

Journal of Tikapur Multiple Campus

Vol.7; February 2024

ISSN: 2382-5227

Published by Research Management Cell (RMC)
Tikapur Multiple Campus, Kailali, Nepal

Aging Trend and Pattern in Nepal

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Abstract

Population aging is taking place rapidly in Nepal. The purpose of this article is to present the aging situation in Nepal. Data from different published sources are used in this article. There are 29.1 million older people in Nepal as of the 2021 census. The proportion of older people 60 years and older reached 10.12 percent of the total population. The older population growth rate is 3.29%. The proportion of older people increased by 38% in the last decade. Mountain and Hill have a higher proportion of older people while Terai has a slightly low. The proportion of older people living in rural areas is higher than in urban areas. Gandaki, Koshi, and Bagmati provinces have a higher proportion of older people compared to the national average. On the other hand, Madhesh, Lumbini, Sudurpashchim and Karnali provinces have a lower proportion of older people. Understanding these geographical variations through the National level study is necessary. Such a study can aid in formulating targeted policies and services to cater to the specific needs of older populations in each area. By taking proper actions through policies, Nepal can ensure that its aging population continues to live healthy, productive, and fulfilling lives.

Keywords: Aging, older people, living arrangement, social security

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Introduction

Population aging, denoting the rise in the elderly within the total population, remains a key global focus in the 21st century. The world's aging population is increasing substantially due to declining birth rates and improved life expectancy (Chalise & Brightman, 2006). The global elderly population reached 771 million individuals aged 65 and above in 2022, accounting for nearly 10% of the global populace. Projections indicate a substantial growth to 16% by 2050 and potentially 24% by 2100. By 2050, 80% of older people will be living in low- and middle-income countries (WHO, 2022).

Aging is a continuous biological and social process from conception to death, aging involves maturation and declining functional abilities of bodily organs due to physiological changes (Chalise, 2019). Typically, these changes result in reduced work capacity among older individuals (Chalise & Rosenberg, 2020; Rinsky-Halivni et al., 2022). Aging encompasses three stages: 'growth and development' in infancy, 'maturation' in adolescence, and 'senescence' beyond thirty years of age, which are essential elements in aging studies (Chalise, 2019). It is important to note that aging is a natural process that affects everyone differently. While some people may experience certain changes or challenges as they age, others may not. It is also important to remember that aging is not a disease, but rather a natural part of the human life cycle.

Defining the elderly population can be challenging. While developed countries often consider individuals aged 65 and above as seniors, in developing nations like Nepal, the benchmark is often set at 60 years (Elderly Act, 2063). In Nepal, with its unique demographic and national context characterized by spatial disparities, poverty, limited resources, and health challenges, even a small rise in the elderly population presents significant hurdles (Subedi, 1999). Despite the advantages of modernization for the youth, it does not equally benefit the elderly population, especially in Nepal (Chalise, 2021).

The aging population has created gaps in the job market in developed countries like Japan and some European countries. Business and public services are lacking workforce and skills. It has also created pressure on health care and social services. There is a huge burden of funding public services and social housing and utilizing larger numbers of older persons' experience and creativity for national

development (Lai et al., 2022). However, the experience and creativity of older persons can be utilized for national development.

In Nepal, individuals aged 60 and above are categorized as older persons. Over recent decades, life expectancy in Nepal has notably increased (Chalise, 2020; Chalise, 2023), leading to a higher growth rate among the elderly compared to the total population (Chalise, 2023). Forecasts suggest a rapid increase in the elderly population (Chalise, 2018). Families in Nepal predominantly shoulder the responsibility of caring for the elderly, but this support system is facing challenges due to shifting norms, reduced family sizes, and increased youth migration in pursuit of better opportunities. This article aims to scrutinize the a) aging trends of Nepal and b) aging situation of older individuals in Nepal, drawing on the 2021 census data.

Methods

This paper has utilized the aging-related data obtained from the Census Bureau of Statistics of Nepal. Data from the latest census data published by the Central Bureau of Statistics of Nepal (CBS, 2021) is utilized here. Further, many published articles focusing on issues of older people from Nepal including the author himself are included while discussing this paper. The focus of this article is to present the aging situation in the National, ecological, and provincial regions.

Results

Fertility, Mortality, and Life Expectancy

Table 1 shows the fertility, mortality, and life expectancy trends in Nepal from 1952 to 2021. Crude Birth Rate (CBR), Total Fertility Rate (TFR), Crude Death Rate (CDR), and Infant Mortality Rate (IMR) are decreasing rapidly. In the last 70 years, CBR decreased from 45.0 to 20.0 live births per thousand population. CDR decreased from 36.7 to 6.3 per thousand population. IMR also decreased rapidly from as high as 250 to approximately 23 per thousand live births in a year. The family size of Nepalese people also decreased from 5.4 to 4.4 i.e., by one member in the last 70 years. The life expectancy of Nepalese was around 27-28 years in 1952 which increased to nearly 72 years in 2021. It shows the life expectancy of Nepalese increased by 42 years in the last 70 years. In other words, Nepalese gain life expectancy by 2 years in every 3.5 years. If the latest life expectancy from 1991-2021 is analyzed, in the last 30 years it has increased by nearly 16 years.

Table 1*Decreasing Fertility, Mortality, and Increasing Life Expectancy in Nepal*

Census Year	CBR ¹	TFR ²	CDR ³	IMR ⁴	Family size	Life Expectancy	
						Male	Female
1952	45.0	-	36.7	250	5.4	27.1	28.5
1961	47.0	-	27	-	5.3	37.0	39.9
1971	43.0	6.3	21.4	-	5.5	42.1	40.0
1981	44.0	6.3	13.5	117	5.8	50.9	48.1
1991	41.6	5.6	13.3	97	5.6	55.0	53.5
2001	34.0	4.1	10.3	64	5.4	60.8	61.0
2011	24.0	2.5	7.3	40.5	4.9	66.6	67.9
2021*	20.0	1.8	6.3	23	4.4	71.0	73.0

* Some data for 2021 are estimated from different sources

¹Crude Birth Rate, ²Total Fertility Rate, ³Crude Death Rate and ⁴Infant Mortality Rate

Growth Rate of the Population and Older Population of Nepal

Table 1 illustrates the trajectory of population growth and the increase in the number of older individuals in Nepal over the past seven decades. Both the total population and the elderly demographic have exhibited continuous growth. The total population has surged by 253%, while the older population has experienced a notable increase of 627%. According to the 2021 census of Nepal, the intercensal decade recorded a total population growth rate of 0.92%, marking a comparatively low rate in the history of Nepal's scientific census spanning 70 years. Conversely, the growth rate among the elderly population stands notably higher at 3.29%. Moreover, the difference between these two population groups is at its peak over the past 70 years, with a substantial margin of 2.7 ($3.29 - 0.92 = 2.7$).

Additionally, the proportion of individuals aged 60 and above continues to rise steadily. In the preceding decade, the older population exhibited a remarkable surge of 38%. Current data highlights that the percentage of older individuals stands at 10.21% in Nepal, marking the highest figure recorded in Nepal's history.

Table 2*Total Population Size and Elderly Population Size and Growth Rate of Nepal, 1952-2021*

Census Year	Population		% of older Population	Population growth rate	
	Total	Elderly		Total	Elderly
1952	8256625	409761	5.00	-	-
1961	9412996	489346	5.20	1.65	1.79
1971	11555983	621597	5.40	2.07	2.42
1981	15022839	857061	5.70	2.66	3.26
1991	18491097	1071234	5.80	2.10	2.26
2001	23151423	1,504,311	6.50	2.24	3.40
2011	26494504	2154003	8.13	1.35	3.59
2021	29164578	2977318	10.21	0.92	3.29

Proportion of Older People in Urban and Rural and Ecological Zones of Nepal Area in Nepal

In terms of the proportion of older people (aged 60 and above) in Nepal, the percentages vary across different categories. The overall percentage of older individuals in the total population of Nepal stands at approximately 10.21%, with slightly more females (10.28%) than males (10.13%).

When examining the rural-urban divide, the data shows that rural areas have a higher proportion of older individuals compared to urban areas. Rural regions have an average of 11.04% older individuals compared to 9.78% in urban areas. This trend is consistent for both males and females, with a higher percentage of older people residing in rural settings.

Further analysis based on ecological zones reveals that the Mountain and Hill regions tend to have a higher proportion of older individuals compared to the Terai (plain) region. The Mountain region shows the highest percentage of older people at around 11.06%, followed closely by the Hill region at 11.08%. Conversely, the Terai region has a comparatively lower percentage of older individuals at 9.46%.

Overall, this data suggests that older individuals are proportionally more prevalent in rural areas and certain ecological zones, specifically the Mountain and Hill regions, compared to urban areas and the Terai region. Understanding these

demographic patterns is crucial for policymakers and organizations to tailor specific interventions and services catering to the needs of older populations in different areas and ecological zones within Nepal.

Area	Total		Male	Female
Nepal	Population	2977318	1443907	1533411
	Percentage	10.21	10.13	10.28
Rural / Urban				
Urban	Population	1887684	911076	976608
	Percentage	9.78	9.64	9.92
Rural	Population	1089634	532831	556803
	Percentage	11.04	11.10	10.98
Ecological zones				
Mountain	Population	196055	94304	101751
	Percentage	11.06	10.79	11.32
Hill	Population	1302965	615891	687074
	Percentage	11.08	10.77	11.37
Terai	Population	1478298	733712	744586
	Percentage	9.46	9.58	9.34

Distribution of Older Population in Seven Provinces of Nepal

The overall percentage of older individuals in Nepal is approximately 10.21%, with slightly more females (10.28%) than males (10.13%). Analyzing the provincial distribution, significant variations in the proportion of older individuals among the provinces are evident:

Koshi Province: With a population of 556,464, this province has a relatively high percentage of older individuals, accounting for approximately 11.22% of its population. Both male and female percentages are relatively similar, around 11.28% and 11.15%, respectively.

Madhesh Province: This province, with a population of 559,107, shows a percentage of older individuals at 9.14%. Notably, the female older population percentage (8.92%) is slightly lower compared to males (9.37%).

Bagmati Province: With a population of 653,849, this province has a higher percentage of older individuals, reaching approximately 10.69%. Females in this province have a slightly higher percentage (11.11%) compared to males (10.26%).

Gandaki Province: This province, comprising a population of 329,107, has the highest older population percentage of about 13.34%. Both male and female percentages are relatively close, around 13.10% and 13.56%, respectively.

Lumbini Province: With a population of 489,759, this province displays an older population percentage of 9.56%. The male older population percentage (9.70%) is slightly higher than females (9.43%).

Karnali Province: This province, with a population of 134,482, has a comparatively lower older population percentage at around 7.96%. The female older population percentage (8.06%) is slightly higher compared to males (7.87%).

Sudurpashchim Province: With a population of 254,550, this province demonstrates an older population percentage of approximately 9.45%. The female older population percentage (9.84%) is slightly higher than males (9.01%).

These variations in the distribution of older individuals among provinces indicate differing demographic trends, potentially influenced by regional factors such as healthcare, lifestyle, and socio-economic conditions. Understanding these variations can aid in formulating targeted policies and services to cater to the specific needs of older populations in each province.

Area	Total		Male	Female	Provincial Percentage
Nepal	Population	2977318	1443907	1533411	
	Percentage	10.21	10.13	10.28	
Provinces of Nepal					
Koshi	Population	556464	272795	271823	18.69
	Percentage	11.22	11.28	11.15	
Madhesh	Population	559107	287284	271823	18.78
	Percentage	9.14	9.37	8.92	
Bagmati	Population	653849	312857	340992	21.96
	Percentage	10.69	10.26	11.11	
Gandaki	Population	329107	153361	175746	11.05
	Percentage	13.34	13.10	13.56	
Lumbini	Population	489759	238114	251645	16.45
	Percentage	9.56	9.70	9.43	
Karnali	Population	134482	64823	69659	4.52
	Percentage	7.96	7.87	8.06	
Sudurpashchim	Population	254550	114673	139877	8.55
	Percentage	9.45	9.01	9.84	

Discussion

According to the 2021 census of Nepal, the Proportion of older people 60 years and older is 10.21 percent. Mountain and Hill have a higher proportion of older people while Terai has a slightly low. The proportion of older people living in rural areas is higher than in urban areas in Nepal. Gandaki, Koshi, and Bagmati provinces have a higher proportion of older people compared to the national average of 10.21%. Lumbini, Sudurpashchim, Madhesh, and Karnali have lower proportions of older persons compared to the National average. In terms of the population of older people, Bagmati provinces have the highest number of older people followed by Madhesh, Koshi, Lumbini, Gandaki, Sudurpashchim and lowest in Karnali province. These variations in the distribution of older individuals among provinces indicate differing demographic trends, potentially influenced by regional factors such as healthcare, lifestyle, and socio-economic conditions. Understanding these variations can aid in formulating targeted policies and services to cater to the specific needs of older populations in each province.

In Nepal, the elderly population is experiencing rapid growth (Chalise, 2006; Chalise, 2012; Chalise, 2020; Chalise, 2023), and this trend is anticipated to continue in the foreseeable future (Chalise, 2018). Research indicates that older individuals tend to have weakened immune systems, making them more susceptible to various ailments as they age (Chalise & Rosenberg, 2019). With the escalating number of elderly citizens, Nepal may encounter forthcoming challenges across social, demographic, economic, and healthcare domains, particularly in the care of the elderly (Chalise, 2021).

Several factors have contributed to Nepal's aging population. One of the most significant factors is the decline in fertility rates. In the 1950s, the total fertility rate (TFR) in Nepal was around 6 children per woman (Chalise, 2006; Chalise, 2023). However, by 2023, the TFR is expected to fall to below replacement level, at 1.8 children per woman (Chalise, 2023). This means that the average Nepali woman no longer has enough children to replace herself and her partner in the population.

Another factor contributing to Nepal's aging population is the increase in life expectancy. In the 1950s, the average life expectancy in Nepal was only around 28 years (Chalise & Bightman, 2006). However, by 2020, life expectancy had increased to around 70 years (Chalise & Ghimire, 2018; Chalise, 2023). This substantial

increase, over 65 years, signifies a significant advancement facilitated by improved healthcare, accessibility to antibiotics, and better nutrition throughout the twentieth century (Chalise, 2023).

Now Nepal has a 63% working age population (15-60 yrs). The proportion of the child population (<15 years) is 27%. The migration of young people either for work or study abroad and later their intention to live in the developed country permanently is the latest trend seen in Nepal. It will help to decrease the number working-age population in the coming decades due to political instability and the unemployment situation in Nepal. On the other hand, the proportion of older people will increase because older people have less possibility to migrate to foreign countries permanently.

In Nepali society, the family plays a pivotal role as the primary support system for older members, aiding them in daily activities and providing diverse forms of assistance (Khanal & Chalise, 2020; Chalise & Khanal, 2020). Most Nepalese follow Hinduism, a belief system structured around the concept of life comprising four stages (ashramas) and driven by four goals: Brahmacharya (a student's life or sexual abstinence), Grihastha (marital life or householder), Vanaprastha (retreat to the forest), and Sannyasa (renunciation). Each stage prepares individuals for the subsequent phase, ultimately seeking spiritual enlightenment and liberation (moksha) from the cycle of rebirth. In the final stage, sannyasa, individuals are expected to relinquish worldly ties to attain inner spirituality (Chalise, 2021, Chalise, 2010). Hinduism significantly influences Nepali values through the concept of Dharma, which pertains to one's responsibilities based on their place within the life cycle (Chalise, 2021; Fruzzetti, 1982). Adherence to customs and norms is not only expected by family members but also by the wider community (Chalise, 2010; Chalise, 2021; Miltiades, 2002). However, some variations are found according to the caste system of Nepal (Chalise & Rai, 2013; Pandit & Chalise, 2023; Pandit et al., 2023).

The declining fertility rate in Nepal has not garnered significant attention from policymakers. Recent estimates reveal that Nepal's Total Fertility Rate (TFR) has fallen below replacement levels, which often leads to a natural decline in fertility. Consequently, the population pyramid indicates a rapid decrease in the child population compared to two decades prior. This demographic shift suggests

a potential acceleration in the aging population or an imminent increase in aging. As the percentage of older individuals rises and younger populations migrate out of the country, traditional caregiving systems may face challenges (Chalise & Khanal, 2021; Khanal & Chalise, 2022; Chalise, 2021).

The aging of Nepal's population presents several challenges for the country. Increased life expectancy among Nepalese is accompanied by a higher prevalence of various age-related diseases (Chalise & Rosenberg, 2019). Studies conducted in Nepal have highlighted issues such as loneliness (Chalise et al., 2007), depression (Chalise, 2014), anxiety (Suwal & Chalise, 2023), sleep disorders (Chalise & Lamsal, 2017), functional disabilities (Chalise, 2012; Chalise & Khanal, 2020), elder abuse (Chalise & Basnet, 2017; Rai et al., 2018; Chalise & Paudel, 2020], chronic illnesses (Mishra & Chalise, 2019; Mishra & Chalise, 2019), and a diminished quality of life among older individuals (Maharjan et al., 2018; Joshi et al., 2018). These health concerns are associated with an augmented likelihood of limitations in daily activities, consequently amplifying the caregiving responsibilities placed on older individuals (Chalise & Khanal, 2021). This could lead to an increase in healthcare costs and a decrease in the quality of life for older people.

Moreover, the traditional living arrangements of elderly Nepalis are changing (Singh et al., 2021). The living situations of the elderly are contingent upon the support they receive, particularly from their spouses or children, which significantly impacts the well-being of the frail or very old (Chalise et al., 2022). Current community studies in Nepal indicate that the majority of older individuals reside with their sons and daughters-in-law (66.3%), followed by those living with a spouse (11.6%), alone (6.2%), or with other family members (Singh et al., 2021). As Nepal's social security system remains underdeveloped (Chalise et al., 2022; Malakar & Chalise, 2019), sustaining healthy aging and ensuring a high quality of life for the elderly may pose further challenges (Joshi & Chalise, 2022; Chalise, 2022; Chalise, 2023).

Developed countries have experienced gaps in the job market in due to a shortage of young people. Business and public services are lacking workforce and skills. It has also created pressure on health care and social services (Lai et al., 2022). There is a huge burden of funding public services and social housing and utilizing larger numbers of older persons' experience and creativity for national

development. However, the experience and creativity of older persons can be utilized for national development. Nepal needs to learn from today's Aging countries like Japan and Western countries and need to learn how to make older people healthy and active to promote healthy aging (Chalise, 2022; Chalise, 2023). Healthier older people can still contribute to social and national development.

Recommendations for Addressing Nepal's Aging Population

To address the challenges of Nepal's aging population, the government and other stakeholders can take several actions to make older people healthy following the UN Decade of Healthy Aging guidelines. These include (Acharya et al., 2023):

- Developing and implementing policies that support healthy aging [15]. This includes promoting healthy lifestyles, providing access to affordable healthcare, and investing in research on aging.
- Strengthening the social security system. This includes increasing pensions, providing more support for older people who live alone, and expanding access to long-term care services.
- Creating more age-friendly communities. This includes making it easier for older people to get around, providing access to public transportation, and creating more opportunities for social interaction.

Conclusion

Population aging is taking place rapidly in Nepal in recent decades. The proportion of older people 60 years and older increased by 38% in the last decade. The aging pattern is different in ecological zones, provinces, and rural-urban. More impact of aging will be seen in the mountain and rural areas in the coming days. These variations in the distribution of older individuals among different regions indicate differing demographic trends, potentially influenced by regional factors such as healthcare, lifestyle, and socio-economic conditions. Understanding these variations through proper research can aid in formulating targeted policies and services to cater to the specific needs of older populations in each province. By taking proper actions through policies, Nepal can ensure that its aging population continues to live healthy, productive, and fulfilling lives.

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