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Age-Specific Mortality Patterns Among Older Persons in Nepal: Insights From the 2021 Census

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Abstract

This study examines mortality patterns among different age groups of older persons in Nepal, where 15% of the population was aged 65 or older in 2021. Using data from the Nepal Population and Housing Census (NPHC) 2021, the research analyzes lifespan, aging patterns, disability prevalence, and causes of death across all ages. Findings reveal a demographic shift from 5.0% of people aged 65+ in 1952/54 to 10.2% in 2021. Life expectancy increased to 68.8 years for women and 28.5 years for men. Disability affected 6.9% of seniors, with physical health and vision problems being most common, and a higher prevalence in men. Non-communicable diseases (NCDs) caused 61.7% of deaths in the 65–69 age group, while communicable diseases and natural disasters accounted for 10.5% and 5.4%, respectively. Among those over 80, 38.3% of deaths had unclear causes. The findings underscore increasing NCDs, disabilities, and environmental challenges among Nepal's elderly, highlighting the need for enhanced geriatric care, gender-sensitive policies, and improved vital records. The study advocates for longitudinal research and regional analysis to inform effective aging-related policy interventions.

Keywords: ageing, Nepal, non-communicable diseases, mortality, health policy

Introduction

Nepal is undergoing a significant demographic transition characterized by an aging population and declining birth rates. According to the 2021 census, 10.2% of Nepal's population is aged 60 years and older, up from 8.1% in 2011 (Central Bureau of Statistics [CBS], 2021). This trend aligns with global patterns, where the World Health Organization (WHO) projects the proportion of older individuals worldwide to increase from 12% in 2015 to 22% by 2050 (WHO, 2020). The older population in Nepal increased by 38.2% between the 2011 and 2021 censuses, reaching nearly 3 million individuals. Despite a modest overall population growth rate of 0.92%, the growth rate for the elderly population is substantially higher at 3.29% annually (Chalise, 2023; Gautam and Adhikari, 2025).

Improved life expectancy, rising from 54.8 years in 1990 to 70.35 years in 2023 (Country Economy, 2023), coupled with declining fertility and infant mortality rates, is accelerating this demographic shift. As the elderly population grows,

the prevalence of non-communicable diseases (NCDs) such as hypertension, cardiovascular diseases, diabetes, and cancers is rising sharply. These conditions account for a significant share of mortality among older adults, with over 74% of deaths in Nepal's elderly attributed to these illnesses (Sapkota et al., 2023). Studies by Gautam and Mishra (2024) and Ghimire et al. (2024) highlight the socio-cultural factors influencing elderly well-being, including migration to old age homes driven by modernization and changing family dynamics, which can affect mortality outcomes due to reduced familial support. Mishra (2024) emphasizes the importance of demographic data in shaping policies to harness Nepal's demographic dividend while addressing health system needs for the elderly. However, gaps in reliable, age-disaggregated mortality data caused by inconsistent death registration and reporting hinder effective intervention design. This synthesis underscores the urgent need for comprehensive data systems and targeted health policies that consider both biomedical and socio-cultural determinants of mortality to improve elderly care in Nepal.

Problem Statement

Despite the rapid increase in the elderly population and the growing burden of NCDs in Nepal, there is a lack of comprehensive, age-disaggregated mortality data for older adults. Inconsistent death registration and reliance on imprecise verbal autopsies limit the understanding of mortality patterns among different elderly age groups (Pandey & Adair, 2022; Gouda et al., 2027). This data deficiency hampers the development of targeted geriatric healthcare policies and interventions. Moreover, most deaths continue to be registered offline, reducing completeness and timely data availability, especially in rural areas with limited health infrastructure (Murrell et al., 2023).

The gap in reliable age-specific mortality information restricts policymakers' ability to address the health needs of Nepal's rapidly aging population, especially in managing and preventing premature deaths from NCDs. The absence of robust data affects equitable healthcare service delivery and the formulation of evidence-based strategies to support healthy aging in diverse socio-economic contexts.

Research Objective

The primary objective of this study is to analyze mortality patterns and causes of death among Nepal's elderly population, specifically focusing on age-disaggregated data for those aged 65 and above. The study aims to identify the main contributors to mortality, with an emphasis on non-communicable diseases, to inform policy and improve geriatric healthcare services. This research also seeks to bridge existing data gaps to support the development of equitable, age-specific health interventions, contributing to the achievement of Sustainable Development Goal (SDG) 3.4 on reducing premature mortality from NCDs by 2030 (WHO, 2023).

Methodology

Research Design

The approach taken in this study is secondary data analysis by looking at the accuracy and reliability of age data recorded in the 2021 National Population and Housing Census of Nepal. It uses an approach that looks at the details, correctness and uniformity of the numbers on ageing.

Data Sources

The main dataset comes from the National Population and Housing Census 2021 which was organized by Nepal's National Statistics Office (NSO). More details were gathered from the 2021 Post-Enumeration Survey (PES), demographic analysis and data taken from previous censuses from 1971 to 2011. The report cites standards on methods from known international sources.

Data Analysis

This research relies on data gathered in the 2021 NPHC of Nepal, targeting people who are 60 years old or above. Some important variables were taken from trends in aging along with life

expectancy, the number of disabled people at different ages and the main reasons for deaths at each age. Data processing and analysis were done with Microsoft Excel. Data was analyzed with frequency distributions and percentage numbers to see how disability rates and the mortality of NCDs change with age. To understand the trends in different age groups and all ages, causes of death were divided into non-communicable diseases, communicable diseases, natural calamities and unspecified causes.

Results and Discussion

Ageing Trend and Growth Rate of Older Persons in Nepal

There is a fast ageing of the population in Nepal thanks to longer life spans and fewer children being born. Based on the latest National Census, in 2021, 10.2% of the population is aged 60 or above which was 9.1% in 2011 and 8.1% in 2001 (as per NSO). There are more older persons than in the past which points to the importance of adjusting health, social care and protection policies.

Table 1

Ageing Trends and Life Expectancy in Nepal

Census Year	Total Population	60+ Older Persons	60+ Older Persons (%)	Life Expectancy	
				Men	Women
1952/54	8,256,625	409,761	5.0	27.1	28.5
1961	9,412,996	489,343	5.2	37.0	39.9
1971	11,555,983	621,529	5.4	42.1	40.0
1981	15,022,839	857,061	5.7	50.9	48.1
1991	18,491,097	1,071,234	5.8	55.0	53.5
2001	22,736,934	1,477,379	6.5	60.8	61.0
2011	26,494,504	2,154,408	8.1	66.6	67.9
2021	29,164,578	2,977,318	10.2	68.8	74.3

Note. Central Bureau of Statistics, 2021

The demographic changes in Nepal's ageing population are shown in Table 1 from the years 1952/54 to 2021. From 2000 to 2018, the country's population rise from 8.26 million to 29.16 million and the number of people over 60 increased from 5.0% (409,761) to 10.2% (2.98 million). The rise in the aged population's number strongly points to a major change in the demographics. The years people in Sweden could expect to live extended by a huge margin, with men's life expectancy rising from 27.1 to 68.8 years and women's from 28.5 to 74.3 years. The fact that more people are elderly these days, especially since 2001, indicates that ageing is happening faster and lately, women's lives have outlasted those of men. The outcomes make clear that new policies concerning aging people are necessary.

Disability and Type of Disability in Persons Aged 60 Years and Over

Nepal experiences problems with disability among its elderly people. The 2021 National Census found that 24.5% of people over 60 had some kind of disability. Among the most usual issues are problems with sight, walking and hearing which result from getting older and therefore require special support.

Table 2: Disability and Type of Disability in Persons Aged 60 Years and Over Nepal, 2021 shows how many older people in Nepal experience

disability. Of the 60+ population, 93% (2.77 million) had no disability, while 206,036 people had at least one (about 6.9%) and men had slightly more, with 7.2% having disabilities, compared to 6.6% for women. Only a very small number, 0.1%, (1,182) did not indicate their status. Of the disability types, physical disabilities affected the most people (2%, 60,739), followed by low vision (1.9%, 55,786) and hearing problems with those who are either deaf (0.8%) or hard of hearing (0.9%).

Table 2

Prevalence and Types of Disabilities Among Older Persons (Aged 60 and Over)

Disability Status	Total	%	Men	%	Women	%
Not disabled	2,770,100	93	1,339,108	92.7	1,430,992	93.3
Disabled	206,036	6.9	104,238	7.2	101,798	6.6
Not reported	1,182	0.1	561	0.1	621	0.1
Total (60+ years)	2,977,318	100	1,443,907	100%	1,533,411	100
Type of Disability						
Physical	60,739	2.0	34,242	2.4	26,497	1.7
Low vision	55,786	1.9	25,729	1.8	30,057	2.0
Blind	6,646	0.2	3,023	0.2	3,623	0.2
Deaf	23,616	0.8	12,167	0.8	11,449	0.7
Hard of hearing	25,636	0.9	12,875	0.9	12,761	0.8
Deaf-blind	4,413	0.1	2,078	0.1	2,335	0.2
Speech problem	7,886	0.3	4,174	0.3	3,712	0.2
Mental or psychosocial	3,666	0.1	1,368	0.1	2,298	0.1
Intellectual disability	1,610	0.1	590	0	1,020	0.1
Hemophilia	1,013	0	520	0	493	0
Autism	780	0	207	0	573	0
Multiple disabilities	14,245	0.5	7,265	0.5	6,980	0.5

Note. Percentages refer to the share of each type of disability within the total elderly population (60+) unless otherwise stated.

The less common conditions we saw were blindness (0.2%), problems with speech (0.3%), mental and psychosocial issues (0.1%), intellectual disabilities (0.1%), hemophilia (0%), autism (0%) and multiple disabilities (0.5%). Men had greater chances of having a physical disability, while women had a higher chance of having low vision or deaf-blindness. According to such results, there is a demand for personalized medical help and access to healthcare services for older people with difficulties, mainly in their physical and sensory capacity.

Age-Specific Causes of Death Among Older Persons

No matter the age, older Nepalese people usually die due to NCDs such as heart ailments, lung diseases, strokes or diabetes. These are caused by both longer life expectancy and new ways of living among the elderly.

Table 3

Cause-Specific Mortality Among Older Persons by Age Cohort

Cause of Death	60–64	65–69	70–74	75–79	80+	Total
Communicable diseases	15.70	12.90	11.1	10.10	7.70	10.50
Non-communicable diseases	60.10	61.70	58.9	56.90	44.20	53.50
Transport accident	1.10	0.80	0.70	0.40	0.40	0.60
Other accident	3.20	2.80	2.40	1.90	1.70	2.20
Crime/murder	0.30	0.20	0.20	0.10	0.20	0.20
Suicide	1.20	0.90	0.40	0.30	0.20	0.50
Natural calamities	3.80	3.80	5.30	5.10	6.80	5.40
Others	14.40	16.50	20.70	24.60	38.30	26.70
Not stated	0.30	0.30	0.40	0.40	0.60	0.50
Total	100	100	100	100	100	100
Proportion of deaths (%)	12.70	14.20	18.30	16.00	38.30	100.00

Note. Central Bureau of Statistics, 2021

Outlined in Table 3 is the distribution of death reasons based on age for people over 60 years in Nepal. NCDs caused the most deaths out of all health issues and affected most people 65–69 years old (61.7%). Ten percent of all deaths were due to communicable diseases which decreased from 15.7% in the 60–64 group to 7.7% in the 80+ group. In total, 5.4% of deaths were due to natural calamities and the elderly were more impacted with 6.8% of the deaths attributed to them. Cases of other accidents (2.2%), transport accidents (0.6%), suicide (0.5%) and crime/murder (0.2%) were less common and were more likely to occur among the youths aged 60–64. The group labeled as "Others," made up of unseen factors, was represented by 26.7% of cases overall and by 38.3% of the older individuals. The number of not stated causes was extremely low (0.5%). People aged 80 or above suffered the highest rate of deaths because they are more vulnerable. What the data shows is that NCDs are very common in Nepal and that the country's elderly require improved healthcare strategies for ongoing health issues.

Prior knowledge about Nepal's ageing population comes from the National Population and Housing Census in 2021. In the period 1952/54 to 2021, the number of people aged 60 years or more increased while life expectancy reached 68.8 years for men and 74.3 years for women (CBS, 2021). Table 2 thus reveals that 6.9% (206,036) of the elderly in the Netherlands have disabilities and the majority are physical (2%) and sensory (low vision: 1.9%, hearing issues: 1.7%). Furthermore, slightly more men (7.2%) than women (6.6%) have difficulties (CBS, 2021). It is clear from Table 3 that non-communicable diseases are the main cause of death (53.5%) and they affect the largest number of people when they are 65–69, while natural disasters account for around 5.4% of these deaths (CBS, 2021). People aged over 80 make up 38.3% of all deaths and the main unknown cause is disease of the digestive system (38.3%) (CBS, 2021). From the research, we can tell that there is older person snow, more disability in older populations and an increase in those dying from chronic diseases which shows progress in healthcare but brings new health-related concerns for Nepal's elders.

The country's ageing is happening as it does in other low- and middle-income countries (LMICs) worldwide. Mishra et al. (2021) argued in Lancet Global Health that Nepal along with other LMICs experienced rapid population ageing owing to lower fertility and higher life expectancy over time the proportion of older people (60 years

and above) doubles every 7 decades). Likewise, Sharma and Bista (2025) in Ageing International pointed out that the increase in life expectancy in Nepal is linked to having more healthcare and better sanitation, the same as the growth from 27.1/28.5 years (men/women) in 1952/54 to 68.8/74.3 years in 2021. Even so, it is obvious from Japan's average life expectancy (84.7 years) that Nepal can still develop its health sector further, World Health Organization (WHO), 2023).

The rate of disability among older persons mentioned in Table 2 (6.9%) is roughly similar to the 5–8% disability rate found by Thap et al., where they reported more often seeing physical and sensory impairments. According to the study by Verbrugge and fellow researchers in the December 2021 issue of The Gerontologist, disability is more common in developed regions (10–15%) which may be because their definitions allow for more cases and they have better reporting systems (Prynn et al., 2021). Fewer Nepali men report having disabilities than women (7.2% for men vs. 6.6% for women) which is unusual because around the world, women very often have higher rates of disability, especially as they tend to live longer, as Hosseinpoor et al. (2016) points out in BMJ Global Health.

The statistic from Table 3 that 53.5% of deaths are caused by NCDs also matches WHO which states that NCDs are responsible for more than half of all deaths (more than 60%) in LMICs (WHO, 2023). More people in Nepal die because of natural disasters (5.4%) than is typical globally (<1%), according to Shrestha et al (2021a), who say this shows the country's risks from natural disasters (Shrestha et al., 2021b). The Global Health Action, the high number of undetermined causes of death underlines poor death reporting systems in the country (Adhikari et al., 2024).

The fact that the 60+ population is doubling and that people are living longer (Table 2) in Nepal reflects a shift from infections to diseases that aren't contagious which now cause 53.5% of deaths (Table 3). The model of epidemiological transition which suggests that with ageing populations, rates of infectious illnesses start to fall and more chronic illness arise (Omran, 2005). According to the disability information shown in Table 2, more seniors are now dealing with physical and sensory problems and this suggests that there is a greater need for geriatric care, rehabilitation and easier-to-use facilities targeted at the oldest people, since they experience the highest number of deaths (CBS, 2021). Due to the difference between women's (74.3 years) and men's (68.8 years) averages in life expectancy, it is important to have health policies that address the new situation of a feminized ageing population (Sharma, 2025).

The research points out that the rise in deaths due to natural disasters (5.4%) highlights the dangers Nepal faces as more cases of climate change occur. Therefore, special planning for seniors with health and access issues who are vulnerable in natural disasters is required (Shrestha et al., 2021a). Because of the significant number (26.7%) of deaths left unexplained, insufficient vital registration makes it difficult to carry out targeted interventions (Sharma, 2024). Nepal should focus on preventive medicine, training for elderly care and providing social help for the rural communities, especially since regular health services are not easily available there, according to Shrestha et al. (2021b). These outcomes support the WHO's goal for the coming decade, promoting age-friendly ways to support Nepal's aging population (WHO, 2020).

The analysis benefits from detailed information from the 2021 NPHC which allowed the researchers to deeply examine Nepal's key ageing trends, disability problems and death rates (CBS, 2021). By including studies from 1952/54 to 2021 and breaking down the results in detail, this supports the study's usefulness and value to those doing comparisons. When gerontology is aligned with global literary works, it becomes easier to use it in a wider range of ageing-related studies (Mahmood, & Dhakal, 2023; WHO, 2023; Mishra et al., 2022).

However, having a large share of deaths with no diagnosis means some vital registration systems aren't strong enough and these numbers might

not show the true cause of death (Adhikari et al., 2024). Since there are no separates data by income or location, we don't have enough insight into how life varies between cities and rural areas. Since the data only provides a snapshot of the population in 2021, it is hard to say how ageing affects health outcomes (CBS, 2021). Reports on the nation's deaths should be expanded to use new data and more reliable reports on causes of death to support relevant aged care policies in Nepal.

Conclusion

As a result of this research, the growing number of older persons and longer life for most Nepalese is now recognized. There are many older persons who suffer from ongoing NCDs and about 6.9% have a disability. Despite these trends, it is estimated that approximately one-quarter of all deaths lack clear classification which means there are serious gaps in health and civil registration.

The research highlights that policies oriented towards older people should avoid NCDs by focusing on prevention, early diagnosis and proper treatment. It is necessary to improve basic healthcare services and ensure that everybody in both city and country areas can benefit from them. Besides, spending on healthcare data systems helps make the data more accurate which is useful in developing evidence-based strategies.

Any future programs for healthy aging should take into account differences between regions and the special needs of those who are oldest. Supporting equal treatment for all as Nepal's population ages will be necessary for the country to match up with the WHO Decade of Healthy Ageing and the Sustainable Development Goals.

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