenges and opportunities for the region. This paper investigates the specific impacts of population ageing on various societal, economic, and healthcare dimensions within the context of Northwest India. Through a comprehensive analysis of demographic trends, socio-economic data, and regional dynamics, we examine the implications of ageing populations on healthcare and intergenerational relationships in the region. Additionally, we explore the cultural and societal factors that influence the experiences of older adults and their families in Northwest India. Furthermore, this paper discusses potential policy responses and interventions tailored to the unique needs and challenges of ageing populations in the region, emphasizing the importance of culturally sensitive approaches and community engagement. By providing insights into the demographic shifts occurring in Northwest India, this research contributes to a deeper understanding of the impacts of population ageing and informs evidence-based strategies for fostering healthy and resilient communities in the region.

Introduction

Population ageing or ageing of population is the ultimate consequence of demographic transition where mortality first and then fertility falls from a very high level to extremely low levels. Such alterations in mortality and fertility result in an increase in the number of the elderly, a fall in the number of children and young adults, and relative stability in the number in the central age group (Roland Pressat, 1989). In *The Dictionary of Demography* (1989), Roland Pressat defines ageing of the population as "alteration in the age structure of a population in the direction of an increase in the relative importance of old persons say those over 60, and usually reflected in an increase in the average age of the population".

Population ageing is one of the greatest triumphs of development in human history, meaning that the majority of people can expect to survive in to old age (Help Age International, State of World's Older Population 2002). The demographic landscape of Northwest India is experiencing a significant transformation characterized by population ageing, a phenomenon with profound implications for various facets of society. As life expectancy increases and fertility rates decline, the region is witnessing a steady rise in the proportion of older adults within its population (Bali, 2001). In this context, understanding the impacts of population ageing in Northwest India is paramount for policymakers, healthcare professionals, researchers, and communities alike. This paper aims to

Corresponding author
Email:reenugeography@gmail.com (Reenu Devi)

explore the multifaceted implications of demographic shifts, focusing specifically on the challenges and opportunities posed by population ageing in Northwest India.

Study area

The study area includes the entire State of Jammu and Kashmir (At the time of the Census, Jammu and Kashmir was a state but from 31 October 2019, it has been split into two Union Territories, namely Jammu and Kashmir and Ladakh), Himachal Pradesh, Uttarakhand, the Union Territory of Delhi, Chandigarh, Punjab, Haryana, and Rajasthan lying approximately between the 23 33 68   N to 37 47 54   N latitudes and 69 30 8   E to 81 09 41   E longitudes (Fig. 1.1).

Fig .1.1

Aims and objectives

The present study focuses on following aims and objectives:
1. To analyze the demographic trends of population

ageing in Northwest India, including changes in age structure, life expectancy, and fertility rates
2. To investigate the effects of population ageing on labor markets and economic productivity in North-west India,

Data and methodology

Data

The present study shall utilize secondary data of 2001 and 2011 census years and other information published by different departments and corporations. In the present chapter, we have analysed the different aspects of ageing in India using the Data of NSSO surveys for different years, Census of India, Sample registration system, UNFPA etc. And following indicators have been selected to examine the population ageing and demographic transition:

Indicators

1) Percentage of population by broad age group
2) Sex ratio of elderly population
3) Age and sex composition
4) Median age
5) Potential support ratio
6) Old age dependency ratio
7) Total fertility rate
8) Total mortality rate
9) Total infant mortality rate
10) Life expectancy

Methods of study

4.3.1 Old age dependency has been studied at district level in north-west India and following methods have been used to calculate the old age dependency ratio:

$$ODR = \frac{P60+}{P15-59} * K$$

Where, ODR is old age dependency ratio, P60+ and P15-60 denote the population 60 and more than 60 and 15-59 respectively, K=100

4.3.2 Median age has been calculated with the following formula:

M= median

L= Lower boundary of median class

N= Total frequency

cf = cumulative frequency before median class

c= class interval

f= frequency of median class

4.3.3 Potential support ratio has been calculated by using the following formula:

Potential support ratio=(persons in the age group 15-64)/(Number of persons in the group of 65 and above)

Discussion and analysis:

According to the Census of India, the proportion of the elderly (defined as those 60 years of age or over) in India's population has steadily increased throughout the years. India's old population percentage increased from 5.63 percent in 1961 to 8.3 percent in 2011. In the study area, Punjab and Himachal Pradesh both had greater percentages of elderly than the national average (10.33 and 10.24 percent, respectively) in the 2011 Census. In the study region, the union territories of Chandigarh and the National Capital Territory of Delhi had the lowest percentages of the elderly (6.36 and 6.83 percent, respectively) according to the 2011 Census. Over the half century the proportion of children (0-14 years) dropped worldwide from 34.3 percent in 1950 to 30 percent in 2000. In India, the proportion of children (0-14) also dropped from 35.35 percent in 2001 to 30.76 percent in 2011.
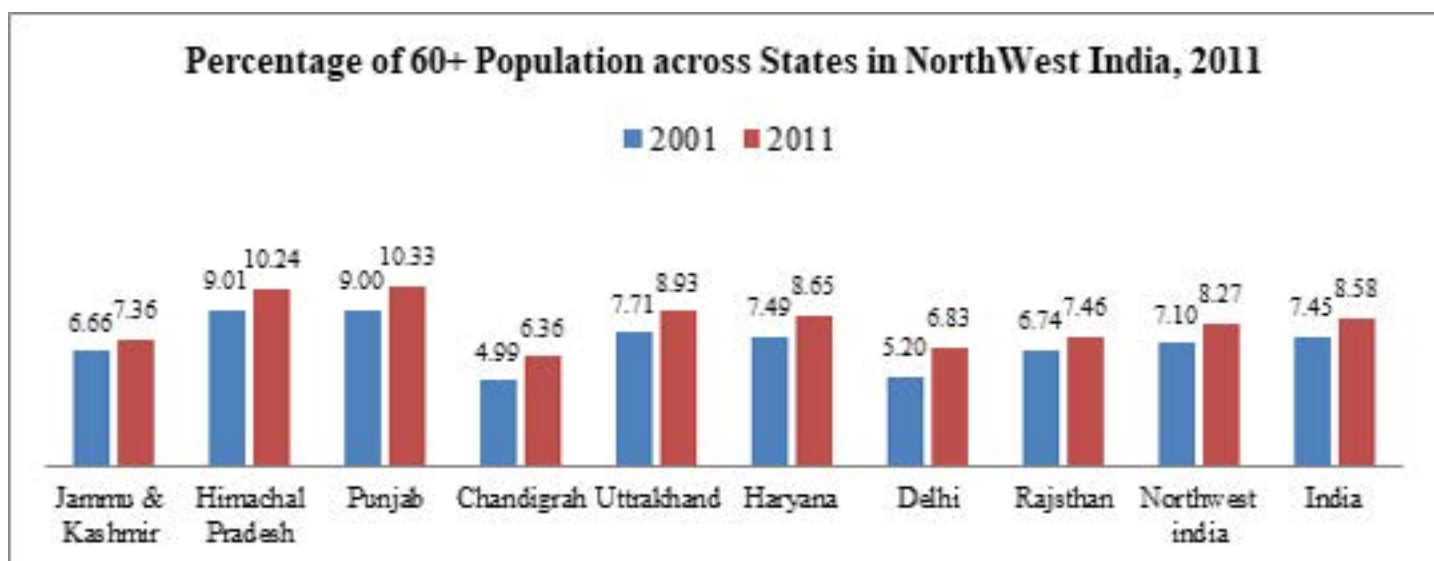

Figure 1.2: Percentage of 60 plus Population across States in North West India, 2001-2011
Source: computed and composed by the author using Census data; 2001 and 2011

Likewise, the proportion of the children dropped down 33.93 to 29.12 percent in the study area and the proportion of the aged population slightly increased, i.e., 7.10 percent in 2001 and 8.27 percent in 2011 in Northwest India (Fig 1.2). Punjab and Himachal Pradesh recorded the lowest proportion of younger population in the 2011 census i.e. 25.54 and 25.86 percent respectively in the study area. India exhibits significant interregional and interstate demographic diversity. As a result, there are significant differences in the population's age structure, including the process of ageing. Along with Haryana and Uttarakhand, the states Himachal Pradesh and Punjab are leading the study area in terms of population ageing. The percentage of the elderly in Jammu and Kashmir, Rajasthan, Delhi, and Chandigarh, is significantly lower (India Ageing Report, 2017). The percentage of the elderly in the study region and the country,

8.27 and 8.58 respectively, is relatively similar.

Implications of population Ageing

Implications of population ageing are discussed in third dimensions: Demographic, Economic, Social and Health. Feminization and ruralisation among the elderly are studied as part of the demographic implications.
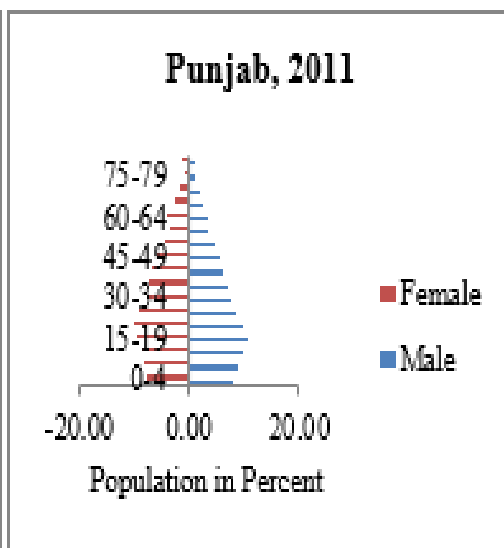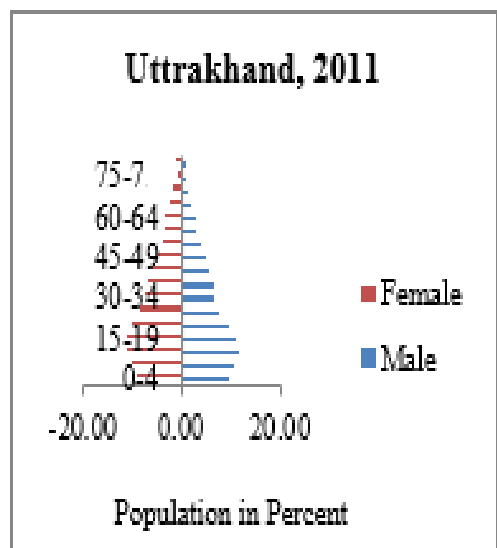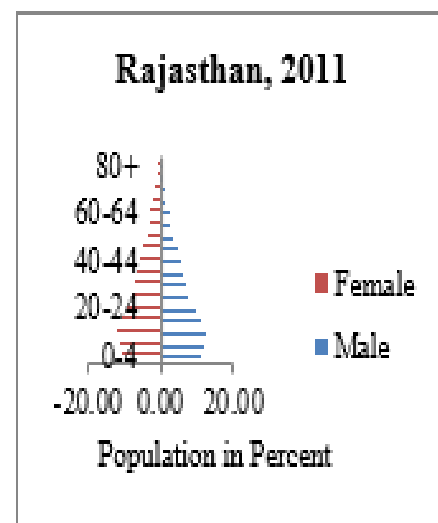
Demographic Implications:

This section analyses the demographic implications of ageing viz., age and sex composition of the population, median age, feminization, and ruralisation.

Change in Age and Sex Composition
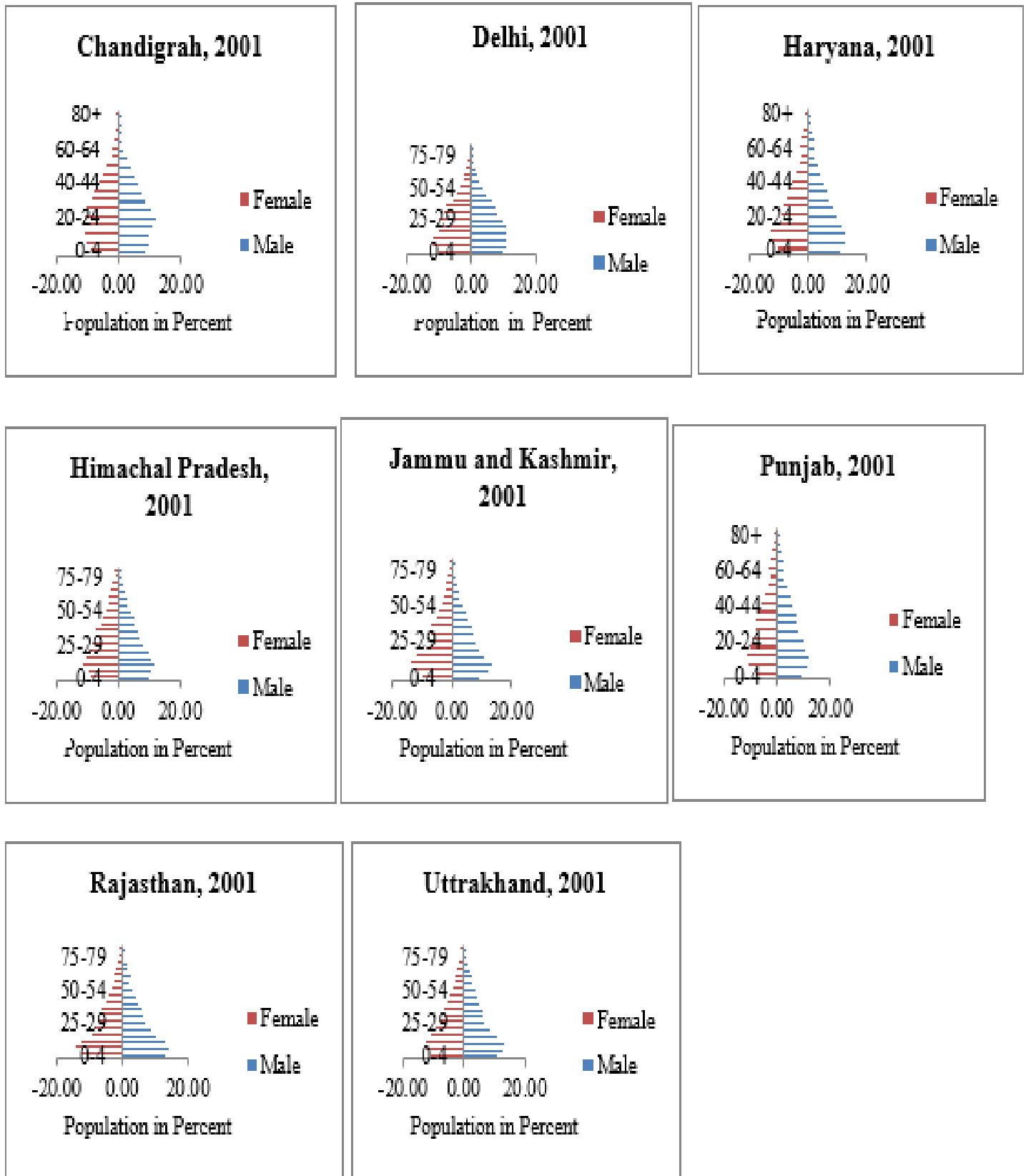
Age and sex pyramids of north-western states of India helped in building a knowledge base that will help to better understand the implications of changing population age and sex distribution for development planning. The 2001 diagram is a typical pyramid with a moderately expanding broad base and a narrow top. The younger age group has more females than males. In the year of 2011, the broad base has shrunk and the neck of the pyramid has gained width.

92

Haryana, 2011

Delhi, 2011

Himachal Pradesh, 2011

Jammu and kashmir, 2011

Chandigrah, 2011

Rajasthan, 2011

Uttrakhand, 2011

Punjab, 2011
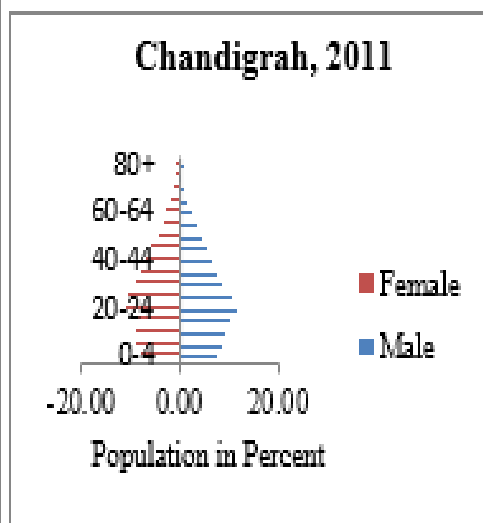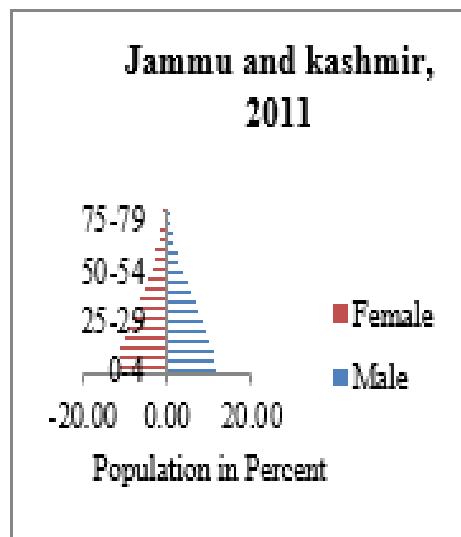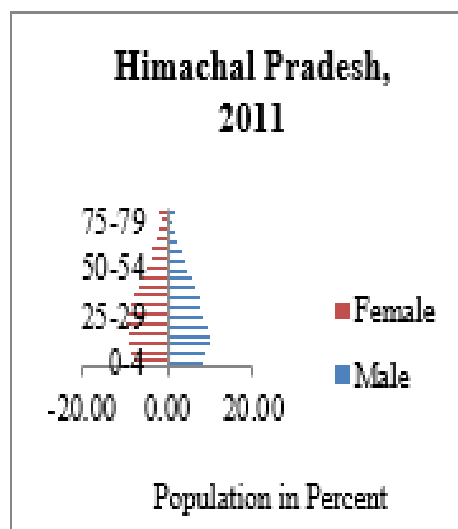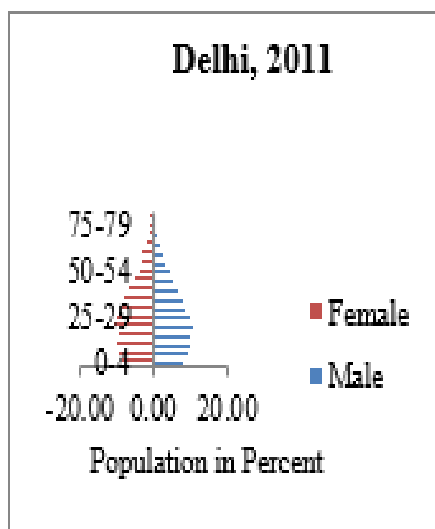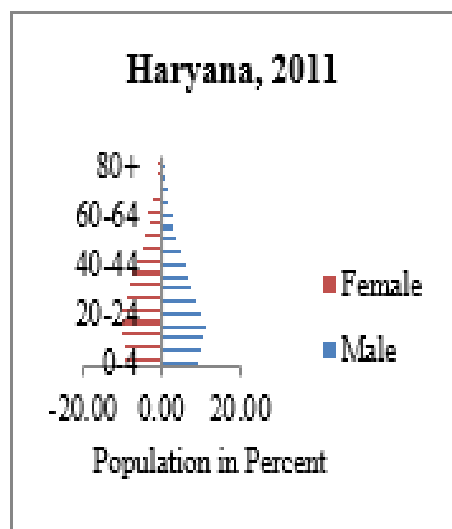
Median age

The median age is the age at which the population is divided into two groups of equal size, with half of the population being younger and the other older than this age (Giridhar, et al, 2014).

Fig 1.3: Median Age in North-Western States; 2001 and 2011

Source: Sample Registration System (SRS) Office of the Registrar General, India.

Figure 1.3 shows that among the north-western states of India, Rajasthan was the state with the youngest (20 year-old) population, and Himachal Pradesh and Punjab were the states with oldest (24 year-old) population in 2001. In 2011, the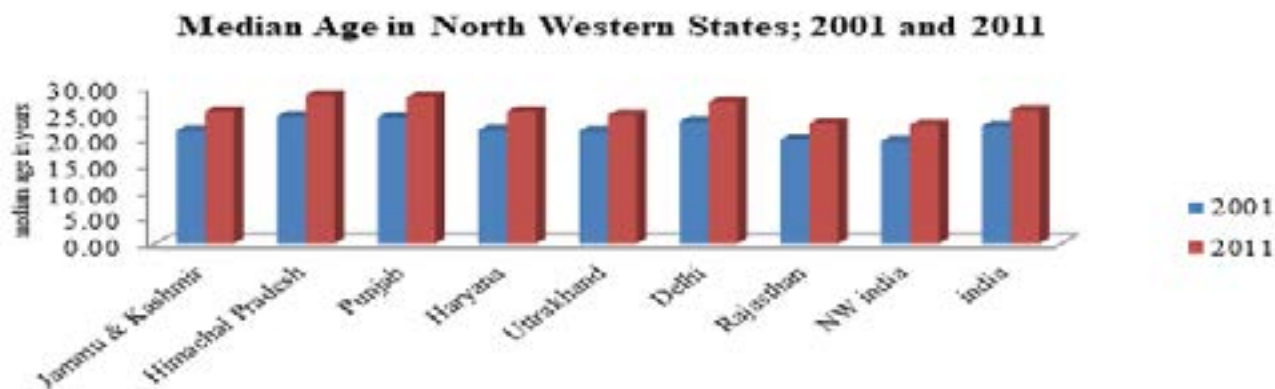 median age increased in the area, but Rajasthan remained the state with the youngest (22 year-olds) population and Punjab, Himachal Pradesh, and Delhi were the states with the oldest (28-year-old) population. Over the next five decades, the median age of India's population is likely to increase by 16 years, reaching 39 years by 2051 (United Nations, 2007).

Feminization of Population Ageing

The trend in the ratio of women to men in the elderly population shows that the number of women keeps going up. According to the Census of India, as shown in (Fig. 1.4) the trend in the sex ratio (females per 1000 males) for the general population has remained low consistently and for elderly population it has been higher throughout.

Figure 1.4: Trend in sex ratio of Elderly and General Population
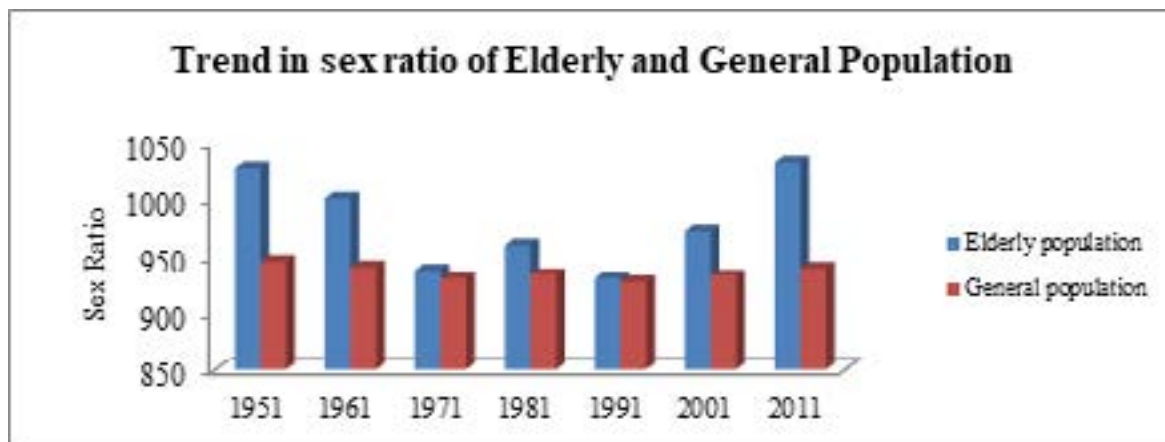
Source: Census of India, 1951-2011

Tables 1.2 and 1.3 show the expectation of life at birth and at age 60 for north western states of India by sex for the period 2006-10 and 2010-2014. Among the north western states of India, while the expectation at birth was highest in Delhi (72 for males and 74.7 for females) for the period 2010-14 followed by Jammu and Kashmir (70.9 for males and 74.9 for females), but if we look at life expectancy at age 60 Jammu and Kashmir stood at top (19.8 for males and 23.1 for females). In terms of male expectation of life at age 60 for the period 2010-2014, Jammu and Kashmir was followed by Punjab (20.4) and Uttarakhand.

Table 1.2: Life Expectancy at Birth, North Western Indian states

States	2006-10			2010-2014		
	Total	Male	Female	Total	Male	Female
Haryana	67	67	69.5	68.6	66.3	71.3
Himachal Pradesh	70	67.7	72.5	71.6	69.3	74.1
Jammu and Kashmir	70.1	69.2	71.2	72.6	70.9	74.9
Punjab	69.3	67.4	71.6	71.6	69.7	73.8
Rajasthan	66.5	64.7	68.3	67.7	65.5	70.2
Delhi	73.1	71.4	74.8	73.2	72	74.7
Chandigarh	DNA	DNA	DNA	DNA	DNA	DNA
Uttarakhand	DNA	DNA	DNA	71.7	69.1	74.5

Source: Sample Registration System (SRS) Office of the Registrar General, India.

Increase in the life expectancy of older people reflected improvement in the quality of life in the later part of the twentieth century and to a limited extent some of the achievements of medical science, although we are not yet successful in combating some of the illnesses that are major causes of death among the elderly. Because older women tend to live longer than older men, the sex ratio of the elderly population is steadily rising (Gulati and Rajan, 1999).

Table 1.3: Life expectancy at the age 60, North-western Indian states

States	2006-2010			2010-14		
	Total	Male	Female	Total	Male	Female
Rajasthan	18.8	17.2	20.4	18.6	16.9	20.6
Haryana	18.8	18.8	20.1	19	17.5	20.6
Himachal Pradesh	19.3	17.9	20.9	20.1	18.5	21.6
Uttarakhand	DNA	DNA	DNA	20.4	18.9	22.3
Punjab	19.6	18.7	20.5	20.4	19.3	21.3
Delhi	DNA	DNA	DNA	20.3	19.6	20.8
Jammu & Kashmir	12.4	18.1	19.9	21.6	19.8	23.1
Chandigarh	DNA	DNA	DNA	DNA	DNA	DNA

Source: Abridged Life Table 2006-10 and 2010-14 Office of the Registrar General and the Census Commissioner of India, Ministry of Home Affairs

Table 1.4: Percentage share of rural urban elderly population in India; 2001-2011

States Name	2011		2001	
	Rural	Urban	Rural	Urban
Chandigarh	3.42	5.69	3.23	5.19
Delhi	6.48	6.84	4.53	5.24
Haryana	9.16	7.7	7.93	6.41
Himachal Pradesh	10.51	7.8	9.31	6.25
Jammu & Kashmir	7.16	7.88	6.76	6.36
Rajasthan	7.62	6.97	9.82	7.39
Punjab	11.29	8.73	6.99	5.95
Uttarakhand	9.61	7.37	8.29	6.03
NW India	8.16	7.37	7.11	6.1
India	**8.1**	**7.9**	**7.7**	**6.7**

Ruralisation of Population Ageing

The elderly in rural India comprised 6.21 percent of the total rural population, which was greater than the elderly in urban India, who constituted 4.98 percent of the overall population. The state of Himachal Pradesh and Punjab has the highest share of rural elderly population in 2011 (Table 1.4).

Social Implications

The social environment in which elderly must interact is changing rapidly. The way that society and families are providing care and support for the elderly has also been changing (Gulati and Rajan, 1990). The elderly no longer receive the type of intergenerational interactions, resource flow, or strong familial support that they once did.

Marital status

In the context of elderly care, the marital status of the elderly is assumed to have unique significance. The health of older people and their marital status are strongly correlated.

Table 1.5: Percentage distribution of Elderly by marital status in North West India; 2001

Sr. No.	States	Never Married		Married		Widowed		Divorced/Separated	
		Male	Female	Male	Female	Male	Female	Male	Female
1	Chandigarh	3.28	1.85	83.76	57.44	12.66	40.41	0.29	0.31
2	Delhi	2.29	1.51	81.62	51.64	15.95	46.64	0.14	0.21
3	Haryana	3.73	0.95	78.71	59.54	17.43	39.38	0.13	0.13
4	Himachal Pradesh	3.46	1.22	80.46	46.28	15.5	52.09	0.58	0.41
5	Jammu & Kashmir	3.65	2.49	80.89	57.39	15.08	39.69	0.38	0.43
6	Punjab	5.14	1.3	77.5	60.01	17.06	38.4	0.31	0.28
7	Rajasthan	2.63	0.79	81.43	49.61	15.77	49.47	0.16	0.13
8	Uttarakhand	2.89	1.27	79.9	45.77	17.01	52.64	0.21	0.32
9	NW India	3.38	1.42	80.53	53.46	15.81	44.84	0.28	0.28
	India	2.55	1.50	82.14	47.34	14.98	50.66	0.33	0.49

It is acknowledged that married people perform better than single people in all economic and social spheres. There are two explanations provided for the significant gender differences in widowhood in India: (i) women generally live longer than men do, and (ii) women tend to marry men who are older than they are on average in India (Gulati and Rajan, 1999). Additionally, bereaved males are far more likely to remarry and regain their previous standing.

The change in marital status which occurs due to the loss of spouse is a major dimension of the ageing process which further contributes to the feeling of increased insecurity among both men and women. Tables no.1.5 and 1.6 show the regional variation in the marital status of the elderly in Northwest India in both of the census years. The union territory of Chandigarh has the highest percentage of married males in both the census years, and Himachal Pradesh has the lowest percentage of married females in 2001 and 2011.

Table 1.6: Percentage distribution of Elderly by marital status in North West India, 2011

Sr. No	States	Never Married		Married		Widowed		Divorced/Separated	
		Male	Female	Male	Female	Male	Female	Male	Female
1	Chandigarh	2.68	1.76	83.69	57.75	13.19	40.09	0.43	0.4
2	Delhi	2.82	2.03	81.46	52.66	15.49	44.95	0.22	0.35
3	Haryana	3.36	1.36	80.61	58.92	15.85	39.51	0.18	0.22
4	Himachal Pradesh	3.01	1.38	81.36	46.52	15.09	51.59	0.58	0.55

5	Jammu & Kashmir	3.22	2.24	79.52	55.26	16.6	41.82	0.66	0.67
6	Punjab	4.32	1.46	77.46	58.91	17.7	39.21	0.52	0.42
7	Rajasthan	2.91	1.2	81.76	52.97	15.1	45.62	0.22	0.21
8	Uttarakhand	4.01	2.03	80.2	46.2	15.53	51.38	0.26	0.39
9	NW India	3.29	1.68	80.76	53.65	15.57	44.27	0.38	0.40
	India	2.89	2.04	82.12	49.57	14.61	47.80	0.38	0.59

Source: Calculated By Author

Economic implication

The nation and society face financial difficulties due to the share of the older population that is rising. The country must set aside a sizable sum of money each year to pay for social security and pension transfers, public health, and the elderly population's medical expenses. To analyze the economic effects of population ageing, the study concentrated on the increasing rate of old age dependency ratio and the reduction of potential support ratio.

Growing old age dependency ratio

The proportion of those over 60 to those in working age is known as the "old age dependency" ratio. A larger old age dependency ratio among the population in the non-productive age group will be caused by the older population's comparatively rapid growth. Table no 1.7 shows that in the year 2011, the female old age dependency ratio was 14.9 which were higher than male elderly i.e. 13.6. Old age dependency ratio is growing fast in the rural areas of the country as compared to the urban areas.

Table 1.7: Old age Dependency in Northwest India, 2001-2011

States	2001					2011				
	Total	Male	Female	Rural	Urban	Total	Male	Female	Rural	Urban
Chandigarh	7.57	6.97	8.38	4.94	7.87	8.24	7.74	8.86	5.11	8.33
Delhi	8.35	7.59	9.32	7.69	8.4	10.38	9.71	11.15	10.29	10.38
Haryana	13.31	12.42	14.36	14.55	10.58	14.07	13.18	15.06	15.31	11.91
Himachal Pradesh	15.08	14.82	15.35	15.8	9.27	16.06	15.49	16.65	16.65	11.25
Jammu & Kashmir	11.63	11.78	11.46	12.31	9.88	12.53	12.4	12.68	12.72	12.09
Punjab	15.16	14.53	15.88	17.04	11.79	16.14	15.56	16.78	18.08	13.12
Rajasthan	12.76	11.74	13.86	13.65	10.18	12.96	11.9	14.1	13.66	11.09
Uttarakhand	13.83	13.72	13.95	15.44	9.77	14.91	14.56	15.27	16.62	11.4
NW India	12.21	11.7	12.82	12.68	9.72	13.16	12.57	13.82	13.56	11.2
India	**13.11**	**12.5**	**13.8**	**15.1**	**12.4**	**14.2**	**13.6**	**14.9**	**15.1**	**12.4**

The relatively faster increase in the elderly population will contribute to a higher dependency ratio of the population in the non-productive age group. The old age dependency ratio, which was 12.21 in 2001, is likely to increase to 13.16 in 2011. Therefore, responsibility for caring for the elderly will fall either on young wage earners or on the government. However, the total dependency level is expected to fall to 56 by 2026 due to the decline in the child population (Giridhar, et al., 2014). Table also shows that in 2001 and 2011, the old age dependency ratio increased slightly in Punjab followed by Himachal Pradesh. The union territory Chandigarh has the lowest old age dependency ratio in both of the census year.

Reducing levels of potential support

The potential support ratio, which inverses to the old age dependency ratio, assesses the support that is available for the older population. A different method to illustrate the numerical link between individuals who are more likely to be economically productive and those who are more likely to be dependent is to use the potential support ratio. The number of people between the ages of 15 and 59 for every person 60 or older is the potential support ratio (Subaiya and Dhananjay, 2011).
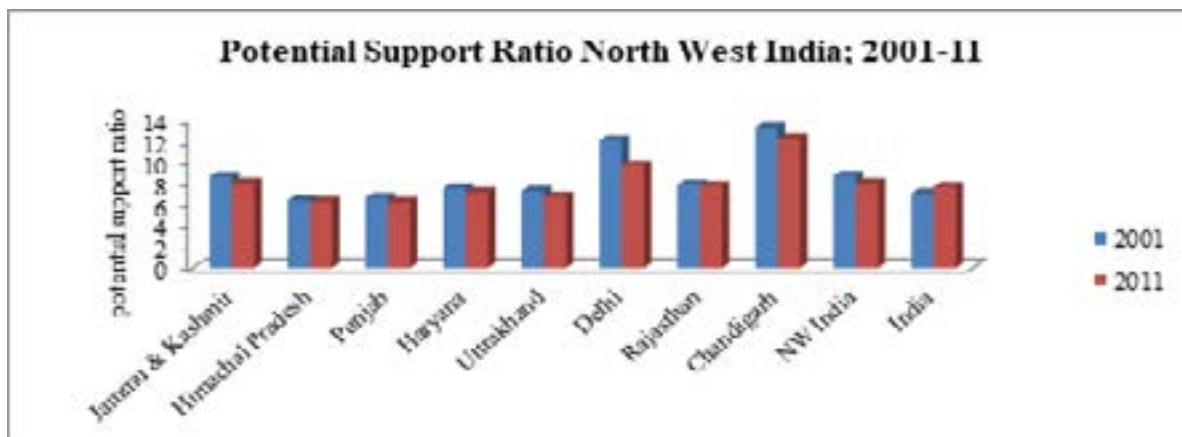
Figure 1.5: Potential Support Ratio in North-Western India; 2001-2011
Source: composed by author using census data; 2001-2011

Figure 1.5 shows that in 2001, the potential support ratio was highest for Chandigarh (13.21) followed by Delhi (11.97) and was lowest for Himachal Pradesh (6.33). In 2011 the study area experienced a reduction in the potential support ratio which was 8.66 in 2001 and slightly decreased to 7.96. In 2011 the potential support ratio was highest for Chandigarh (12.14) and lowest in Punjab (6.19). Over time, the potential support ratio has decreased significantly for all the states. India is expected to experience more than sixty percent reduction in potential support ratio by 2051 (13.8 in 2001 to 5.1 in 2051). Thus, with increasing proportion of elders in the total population, there will be fewer persons in the working age population to provide economic support during old age (Giridhar et.al, 2014).

Health Implications

Ageing is usually preceded with one's physiological decline and decreased functional ability. The onset of specific illnesses, functional disabilities, and challenges with completing activities of daily life can all be caused by a decline in health that accompanies ageing. In this context, this section focuses on the disability and morbidity patterns of health implications of population ageing.

Increasing Share of disabled elderly population

In addition to an increase in illness, ageing causes several limitations, such as eyesight from cataracts and glaucoma, deafness from nerve damage, loss of mobility due to arthritis, and an all-around incapacity to care for oneself (Alam and K
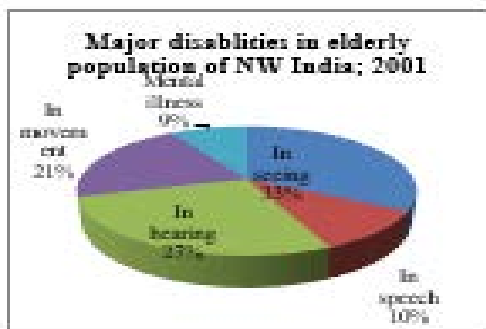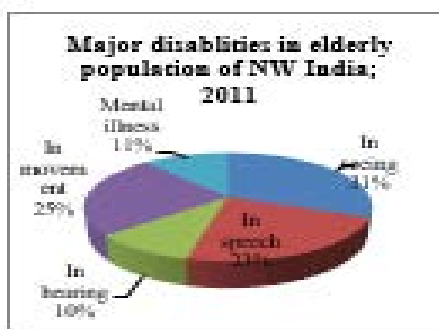

Fig 1.6

Fig 1.7

Figures 1.6 & 1.7 demonstrate that percentage of elderly disabled persons is slightly higher in 2011 as compared to 2001 as per Census 2011. Population Census 2001 data reveals that disabilities in seeing and hearing are the most prevalent disabilities among elderly persons. Almost half of the elderly disabled population was reported to be suffering from these two types of disabilities in the study area. Likewise in 2011, disability in seeing and movement are more prevalant disabilities in the study area. Increased percentage of Disabilities in movement indicates that the share of elderly suffering from locomotors disabilities is increasing in the study area.

Conclusion

- ✓ The study sheds light on the profound implications of population ageing in North-West India.
- ✓ The study has observed significant demographic shifts characterized by a growing elderly population, declining fertility rates, and changes in the dependency ratio.
- ✓ These shifts pose multifaceted challenges across various sectors including healthcare, social security, and labor market dynamics.
- ✓ Furthermore, as the burden of caregiving falls increasingly on families, there is a pressing need for support mechanisms and community-based services to assist caregivers and alleviate their burden.

Recommendations

In light of these findings, policymakers must adopt a comprehensive approach that encompasses healthcare reforms, social welfare programs, and economic policies tailored to the needs of an ageing population. Failure to do so risks exacerbating social inequalities and hampering economic growth in the region.

References

Alam, M. and Karan, A. (2014). *Health status of elderly in India*, In Giridhar, et al. (2014) *Population Ageing in India*, Cambridge University Press, Delhi: 277

Bali, Arun, P. (2001). *Care of the Elderly in India: Changing Configuration*. Shimla: IIAS

Giridhar, et al, (2014). *Population Ageing in India*, Cambridge University Press, Delhi: 226

Gulati, L. and Rajan, S.I. (1999). The Added Years: Elderly in India and Kerala,*Economic and Political Weekly,* 34(44): 46-51

Gulati, S.C. and S. Irudaya Rajan, (1990). Social and Economic Implications of Population, In Bali, A.P. (2001). *Care of Elderly in India: Changing Configuration*. Shimla: IIAS

Help Age International (2002). *State of the World's Older People 2002*, Accessed on 21-07-2022.https://www.ohchr.org/sites/default/files/Documents/Issues/OlderPersons/Submissions/HelpAgeInternational.pdf

India Ageing Report (2017). *Caring for Our Elders: Early Responses* published by UNFPA

Pressat, R. (1989). *The Dictionary of demography,* Blackwell Publications, UK

Subaiya, L and Dhananjay W. B. (2011). *Demographics of Population Ageing in India: Trends and Differentials.* BKPAI Working Paper No. 1, United Nations Population Fund (UNFPA), New Delhi: 1-24.

United Nations (2007). *Population Division,* Department of Economic and Social Affairs

Top of Form