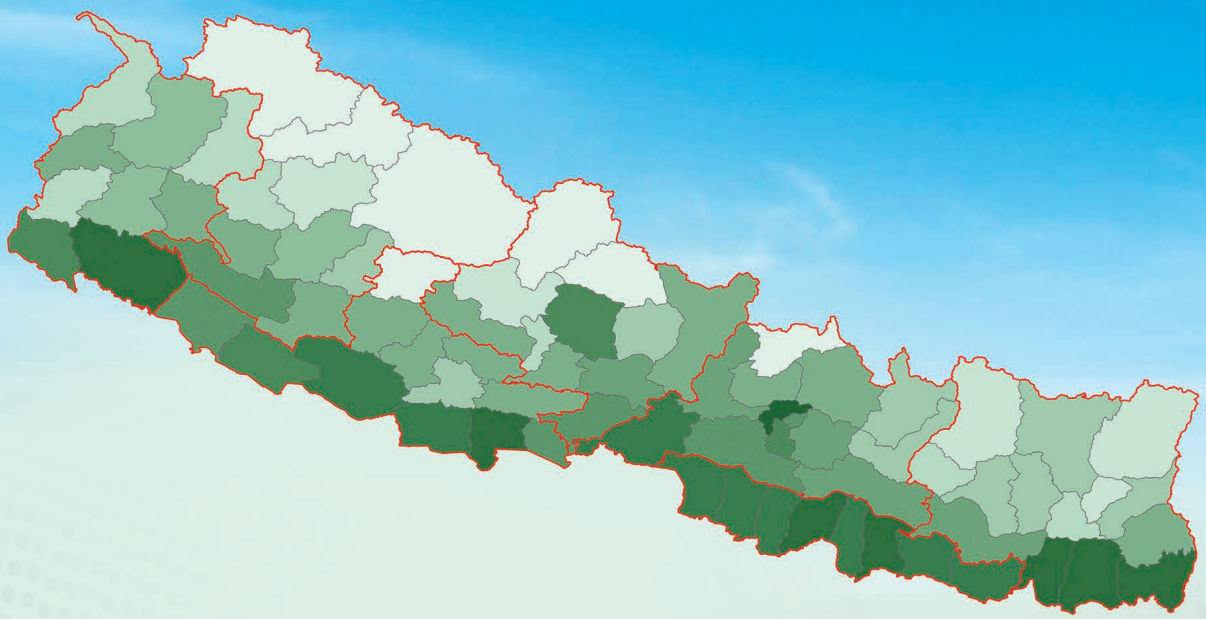
Thematic Report-IX

National Population and Housing Census 2021

Mortality in Nepal



Government of Nepal
Office of the Prime Minister and Council of Ministers
National Statistics Office
Thapathali, Kathmandu

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MY PARTICIPATION
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Cover Map : Population distribution by district, NPHC 2021

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Foreword

The National Population and Housing Census (NPHC) is the only source that consistently provides demographic and housing data down to the lowest administrative unit, i.e., the Ward. To meet the needs of a broad range of users, we have included brief explanations of the data in our reports. Over the years, the National Statistics Office (NSO) has focused not just on statistical reports but also on valuable analytical ones that cater to a wide audience, both within and outside the country. The production and dissemination of quality statistics are not merely public goods but national resources in the data and information age.

The NSO is committed to serving as the central provider of high-quality official statistics to support informed decision-making. In the past, the former Central Bureau of Statistics (CBS) published population monographs following the release of all statistical results. This time, however, 21 thematic reports will be published, each focusing on key sectors of the national development plan.

I am pleased to present the long-awaited report Mortality in Nepal. Mortality patterns are influenced by biological, socioeconomic, environmental, and healthcare-related factors. These patterns shape demographic structures, affecting the working-age population, dependency ratios, and economic growth. A comprehensive understanding of mortality is essential for policymakers to design effective health, population, and economic policies, ensuring sustainable development and improved well-being.

I extend my appreciation to all contributors for their dedication in bringing this important analysis to light. I am confident that these findings will guide policymakers and planners in shaping development strategies for a more prosperous and sustainable future.

I would like to specifically commend the Population Section staff for their tireless efforts in generating data, providing support, and reviewing the report. The Head of the Social Statistics Division at NSO played a crucial role in coordinating all activities, and I greatly appreciate his contributions. Special thanks to mortality experts Mr. Keshab Kumar Gautam and Mr. Pawan Kanel for analyzing crucial data and presenting important findings, and to Mr. Uttam Narayan Malla, former Director General of the Central Bureau of Statistics, for reviewing the report from a government perspective. I also acknowledge the technical support provided by the United Nations Population Fund (UNFPA). Additionally, I extend my gratitude to the British Embassy Kathmandu and the Swiss Agency for Development and Cooperation (SDC) for their financial support at various stages of this report's development.

Lastly, I encourage constructive feedback from our users to improve future editions of this report.

March 2025

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Chief Statistician

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कार्यकारी सारांश

यस प्रतिवेदनले राष्ट्रिय जनगणना २०७८ बाट प्राप्त तथ्याङ्कका आधारमा मृत्युजन्य प्रवृत्ति, मृत्युस्थितिमा रहेका विषमता र नीतिगत सवालको परीक्षण गर्दै विविध आर्थिक, सामाजिक र भौगोलिकताको सापेक्षमा मृत्युका स्वरूप र प्रकारको गहन विश्लेषण प्रस्तुत गरेको छ। जनगणना, घरपरिवार सर्वेक्षण र पञ्जीकरण प्रणाली नै नेपालमा मृत्युसम्बन्धी तथ्याङ्कका प्रमुख स्रोतका रूपमा रहेका छन्। जनगणनाले देशको समग्र भूगोल र सम्पूर्ण जनसङ्ख्यालाई समेट्ने हुनाले यसमा आधारित भएर गरिने मृत्यु तथा मृत्युदरको प्रवृत्तिगत विश्लेषणले राष्ट्रिय तथा क्षेत्रीयस्तरमा समेत पूर्ण र विश्वसनीय अनुमानहरू उपलब्ध गराउने गुञ्जायस रहन्छ। जनगणनामा मानिसहरूको बसोबास, जातजाति, लिङ्ग, शिक्षा, रोजगारी, घरजग्गा र अन्य संसाधनलगायत आर्थिक तथा सामाजिक विषयसँग सम्बन्धित थुप्रै विवरण सङ्कलन गरिने भएकोले मृत्युसँग सम्बन्धित विभिन्न अन्तरसम्बन्धित सवालहरूलाई तत् तत् आधारमा विश्लेषण गर्न सहज हुन्छ।

मृत्युसम्बन्धी तथ्याङ्कको सत्यापन (Validation) गर्नका लागि जनगणना र पञ्जीकरण प्रणालीले परस्पर पूरकको कार्य गर्दछन्। कुनै एउटा स्रोतबाट सङ्कलित तथ्याङ्कले अर्को स्रोतबाट प्राप्त तथ्याङ्कको गुणस्तरको लेखाजोखामा सहयोग गर्दछ। तथापि, यी दुवै स्रोतका आ-आफ्नै सबल र कमजोर पक्ष रहेका हुन्छन्। पञ्जीकरण प्रणालीमा मृत्युको समयसापेक्ष र पूर्ण विवरण पाउन सकिने अवस्था हुँदैन । जनगणनामा पनि मृत्युको तथ्याङ्क र यससँग जोडिएका संवेदनशीलता, उत्तरदाताहरूमा तथ्याङ्कसम्बन्धी सचेतनाको तह आदि कारणले शतप्रतिशत समेटिएको हुन्छ भन्न सकिने अवस्था हुँदैन । सामान्यतया जनगणनामा मृत्युको तथ्याङ्क यथार्थभन्दा कम अभिलेखित हुने गरेको विश्वास गरिन्छ। त्यसैगरी सङ्कलित मृत्युको तथ्याङ्कमा उमेरमा रहने बेमेल, खास उमेरविन्दुमा केन्द्रीकरण अर्थात् उमेरको चुलीकरण (Age heaping) र सन्दर्भ समयले उत्पन्न गर्नसक्ने समस्या प्रमुख सीमाका रूपमा रहेका हुन्छन्। पछिल्ला जनगणनामा यसको जनगणनाको सञ्चालन र सङ्कलित तथ्याङ्कको गुणस्तरमा समेत निरन्तर सुधार भएको देखिन्छ। यति हुँदाहुँदै पनि जनगणनाको तथ्याङ्कको सबैभन्दा सबल पक्ष यो छ कि यसका आधारमा अप्रत्यक्ष विधिको अवलम्बन गरी मृत्युका विश्वसनीय अनुमानहरू तयार गर्न सकिन्छ। यी केही सीमा र सवालका बाबजुद पनि राष्ट्रिय जनगणना २०७८ ले नेपालमा मृत्युसम्बन्धी उपयोगी र विश्वसनीय प्रवृत्तिलाई प्रस्तुत गरेको छ।

नेपाल यतिखेर जनसाङ्ख्यिक सङ्क्रमणकालको दोस्रो चरणमा रहेको सन्दर्भमा यसले घट्दो जन्मदर र मृत्युदरको सामना गरिरहेको छ। महामारीजन्य सङ्क्रमणकालीन अवस्थाले गर्दा नेपालले देहायका तीन प्रकारका स्वास्थ्यसम्बन्धी जोखिमलाई भोग्नु परिरहेको छ।

१. स्थायी प्रकृतिका सरुवा रोग तथा कमजोर सरसफाइ,

२. बढ्दो दरका नसर्ने रोगहरू, र

३. उदीयमान स्वास्थ्य सङ्कट र चुनौतीलाई सामना गर्नसक्ने खालको सबल स्वास्थ्य प्रणालीको अभाव।

यस्तो अवस्थामा मृत्युको समग्र अवस्थालाई झल्काउने चित्रले उल्लिखित चुनौतीको सामना गर्ने दिशामा सघाउ पुऱ्याउनेछ।

मृत्यु तथा मृत्युदरमा विद्यमान विषमताहरूको अध्ययनले समतामूलक स्वास्थ्य नीतिको तर्जुमा र स्वास्थ्य पूर्वाधारमा यथोचित सुधारमार्फत स्वास्थ्य सेवालाई प्रभावकारी रूपमा विस्तार गर्न सहयोग पुग्नेछ। जनगणनामा आधारित मृत्युको तथ्याङ्कले नीतिनिर्माताहरूलाई राष्ट्रिय, क्षेत्रीय र विश्वव्यापी रूपमा निश्चित गरिएका गन्तव्य (Target) हरूको प्रगति अनुगमन गर्न एवम् आवश्यकतानुसार रणनीति समायोजन गर्न सक्षम तुल्याउने छ।

नेपालको संविधानले स्वास्थ्यलाई मौलिक हकका रूपमा स्वीकार गरेको छ। कार्यान्वयनको चरणमा रहेको सोह्रौं योजनाले स्वास्थ्य सेवाको सुदृढीकरण गर्दै बाल तथा मातृ मृत्युदर घटाउने र तदनुसार औसत आयुमा वृद्धि गर्ने विषयलाई जोड दिएको देखिन्छ। नेपालका पछिल्ला आवधिक योजना तथा नीति अन्तर्राष्ट्रिय संरचना र विकास लक्ष्यहरूसँग समायोजन गरिएका छन्। उदाहरणका लागि जनसङ्ख्या र विकाससम्बन्धी अन्तर्राष्ट्रिय सम्मेलन र दिगो विकास लक्ष्यलाई लिन सकिन्छ।

उमेरअनुसार मृत्युलाई विभिन्न प्रकारले वर्गीकृत गरिएको छ। जन्मेको २८ दिनभित्र मृत्यु भए 'नवजात शिशु मृत्यु', जन्मेको एक वर्षभित्र मृत्यु भएका 'शिशु मृत्यु', एकदेखि चार वर्षसम्मको उमेरमा मृत्यु भएका 'बाल मृत्यु' र जन्मेदेखि ४ वर्षभित्रको उमेरमा मृत्यु भएमा 'पाँच वर्षमुनिका बालबालिकाको मृत्यु'का रूपमा लिइन्छ। यी मृत्युलाई क्रमशः NMR, IMR, CMR र U5MR ले सङ्क्षेपीकरण गरिन्छ। राष्ट्रिय जनगणना २०७८ ले नवजात शिशुको मृत्युको विवरण उपलब्ध गराउँदैन किनभने गणनाको प्रश्नावलीमा मृतकको उमेर महिनामा पनि उल्लेख गर्ने विकल्प राखिएको थिएन र पूरा भएको वर्ष मात्र उल्लेख गर्नुपर्ने अवस्था थियो। यस प्रतिवेदनमा अल्पायुमा हुने मृत्यु र प्रौढ व्यक्तिहरूको मृत्युजन्य तथ्याङ्क निकाल्नका लागि प्रत्यक्ष विधि अवलम्बन गरिएको छ। यस विधिले मृत्युका दरहरू निकाल्नको लागि जीवनतालिकाको उपयोग र उमेरनिर्दिष्ट मृत्युदरहरूको समायोजनलाई आत्मसात गरेको छ। विशेष चासो भएका पाठक र खोजकर्ताहरूको लागि साधारणतया अभ्यासमा रहेको अप्रत्यक्ष विधि जसलाई जन्मिएर हालसम्म पनि जीवित रहेका बालबालिका (Children ever born, children surviving-CEBCS) का नामले बुझ्ने गरिन्छ। अनुसूची ५ मा यसलाई थोरै विस्तारसहित प्रस्तुत गरिएको छ। यसको मूलतः अल्पायुमै हुने मृत्युको अनुमान गर्नका लागि उपयोग गरिएको छ।

यो विधिले प्रजनन उमेरका १५ देखि ४९ वर्षसम्मका महिलाको सङ्ख्या र उनीहरूबाट जन्मिएका र हालसम्म जीवित बालबालिकाको सङ्ख्यालाई उपयोग गर्दछ। यसमा १५ देखि ४९ वर्षका महिलामध्ये पाँच पाँच वर्षको उमेर समूहभित्र पर्ने महिलाहरूको सङ्ख्या पनि उपयोग गरिन्छ। अल्पायुमै हुने मृत्यु (नवजात शिशु, शिशु, बाल र ५ वर्षमुनिका बालबालिका) को तथ्याङ्क प्रत्यक्ष र अप्रत्यक्ष दुवै विधिबाट अनुमान गर्दा खासै उल्लेखनीय भिन्नता देखिएन। यसर्थ, अल्पायुमै हुने मृत्युको प्रवृत्ति अनुमान गर्नका लागि यस प्रतिवेदनमा प्रत्यक्ष विधिलाई नै अपनाइएको छ। तथापि, प्रत्यक्ष वा अप्रत्यक्ष जुन विधि अनुशरण गरे पनि ती दुवैले पछिल्लो बहुसूचक सर्वेक्षण र नेपाल स्वास्थ्य तथा जनसाङ्ख्यिक सर्वेक्षणले देखाएको प्रवृत्तिमा गिरावट आएको सङ्केत गरेका छन्। यहाँ मननीय यो छ कि तथ्याङ्क सङ्कलन र सङ्ग्रह गर्दाका बखत अपनाइएको विधिगत विषमताले गर्दा यी दुई स्रोतबाट प्राप्त भएका तथ्याङ्कलाई तुलना गर्नु मनासिब हुँदैन। यसले गणना र सर्वेक्षणबाट प्राप्त तथ्याङ्कको गुणस्तरको लेखाजोखा गर्नुपर्ने आवश्यकतालाई औंल्याएको मात्र छैन अपितु पूर्ण प्रभावकारी पञ्जीकरण प्रणालीमार्फत यी सूचकहरूको पुष्टि गर्नुपर्नेतर्फ समेत ध्यानाकृष्ट गरेको छ।

यस प्रतिवेदनका प्रमुख प्राप्ति देहायानुसार रहेका छन्।

मृत्यु घटना

- राष्ट्रिय जनगणना २०७८ ले सन्दर्भ अवधि अर्थात् गणनाको दिनभन्दा अघिल्लो १२ महिनाभित्र नेपालका १,९२,१७८ घरपरिवारमध्येबाट कुल १,९८,४६३ जनाको मृत्यु भएको देखाएको छ। मृत्यु भएकामध्ये १,१४,९९६ (५८%) जना पुरुष र ८३,५१७ जना महिला (४२%) रहेका छन्। करिब ९७ प्रतिशत परिवारमा एक जनाको मात्र मृत्यु भएको देखिन्छ भने ३ प्रतिशत परिवारमा दुई जनाको मृत्यु भएको देखिन्छ। कुनै कुनै परिवारमा ६ जना सदस्यको मृत्यु भएको देखिएको छ।
- राष्ट्रियस्तरमा हेर्दा कुल गैरसंस्थागत परिवार ६६,६०,८४१ मध्ये २.९ प्रतिशतले आफ्नो परिवारमा कुनै न कुनै सदस्यको सन्दर्भ अवधिभित्र मृत्यु भएको उल्लेख गरेका छन्। कोशी प्रदेशका ३.१ प्रतिशत (प्रदेशमध्ये सर्वाधिक) परिवारमा र कर्णाली प्रदेशमा २.२ प्रतिशत (सबैभन्दा न्यून) परिवारमा कम्तीमा एक जना सदस्यको मृत्यु भएको तथ्याङ्क छ। जिल्लास्तरमा कपिलवस्तुमा सर्वाधिक (३.८%) परिवारमा र रुकुम पश्चिममा न्यूनतम (१.८%) परिवारमा कम्तीमा एक जना सदस्यको मृत्यु भएको देखिन्छ।

कोरा मृत्युदर (CDR), उमेरविशिष्ट मृत्युदर (ASDR) र स्तरीकृत कोरा मृत्युदर (SCDR)

- नेपालमा कोरा मृत्युदर (जसले मध्यवर्षको प्रतिहजार जनसङ्ख्यामा मृत्यु भएका व्यक्तिको सङ्ख्यालाई देखाउँछ) वि.सं. २०५८ देखि २०७८ सम्म निरन्तर घटिरहेको देखिन्छ। यसको मान वि.सं. २०५८ मा १०.२, वि.सं. २०६८ मा ७.३ र वि.सं. २०७८ मा ६.८ रहेको देखिएको छ।
- उमेरविशिष्ट मृत्युदर खासगरी शिशुहरूतर्फ र बुढ्यौली उमेरका व्यक्तिहरूतर्फ अधिकतर रहेको देखिन्छ।
- प्रदेश र जिल्ला तहको कोरा मृत्युदर निकाल्नको लागि समग्र नेपालको जनसङ्ख्या वितरणलाई आधार लिएर स्तरीकृत गरिएको छ। उमेरमा हुने भिन्नतालाई समायोजन गरिसकेपछिको स्तरीकृत कोरा मृत्युदर सर्वाधिक (७.५%) लुम्बिनीमा र सबैभन्दा न्यून (६.३%) कर्णालीमा रहेको देखिएको छ। तराईमा SCDR ७.१ प्रतिशत, पहाडमा ६.४ प्रतिशत र हिमालमा ६.१ प्रतिशत रहेको छ।
- व्यक्तिगत तहमा अगाडि आइरहेको मृत्युदरको प्रवृत्तिलाई यहाँ अपनाइएको स्तरीकृत जनसङ्ख्याले ओझेलमा पार्नसक्ने भएकोले स्तरीकृत कोरा मृत्युदरलाई सावधानीपूर्वक ग्रहण गर्नु वाञ्छनीय हुन्छ र मृत्युको वास्तविक एवम् पूर्ण चित्र ज्ञात गर्नका लागि अन्य सहायक उपायहरू माथि पनि भर पर्नु उपयुक्त हुन्छ।

मृत्यु स्थिति तथा लैङ्गिक अनुपात र मृत्युजन्य लैंगिक समता सूचक (Mortality gender parity index)

- मृत्युको लैङ्गिक अनुपात नेपालमा १३७.६ रहेको छ अर्थात् १००० जना महिलाको मृत्यु हुँदा १३७६ जना पुरुषको मृत्यु भएको हुन्छ। यस्तो अनुपात कर्णाली प्रदेशमा १४६.३ छ भने सुदूरपश्चिम प्रदेशमा १४४.३ रहेको छ। यी प्रादेशिक तहमा मृत्युका दुई उच्चतम लैङ्गिक अनुपात हुन्।

- मृत्युको लैङ्गिक समता सूचक (MGPI) यस्तो सूचकांक हो जसले महिला र पुरुषको कोरा मृत्युदरका बिचमा रहेको विषमतालाई मापन गर्दछ जसको मान सबै प्रदेश र समग्र नेपालको लागि एकभन्दा सानो रहेको छ। यसले पुरुषको तुलनामा महिलाको मृत्यु कम भएको तथ्यलाई उजागर गरेको छ।
- मृत्युको लैंगिक समता सूचकले पुरुषको तुलनामा महिलाको न्यून कोरा मृत्युदरलाई प्रस्तुत गर्दछ । यस्तो विषमताको कारणले परिणामतः महिलाको लम्बिएको जीवनप्रत्याशालाई केही हदसम्म प्रतिविम्बित गरेको छ।
- मृत्यु भएका व्यक्तिहरूको उमेर र लैंगिक जनसङ्ख्या पिरामिड हेर्दा पाँच पाँच वर्षको प्रत्येक अन्तरालमा पुरुषतर्फको मृत्युले महिलातर्फको मृत्युलाई उछिनेको देखिन्छ। तर, ९५ वर्ष र सोभन्दा माथिको उमेर समूहमा भने पुरुषतर्फको मृत्यु कम र महिलातर्फको मृत्यु अधिक रहेको छ। प्रदेश तहमा हेर्दा बुढ्यौली उमेरको मृत्यु गण्डकी र बागमती प्रदेशमा अधिक छ भने शिशु मृत्युदर भने मधेस, कर्णाली र सुदूरपश्चिममा अधिक रहेको देखिन्छ।

मृत्युको कारण

- नसर्ने प्रकृतिका रोगहरू (जुन सामान्यतया जीवनशैली, खानपान, वातावरणीय तत्व आदिसँग अन्तरसम्बन्धित हुन्छन्) का कारणले कुल मृत्युको झण्डै ५० प्रतिशत हिस्सा ओगटेको देखिन्छ। उता सरुवा रोगहरू (जुन अक्सर कमजोर स्वच्छता (Hygiene) र सरसफाइका कारणले प्रत्यक्ष प्रभावित रहन्छन्) ले गर्दा हुने मृत्युले कुल मृत्यु सङ्ख्याको १२.६ प्रतिशत हिस्सा ओगटेको छ। प्राकृतिक प्रकोपका कारणले हुने मृत्यु ४.८ प्रतिशत, सडक र अन्य दुर्घटनाबाट हुने मृत्यु ५.९ प्रतिशत र आत्महत्याका कारणले भएको मृत्युले २.७ प्रतिशत हिस्सा ओगटेको देखिन्छ। करिब एकचौथाइ मृत्युको कारणमा 'अन्य' वा 'उल्लेख नभएको' भन्ने देखिएको छ जसले गणकहरूका लागि यस विषयमा सघनतवरले प्रशिक्षित गर्नुपर्ने र यस प्रश्नका विकल्पहरूलाई केही सुधार गर्नुपर्ने आवश्यकतालाई औँल्याएको छ।
    - ✓ खासगरी एक वर्षमुनिका शिशु र ८० वर्षभन्दा माथिका वृद्ध व्यक्तिहरूको मृत्युको कारण नै 'अन्य' उल्लेख भएको देखिन्छ।
    - ✓ प्रशासनिक अभिलेखबाट प्राप्त हुने मृत्युका कारणहरूसँग तुलनीय बनाउने प्रयोजनका लागि जनगणनाको प्रश्नावलीमा रोगहरूसँग सम्बन्धित अन्तर्राष्ट्रिय वर्गीकरणको अनुशरण गर्दै मृत्युका कारणहरूको केही विस्तृत विकल्पहरू समावेश गर्नु उपयुक्त हुन्छ।
- नसर्ने प्रकृतिका रोगहरूको कारणबाट सर्वाधिक (५७%) मृत्यु कोशी प्रदेशमा र सबैभन्दा न्यून (४१%) मधेस प्रदेशमा रहेको छ। जिल्लातर्फ नसर्ने रोगबाट सर्वाधिक (६२%) इलाममा र सबैभन्दा कम (२३%) डोल्पामा रहेको देखिन्छ। तुलनात्मक रूपमा तराई र कर्णाली प्रदेशमा सडक दुर्घटनाजन्य मृत्यु बढी देखिएको छ।
- जिल्लास्तरमा सरुवा रोगबाट सर्वाधिक (३३%) मृत्यु मनाङ जिल्लामा, आत्महत्याबाट सर्वाधिक (७%) मृत्यु सोलुखुम्बुमा देखिएको छ । गर्भावस्थाजन्य (२%) र प्राकृतिक विपत्जनित (१३%) मृत्यु हुम्ला जिल्लामा सर्वाधिक देखिएको छ।

- उमेर समूहका आधारमा मृत्युका कारणहरू केलाउँदा आत्महत्याले चिन्ताजनक परिस्थितिलाई उजागर गरेको छ। आत्महत्याबाट १५-२४ वर्ष उमेर समूहको जनसङ्ख्यामा यस्तो मृत्यु बढी देखिन्छ। महिलातर्फको कुल आत्महत्यामध्ये करिब ४० प्रतिशत १५ देखि २४ वर्षभित्र नै हुन गएको देखिएको छ। पुरुषतर्फको कुल आत्महत्यामध्ये यस उमेर समूहमा आत्महत्याको हिस्सा ३५ प्रतिशत रहेको छ।

प्रारम्भिक उमेरमा हुने मृत्यु

- सन् २०२१ को जुन महिना (जनगणनाको सन्दर्भ अवधिभित्रको मध्यविन्दु) मा प्रत्यक्ष विधिअनुसार नेपालमा प्रतिहजार जीवित जन्ममा IMR, CMR र U5MR को मान १६.६, ५.९ र २२.४ रहेको छ।

- राष्ट्रिय जनगणना २०७८ ले महिलाको भन्दा पुरुषको उच्चतम शिशु मृत्युदर र पाँच वर्षमुनिका बालबालिकाको मृत्युदर देखाएको छ। पुरुषतर्फ शिशु मृत्युदर र बालमृत्युदर क्रमशः १८.३ र २४.३ रहेको छ भने महिलातर्फ यी दुई सूचकको मान क्रमशः १४.७ र २०.२ रहेको छ।

- तीनओटा भौगोलिक क्षेत्रहरूमध्ये शिशु मृत्युदर सर्वाधिक (१९.२) तराईमा रहेको छ। शिशु मृत्युदरमा महिला र पुरुषको विषमता पनि तराईमा नै अधिकतम देखिन्छ। पाँच वर्षमुनिका बालबालिकाको मृत्युदर (U5MR) तराईमा २५.४ र हिमालमा २४.६ रहेको छ। पहाडी क्षेत्रमा IMR, CMR र U5MR सबैको मान न्यूनतम रहेको छ।

- शिशु मृत्युदर उच्चतम हुने दुई प्रदेश लुम्बिनी र कर्णाली हुन्। यी दुवै प्रदेशमा यसको मान १९.५ रहेको छ। पाँच वर्षमुनिका बालबालिकाको मृत्युदर यी दुई प्रदेशमा क्रमशः २६.१ र २५.८ रहेको देखिन्छ। कोशी प्रदेशमा शिशु मृत्युदर १८.० र पाँच वर्षमुनिका बालबालिकाको मृत्युदर २३.८ रहेको छ। बागमती र गण्डकी प्रदेशमा प्रारम्भिक उमेरमा हुने मृत्युदर सबैभन्दा कम रहेको पाइन्छ। कर्णाली तेस्रो स्थानमा रहेको छ जहाँ IMR १३.९ र U5MR १९.९ रहेको देखिन्छ।

- पुरुष र महिलाका बिचमा हुने बाल मृत्युजन्य विषमता सबैभन्दा न्यून बागमती र गण्डकी प्रदेशमा रहेको देखिन्छ। तथापि, पुरुषहरूतर्फको मान भने एकनास तवरले अधिकतर रहेको पाइन्छ।

- प्रारम्भिक उमेरमा हुने मृत्यु अर्थात् IMR, U5MR र CMR को विषमता सबैभन्दा धेरै जिल्ला तहमा विद्यमान रहेको अवस्था छ। मनाङमा IMR, U5MR र CMR सर्वाधिक रहेको देखिन्छ। बाँके, कपिलवस्तु, ताप्लेजुङ र रौतहटले यी सूचकका सन्दर्भमा मनाङलाई पछ्याएको देखिन्छ। यी सूचकको न्यूनतम मान काठमाडौँमा रहेको छ र त्यसलाई पछ्याएको छ ललितपुरले। उच्चतम शिशु मृत्युदर र पाँच वर्षमुनिका बाल मृत्युदर हुने १० मध्ये चार जिल्ला (ताप्लेजुङ, धनकुटा, संखुवासभा र पाँचथर) कोशी प्रदेशका रहेका छन्।

- प्रमुख तीन सूचक अर्थात् IMR, U5MR र CMR मा सहरी तथा ग्रामीण क्षेत्रमा, जातजातिअनुसार र सम्पन्नताको सूचकअनुसार समेत अधिकतम भिन्नता विद्यमान रहेको पाइयो। अर्धसहरी क्षेत्रमा सर्वाधिक IMR (१९.६) र U5MR (२५.६) रहेको छ। सहरी क्षेत्रमा यी सूचकहरूको मान न्यूनतम रहेको देखिन्छ। परिवारहरूको सम्पन्नताको स्तरमा हुने प्रगतिअनुसार शिशु मृत्युदर (IMR) र पाँच वर्षमुनिका बालबालिकाको मृत्युदर (U5MR) मा उल्लेखनीय सुधार हुँदै गएको देखिन्छ।

  पहाडी जातजाततिर्फ शिशु मृत्युदर (७.८) र पाँच वर्षमुनिका बालबालिकाको मृत्युदर (१३.४) न्यूनतम रहेको छ जसलाई हिमाली र पहाडी जनजातिले पछ्याएको छ। यी दुई समूहमा शिशु मृत्युदर ९.६ र पाँच वर्षमुनिका

बालबालिकाको मृत्युदर १६.५ रहेको छ। तराई जनजातितर्फ यी दुई सूचकको मान क्रमशः ११.६ र १९.५ रहेको देखिन्छ । दलितमध्ये तराई दलिततर्फ यी सूचकहरूको मान उच्चतम रहेको छ । धार्मिक तथा भाषिक अल्पसङ्ख्यक र तराईका दलित परिवारका हकमा IMR र U5MR दुवै नै उच्चतम छन्। त्यस्तै पहाडी दलिततर्फ पनि IMR र U5MR दुवै नै अत्यधिक रहेको देखिन्छ। हिमाली तथा पहाडी जनजाति र तराई जनजातिमा IMR र U5MR सबैभन्दा न्यून रहेको छ।

- दिगो विकास लक्ष्यअन्तर्गत सन् २०३० भित्र नेपालले नवजात शिशु र पाँच वर्षमुनिका बालबालिकाको मृत्युदरको गन्तव्यमान प्रतिहजार जीवित जन्ममा क्रमशः १२ र २० निश्चित गरेको र सोह्रौं योजनाको अन्त्यसम्म (सन् २०२८/२९) ती सूचकहरूको लक्षित मान क्रमशः १३ र २२ निश्चित गरिएका छन्। नेपाल जनसाङ्ख्यिक तथा स्वास्थ्य सर्वेक्षणले नवजात शिशुको मृत्युदरलाई नै शिशु मृत्युदरको लागि सबैभन्दा जिम्मेवार कारक देखाएको छ। दिगो विकास लक्ष्यलाई प्राप्त गर्ने हो भने प्रारम्भिक उमेरमै हुने मृत्युको सामना गर्नका लागि नवजात शिशुहरू माझ हुने मृत्युलाई नै केन्द्रित गरेर अघि बढ्नुपर्दछ।
- रोचक त यो छ कि राष्ट्रिय जनगणना २०७८ ले प्रारम्भिक उमेरमै हुने मृत्यु उल्लेखनीय रूपले कम हुँदै गएको देखाएको छ जुन समयसीमा भित्रै लक्ष्य हासिल गर्न पर्याप्त हुने सङ्केत हो ।
- शिशु मृत्युदरमा सन् २००० को विश्वव्यापी परिदृश्यले नेपालको शिशुमृत्युदर (IMR) सार्क क्षेत्रका माल्दिभ्स, श्रीलङ्का र भुटानको तुलनामा निरन्तर उच्च छ भने बंगलादेश र भारतसँग तुलना गर्दा उस्तै उस्तै छ। पाकिस्तान र अफगानिस्तानको भन्दा नेपालको शिशुमृत्युदर (IMR) न्यून रहेको छ। यो सूचकको मान म्यान्मारको भन्दा कम र भियतनाम (दक्षिणपूर्वी एसिया) को भन्दा उच्च रहेको छ।

जीवनप्रत्याशा

- जन्मदाको अवस्थामा संयुक्त (पुरुष तथा महिला) जीवनप्रत्याशा नेपालको हकमा ७१.४ वर्ष रहेको छ। महिलाको हकमा यो मान ७४.३ वर्ष छ भने पुरुषतर्फ यो मान ६८.७ वर्ष रहेको छ। वि.सं. २०६८ मा नेपालीको संयुक्त जीवनप्रत्याशा ६६.६ वर्ष मात्र थियो जुन वि.सं. २०७८ मा उल्लेखनीय रूपले बढेको छ र यो वृद्धि पुरुष (६५.५ वर्ष, वि.सं. २०६८) तथा महिला (६७.९ वर्ष, वि.सं. २०६८) दुवैका हकमा देख्न सकिन्छ।
- ग्रामीण क्षेत्रमा जन्मदाको समयको जीवनप्रत्याशा ७२.२ वर्ष रहेको छ जुन राष्ट्रिय औसत र सहरी क्षेत्रको तुलनामा १ वर्षले उच्च रहेको छ। यसको विपरीत अर्धसहरी क्षेत्रको जीवनप्रत्याशा सबैभन्दा न्यून रहेको देखिएको छ।
- बागमती (७२.८), कर्णाली (७२.४) र गण्डकी (७२.३) को जन्मदाको अवस्थामा मानिसहरूको जीवनप्रत्याशामा निकै नै समानता देखिन्छ। मधेसमा यो ७१.९ वर्ष छ भने सुदूरपश्चिममा ७१.३ वर्ष रहेको छ। लुम्बिनीमा जीवनप्रत्याशा सबैभन्दा कम अर्थात् ६९.७ वर्ष मात्र छ भने कोशी प्रदेश छैठौं (७०.७ वर्ष) क्रममा रहेको छ।

  लैङ्गिक हिसाबले हेर्ने हो भने गण्डकी प्रदेशका महिलाको सर्वाधिक (७५.९ वर्ष) जीवनप्रत्याशा देखिन्छ भने पुरुषतर्फको अधिकतम जीवनप्रत्याशा बागमती र मधेस प्रदेशमा (दुवैमा समान ७०.२ वर्ष) रहेको छ। उच्च IMR

र U5MR हुँदाहुँदै पनि कर्णाली प्रदेशमा देखिएको उच्चतर जीवनप्रत्याशाले थप अध्ययन अनुसन्धानका लागि प्रेरित गरेको देखिन्छ।

- जिल्लाअनुसार हेर्दा वि.सं. २०७८ मा सर्वाधिक (७५.६ वर्ष) जीवनप्रत्याशा ओखलढुंगामा रहेको छ भने न्यूनतम (६७.० वर्ष) जीवनप्रत्याशा पाँचथर जिल्लामा रहेको छ। वि.सं. २०६८ मा यस सूचकको मान यी दुई जिल्लामा क्रमशः ६६.८ र ६९.९ रहेको देखिन्छ। जीवनप्रत्याशामा प्रतिविम्बित भएको यस्तो विषयमताका पछाडि विधिमा हुन गएको परिवर्तनलाई लिन सकिन्छ। अधिल्लोपल्ट CEBCS अप्रत्यक्ष विधि अपनाइएको थियो भने अहिले प्रत्यक्ष अर्थात् उमेरविशिष्ट विधिको अनुशरण गरिएको छ।

- मृत्यु र बाँच्नसक्ने सूचकहरूका बिचमा सहरी तथा ग्रामीण, जातजातिका आधारमा र सम्पन्नताको तहअनुसार पर्याप्त भिन्नताहरू विद्यमान रहेका छन्। सहरी क्षेत्रको ७१.४ वर्षको तुलनामा ग्रामीण क्षेत्रको जीवनप्रत्याशा ७२.२ वर्ष रहेको छ भने अर्धसहरी क्षेत्रमा यसको मान ७०.९ वर्ष रहेको छ। ग्रामीण क्षेत्रका महिलाको जीवनप्रत्याशा पनि सहरी क्षेत्रका महिलाको भन्दा एक वर्ष बढी देखिन्छ। ग्रामीण क्षेत्रका महिलाहरू अर्धसहरी क्षेत्रका महिलाभन्दा दुई वर्ष बढी बाँच्नसक्ने देखिन्छ।

  पहाडी दलितको जीवनप्रत्याशा सबैभन्दा कम अर्थात् ६७.३ वर्ष मात्र देखिएको छ र त्योभन्दा थोरैमाथि (६८.८ वर्ष) तराई दलितको जनसङ्ख्या रहेको छ। सम्पन्नताको वर्गीकरणको आधारमा सबैभन्दा तल्लो पञ्चमक अर्थात् अति विपन्न वर्गमा जीवनप्रत्याशा ७१ वर्ष छ भने अति सम्पन्न वर्गमा यस सूचकको मान ७३ वर्ष रहेको छ।

- नेपालीहरूको जीवनप्रत्याशा छिमेकी भारतसँग मिल्दोजुल्दो छ तर सार्क क्षेत्रका माल्दिभ्स, श्रीलङ्का, भुटान र बंगलादेशको भन्दा अझै न्यून रहेको छ। सार्क क्षेत्रका देशहरूसँग तुलना गर्दा नेपालका पुरुष तथा महिलाको जीवनप्रत्याशामा निकै उच्च अन्तर (पुरुषको भन्दा महिलाको ५.६ वर्षले अधिक) रहेको देखिन्छ।

साठी वर्षपछिको शेष जीवनप्रत्याशा

- साठी वर्षसम्म बाँचेका व्यक्तिको समग्र शेष जीवनप्रत्याशा १९.४ वर्ष रहेको छ। महिलातर्फ यो मान २०.७ वर्ष र पुरुषतर्फ १८.२ वर्ष रहेको देखिन्छ। साठी वर्षको उमेरपछिको शेष जीवनप्रत्याशामा भौगोलिक क्षेत्र र प्रदेश तहमा खासै ठुलो भिन्नता देखिँदैन तथापि यो १९ देखि २० वर्षका बिचमै विस्तारित भएको अवस्था छ। जिल्लास्तरमा हेर्दा भने अत्यन्त ठुलो विषमता देखा परेको छ। पुरुष तथा महिला दुवैको हकमा ६० वर्षको उमेरपछिको शेष जीवनप्रत्याशा ओखलढुङ्गामा सर्वाधिक अर्थात् २३.८ वर्ष रहेको छ भने जुम्लामा सबैभन्दा न्यून अर्थात् १६.३ वर्ष मात्र रहेको छ। साठी वर्षका महिलाहरूको उच्चतम (२६.६ वर्ष) शेष जीवनप्रत्याशा ओखलढुंगामा र पुरुषतर्फको यस्तो उच्चतम (२१.६ वर्ष) मान खोटाङ जिल्लामा देखिएको छ।

- जातजातितर्फ साठी (६०) वर्षको उमेरपछिको शेष जीवनप्रत्याशा दोस्रो उच्चतम (२०.५ वर्ष) पहाडी जातजातिमाझ रहेको छ भने पहिलोमा अन्य/विदेशी नागरिकहरूको समूह छ जसको मान २२.१ वर्ष रहेको छ। सम्पन्नताको सूचकअनुसार ६० वर्षको उमेरका व्यक्तिहरूको शेष जीवनप्रत्याशा अविश्वसनीय हिसाबले अति विपन्न उमेर समूहमा सबैभन्दा बढी रहेको छ जुन २१ वर्ष रहेको छ। यो मान सम्पन्नताको सबैभन्दा माथिल्लो वर्गमा रहेका व्यक्तिहरूको भन्दा २.५ वर्षले उच्च रहेको छ।

EXECUTIVE SUMMARY

This thematic report examines in-depth the mortality trends, differentials and policy implications derived from the National Population and Housing Census (NPHC 2021) dataset and analyzes the patterns of mortality across various socio-economic and geographic indicators.

Population censuses, household surveys and vital registration system (VRS) are the main sources for mortality data in Nepal. The population census covers the entire areas and population in order for the mortality estimates from its data base to provide the most complete and reliable national and regional picture of mortality trends. The census collects a large amount of socio-economic information. As such mortality differentials by place of residence, caste, ethnicity, gender, and wealth quintile status can be examined from the census data.

With regard to validating mortality data in Nepal, the census and vital registration system complement each other. The death data from one source help assess the quality of others. Each has its own strengths and weaknesses. The registration data from VRS may not be complete, reliable and timely yet. The same issue may persist, with regard to reporting of deaths, in the census. The reported death figures in the census may suffer from under reporting, age misclassification, age heaping and most importantly due to reference period problems. The census taking and the overall data quality has improved over the decades. Therefore, the census data remains salient as standard indirect techniques are available to validate the estimates. Hence, the 2021 census mortality data provide a useful trend of mortality in Nepal.

Nepal is in stage II of its demographic transition and is moving towards experiencing lower birth and death rates. By epidemiological transition, the country faces a “Triple Health Burden”, namely: i) Persistent infectious diseases and poor sanitation; ii) Rising non-communicable diseases, and; iii) An unprepared health system for emerging health challenges. At this stage, a complete mortality picture helps prepare the nation for potential challenges ahead.

Understanding the differentials in mortality helps design equitable health policies and allocate resources for improving health infrastructure and service delivery in the most effective manner. Census-based mortality data allows policymakers to track progress towards the national and global health-related targets and adjust strategies accordingly.

Health is a fundamental right ensured by the constitution of Nepal. The current sixteenth five-year plan further focuses on reducing child and maternal mortality and strengthening healthcare systems, thereby improving life expectancy. Nepal’s successive periodic plans and policies are aligned with international frameworks and development goals such as the International Conference on Population and Development (ICPD) and the Sustainable Development Goals (SDGs).

The rates of death in the early ages of life - within 28 days of birth, 1 year, 1 to 4 years and between birth to 4 years - are respectively referred to as neonatal, infant, child and under-five mortality, and

their indicators are denoted by NMR, IMR, CMR and U5MR. The NPHC 2021 data does not allow for the computation of NMR due to the age at death not being recorded in months, or being recorded in completed years only. This report uses direct method of compilation for early age and adult mortality indicators in which the rates are derived from the life tables computed after adjusting and smoothing the observed ASDR. A commonly practiced indirect estimation method named CEBCS (Children Ever born, Children Surviving) has also been utilized by this thematic report (annex 5) to estimate the early age mortality rates. The CEBCS method utilizes the number of children ever born and surviving to women of reproductive ages 15-49, and the total number of women in the five-year age groups. There is not much deviation found between the values of the early age mortality indicators computed from direct and indirect methods. Therefore, the direct estimates of early age mortality indicators are chosen to represent the latest trend in early age mortality. However, the direct or indirect values of the indicators seem falling off the trend set by earlier census or the latest surveys (NDHS or MICS). But it is to be noted that the two sets of values are incomparable due to methodological differences in data accumulation and compilation. This necessitates further research on data quality of censuses or surveys and demands for a robust vital registration system to validate the indicators.

The following points represent the key summary findings of the report:

Incidence of death

- The 2021 population census recorded 198,463 deaths from 192,178 households in the 12 month period preceding the census (December 2020 to November 2021): 114,996 male deaths (58%) and 83,517 female deaths (42%) were recorded. Around 97 percent of households reported one death and 3 percent reported two deaths, while a small fraction of total households reported up to six deaths.
- At the national level, 2.9 percent of the total non-institutional households (6,660,841) reported deaths. The percentage of households reporting death is highest in Koshi Province (3.1%) and lowest in Karnali Province (2.2%). While at the district level, Kapilbastu (3.8%) had the highest percentage of households with deaths and Rukum-West (1.8%) had the lowest.

Crude Death Rate (CDR), Age-Specific Death Rate (ASDR) and Standardized Crude Death Rate (SCDR)

- The Crude Death Rate (CDR), which shows the number of deaths per thousand mid-year populations, is in declining trend (6.8 in 2021 from 7.3 in 2011 and 10.2 in 2001).
- The Age-Specific Death Rate (ASDR) is higher for infants and older ages.
- The province and district CDRs has been standardized by considering the national population distribution as the standard. After adjusting for the age differences, the Standardized Crude Death Rate (SCDR) is highest for Lumbini (7.5) and the lowest for Karnali (6.3) provinces. The SCDR is higher for Tarai (7.1) compared to Hill (6.4) and Mountain (6.1) zones.

- As the emerging individual mortality trends might be masked by the standard population while standardizing, the SCDR should be taken with caution and considered alongside other measures as well to get a complete picture of mortality trends.

Mortality sex-ratio and Mortality Gender Parity Index

- Mortality sex ratio is 137.6, that is, 1,376 male deaths per 1,000 female deaths at the national level. Karnali (146.3) and Sudurpashchim (144.3) are the two provinces with the highest mortality sex ratios.
- The Mortality Gender Parity Index (MGPI), the ratio measuring the disparity between female crude death rates and male crude death rates, is lower in all the provinces showing consistently lower female mortality than male mortality.
- The Mortality Gender Parity Index shows lower crude death rates for females than males. This disparity has also resulted, to some extent, in the inflated life expectancy of females.
- Looking at the age-sex population pyramid of deceased persons, male deaths exceed female deaths in every five-year age group with the exception of the oldest age groups (95+), where female deaths surpass male deaths. At the province level, older age death was higher in Gandaki and Bagmati, and the infant death rate was higher in Madhesh, Karnali, Lumbini and Sudurpashchim.

Cause-of-death

- The non-communicable diseases that are generally linked to lifestyle, dietary and environmental factors are shown to be increasing, causing half (49.8%) of all total deaths. Whereas communicable diseases that are tied to poor hygiene and sanitation cause around one in eight deaths (12.6 %), other causes such as natural disasters (4.8%), road/other accident (5.9%) and suicide (2.7%) are also significant factors which took the lives of a significant number of the population. About one-quarter of deaths (23.4%) mentioned either an 'other' cause of death or cause not stated at all, signifying a need for more robust training of enumerators or modifications in questionnaire responses.
- A large share of infants (<1 year) and elderly (80+ years) deaths mentioned 'other' as the main cause of death.
- It is necessary to add a more detailed categorization of the cause of death in the census questionnaire according to International Classification of Diseases (ICD 11) in order to have meaningful comparison with the cause of death data obtained from the administrative sources.
- The highest number of non-communicable diseases deaths were reported in Koshi (57%) and lowest in Madhesh (41%) provinces. Ilam had the highest (62%) share of death reported as non-communicable diseases death and Dolpa (23%) had the lowest. Relatively, Tarai and Karnali districts showed higher share of road accidents.
- The highest number of communicable disease deaths were reported in Manang district (33%), the highest suicide deaths in Solukhumbu (7%), and both of the highest pregnancy related

deaths and natural disaster related deaths were reported in Humla district at 2 percent and 13 percent respectively

- When analyzing the cause of death by age group, an alarming trend is noticed for suicide, which is predominant among youths aged 15-24. Nearly 40 percent of all suicide deaths among females are seen at the young ages, between 15 and 24. For males, the corresponding value is 35 percent.

Early-age mortality

- The direct values of IMR, CMR and U5MR for Nepal are estimated to be 16.6, 5.9 and 22.4 per thousand live births for June 2021 (mid-year point of census reference period for death data - December 2020 to November 2021).
- The NPHC 2021 shows higher IMRs and U5MRs for males than for females, with the IMR for males at a rate of 18.3 and 14.7 for females and the U5MR for males at a rate of 24.3 and 20.2 for females. This is seen across all disaggregated levels, including ecological region, province, and urban-rural area.
- Among the ecological zones, Tarai has the highest infant mortality rate (19.2). The male-female disparity in IMR is also highest in Tarai. Whereas the U5MR in Tarai (25.4) and mountain (24.6) are about the same. The Hill region has the lowest IMR, CMR and U5MR.
- Lumbini and Madhesh are the two provinces with the highest IMR (19.5 each) and U5MR (26.1 and 25.8), followed by Koshi (IMR – 18.0, U5MR – 23.8). The early age mortality rates are lowest in Bagmati and Gandaki. Karnali province comes third with an IMR of 13.9 and U5MR of 19.9.
- Bagmati and Gandaki provinces show minimal disparity in child mortality rates for males and females, whereas other provinces show much wider disparity – with male values consistently higher.
- Much disparity is seen in the indicators of early age mortality at the district level. The highest IMR, U5MR and CMR are observed in Manang, followed by Banke, Kapilbastu, Taplejung and Rautahat, whereas the lowest is observed in Kathmandu, followed by Lalitpur. Four of the ten districts with the highest IMR and U5MR belong to Koshi province (Taplejung, Dhankuta, Sankhuwasabha and Panchthar).
- Much disparity in the IMR, CMR and U5MR is observed for urban-rural, castes and ethnicity, and wealth-quintile categories. The mortality rates are highest in Peri-urban (IMR – 19.6, U5MR – 25.7) areas, whereas the urban area has the lowest of all. The infant and under-five mortality rate decreases drastically as the wealth status improves, with the widest difference seen between the lowest and the highest wealth quintile households. Similarly, Religious/linguistic groups and Madhesh/Tarai Dalit show the highest IMR and U5MR, followed by Hill Dalit. Hill Caste has the lowest (IMR – 7.8, U5MR – 13.4) followed by Mountain/Hill Janajatis (IMR - 9.6, U5MR – 16.5) and Tarai Janajatis (IMR - 11.6, U5MR – 19.5). Madhesh/Tarai Dalit has higher IMR and U5MR than Hill Dalit group.

- Nepal's targeted values of attaining the SDGs for reducing the neonatal mortality and under-five mortality rates by 2030 are set at 12 and 20 per 1,000 live births, which are further set at 13 and 22 by the sixteenth periodic plan to be achieved at the end (2028/29) of this period. NDHS 2022 shows neonatal mortality as the largest contributor to the infant mortality, and it is seen stagnant from the survey results. The focus should be on reducing the mortality in the neonatal period in order to tackle overall early age mortality in order to meet SDG targets. But interestingly, the NPHC 2021 estimates show promising results of decling early age mortality, and it is more likely to meet the targets in time.
- Global trend in IMR since 2000 shows that Nepal's IMR is consistently higher than Maldives, Sri Lanka, and Bhutan, comparable to Bangladesh and India, and lower than Pakistan and Afghanistan in the SAARC region, while it is also lower than Myanmar and higher than Viet Nam in the South-East Asian region.

Life expectancy at birth

- Nepal's life expectancy at birth (e_o) for both sexes stands at 71.4 years, with females having a higher expectancy at 74.3 years compared to 68.7 years for males. This marks a significant improvement from 2011, when the overall life expectancy was 66.6 years—67.9 years for females and 65.5 years for males.
- The rural area records the highest life expectancy at birth at 72.2 years, which is slightly higher—by less than one year—than both the national average and the urban area's value. In contrast, the Peri-urban area shows the lowest life expectancy at birth.
- The life expectancy at birth (e0) in Bagmati, Karnali and Gandaki provinces are similar, with years of survival at 72.8, 72.4 and 72.3 years respectively. Madhesh and Sudurpashchim provinces also show a very close expected years of life from birth, at 71.9 and 71.3 years, while Lumbini Province (69.7) has the lowest life expectancy at birth which is just less than 1 year of the rate in Koshi Province (70.7). By sex, females in Gandaki Province live the longest (75.9 years) and the males in Bagmati (70.2 years) and Madhesh (70.2 years) provinces live the longest. The higher life expectancy in Karnali Province presents a matter for further research given the high infant and under-five mortality, low socio-economic indicators, gaps in access to facilities including the health, among others.
- By district, in 2021, the highest life expectancy at birth is in Okhaldhunga (75.6 years) and the lowest is in Panchthar (67.0 years). Their corresponding values in 2011 were 66.8 and 69.9 years respectively. Such differences in life expectancies at birth can be attributed to methodological changes in the two series, where CEBCS data were utilized in 2011 whereas direct method (observed ASDR values) has been used in 2021.
- There is a great deal of variation in mortality and survival indicators among the differentials such as urban-rural residence, caste and ethnicity groups and wealth-quintiles. Overall, rural areas (72.2 years) show a slightly higher life expectancy at birth compared to urban (71.4 years) and Peri-urban areas (70.9 years). Similar trends can be found for females living in rural areas, having about one more year of expected life as compared to females in urban areas, whereas

the females living in rural areas survive two more years than those living in Peri-urban areas. The lowest life expectancy at birth is seen for Hill Dalits (67.3 years) and Madhesh/Tarai Dalits (68.8 years). The life expectancy at birth by wealth quintile hovers around 71 years for quintiles from 'Lowest' to 'Higher', however it improves 2 more years and reaches to 73 years for the wealthiest quintile.

- The life expectancy at birth for Nepal is similar to that of India and South Asia yet lower than that of Maldives, Sri Lanka, Bhutan and Bangladesh in SAARC region. The gender gap in life expectancy is seen much higher (5.6 years higher for females than males) in Nepal than in the SAARC countries.

Proportion of population surviving to age 60 years

- Around 80 percent of Nepal's population is expected to survive to the age of 60 years, and by sex, 85 percent women and 75 percent men reach to the same age. Much regional variation is seen in this rate. By ecological region, Hill (81%) has the highest and Tarai (79%) has the lowest survival rate. By province, the highest survival rate is in Bagmati (83%) and the lowest in Lumbini (77%). Around the same proportion (87%) of females survive in Bagmati and Gandaki provinces, which is just one percentage point higher than the proportion of female survival in Karnali Province.
- Populations living in the highest quintile household show the highest (84.7%) survival ratio up to age 60, whereas the lowest quintile has the lowest (77.7%) ratio. Hill castes (and Other/Foreigner Groups) show the highest ratios, whereas Hill Dalits (72.8%) and Madhesh/Tarai Dalits (76.7%) are the groups with the lowest two survival ratios.

Life expectancy at age 60 years

- The overall life expectancy at age of 60 years is 19.4 years – 20.7 years for females and 18.2 years males. Not a great amount of gain is seen in the life expectancy at age 60 years when living in different ecological zones and provinces as only a range from 19 to 20 years is seen overall. Yet by district, much variation is seen. For both sexes, the highest rate is seen in Okhaldhunga (23.8 years) and the lowest in Jumla (16.3 years). The highest years of expected average life at age of 60 for females is seen in Okhaldhunga (26.6 years) and for males in Khotang (21.6 years).
- The life expectancy beyond age 60 is highest for Hill castes (20.5 years), second only to the Other/Foreigner group (22.1 years) which also shows the widest difference between male and female surviving years, with females living 10 years longer than males beyond the age 60. By wealth quintile, the life expectancy beyond age 60 is surprisingly highest in the 'lowest' wealth quintile (21 years) and it is by two and a half years more than the 'highest' quintile.
- The overall life expectancy at age of 60 follows the global trend. The rate is around the same as the global average; in the SAARC region, Nepal's life expectancy at age 60 years is below Bangladesh, Bhutan and Sri-Lanka, but above Afghanistan, Pakistan, India and Maldives, as well as above South-East Asia regional average comparison with NPHC 2011.

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ABBREVIATIONS

ASDR	Age Specific Death Rate
BS	Bikram Sambat (Nepali Calendar Year)
CBS	Central Bureau of Statistics
CDR	Crude Death Rate
CEBCS	Children Ever Born Children Surviving
CMR	Child Mortality Rate
COVID 19	Coronavirus Disease 2019
CMNN	Communicable, Maternal, Neonatal and Nutritional
CVM	Cardiovascular Mortality
DALYs	Disability-Adjusted Life Years
DEGURBA	Degree of Urbanization
DoNIDCR	Department of National ID and Civil Registration
e_0	Life Expectancy at Birth
GoN	Government of Nepal
ICD	International Classification of Diseases
IMR	Infant Mortality Rate
MACB	Mean Age at Child-Bearing
MDGs	Millennium Development Goals
MGPI	Mortality Gender Parity Index
MMR	Maternal Mortality Ratio
MoHP	Ministry of Health and Population
MSR	Mortality Sex Ratio
MWRA	Married Women of Reproductive Ages
NCDs	Non-Communicable Diseases
NDHS	Nepal Demographic and Health Survey

NHSP	Nepal Health Sector Programme
NHSS	Nepal Health Sector Strategy
NMICS	Nepal Multiple Indicators Cluster Survey
NMR	Neonatal Mortality Rate
NPHC	National Population and Housing Census
NSO	National Statistics Office
PCA	Principal Component Analysis
PES	Post Enumeration Survey
PRB	Population Reference Bureau
SAARC	South Asian Association for Regional Cooperation
SCDR	Standardized Crude Death Rate
SDGs	Sustainable Development Goals
TFR	Total Fertility Rate
U5MR	Under-five Mortality Rate
UN	United Nations
UNICEF	United Nations Children's Fund
USA	United States of America
VA	Verbal Autopsy
WB	World Bank
WHO	World Health Organization

CHAPTER 1

INTRODUCTION

a. Context and objectives

The Government of Nepal collects death related data through population censuses, demographic surveys, multiple indicator cluster surveys and the vital registration system (VRS). This data is further analyzed by age, sex, and cause at various geographic/administrative regions to examine disparities and link such with socio-economic and demographic characteristics. Mortality indicators obtained from these sources are the basis for formulating health plans and policies for reducing premature mortality, improving general life expectancy, and uplifting the quality of life. Moreover, mortality rates/indicators express the overall health status and well-being of a population and are often used to examine the effectiveness of health policies over time. The commonly estimated measures of mortality are the crude death rate (CDR), age-specific death rate (ASDR), standardized crude death rate (SCDR), neonatal mortality rate (NMR), infant mortality rate (IMR), child mortality rate (CMR), under five mortality rate (U5MR), maternal mortality ratio (MMR), and life expectancy at birth (e_0).

Reduction of mortality in early years of life and during pregnancy or childbirth gained further prominence in the international arena as a result of the International Conference on Population and Development (ICPD) in 1994. This conference paved the way for the following UN initiative of the Millennium Development Goals (MDGs), implemented at the dawn of the new millennium and setting 8 goals, 18 targets and 48 indicators to be achieved by 2015. Goal 4 (reduce child mortality), Goal 5 (improve maternal health) and Goal 6 (combat HIV/AIDS, malaria and other diseases) were directly related to mortality. After 2015, the Sustainable Development Goals (SDGs) replaced the MDGs, offering a broader set of development goals that focused on global development with and for sustainability. The SDGs include 17 goals, 169 targets and 231 indicators and aim to build a global partnership for development. The SDGs include the following mortality reduction indicators under Goal 3 - targets 3.1, 3.2, 3.4, 3.6 and 3.9:

> *"Target 3.1 - Reduce the global maternal mortality ratio to less than 70 per 100,000 live births."*
>
> *"Target 3.2 – End preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as*

12 per 1000 live births and under 5 mortality to at least as low as 25 per 1,000 live births by 2030."

"Target 3.3: End the epidemics of AIDS, tuberculosis, malaria, and neglected tropical diseases, and combat hepatitis, water-borne diseases, and other communicable diseases."

"Target 3.4 - By 2030, reduce by one-third premature mortality from non-communicable diseases (NCDs) through prevention and treatment and promote mental health and well-being."

"Target 3.6: By 2020, halve the number of global deaths and injuries from road traffic accidents (continuing to monitor and reduce this into 2030)."

"Target 3.9: Substantially reduce the number of deaths and illnesses from hazardous chemicals, air, water, and soil pollution, and contamination."

Nepal's development plans and the government's framework for development have aligned with the MDGs and SDGs since their inception. The central guiding document for all development policies in Nepal is the 'Constitution of Nepal 2072 BS' which envisions a healthy, prosperous, and dignified life for its citizens that includes free basic health and equal access to health services as fundamental rights. The constitution clearly states which basic needs the state ought to provide for its citizens. It further advocates for increasing life expectancy at birth, reducing infant and maternal mortality, and encourages family planning for population management based on Nepal's capacity and needs.

As a signatory to UN declarations and international conventions, the Government of Nepal (GoN) has reiterated its commitment to development and reflected such through its development plans. Population issues gained recognition since Nepal's first five-year plan period (1956-61). The National Population Strategy 1983 was adopted in the sixth plan period (1980-85) and included short-term and long-term strategies. It remained effective up to the seventh plan period (1985-90). From this plan document, quantitative targets were set for infant, under 5, and maternal mortality. In 2010, GoN embraced the Population Prospective Plan (2010-2031) which prioritized reproductive health by enhancing awareness – especially among adolescents and couples – to deter from marriage and pregnancy at younger ages, encourage couples to keep reasonable spacing between births, and to improve maternal and child health. The plan also offers programmes to improve reproductive health services for reducing infant, under 5, and maternal mortality (Ministry of Health and Population (MoHP), 2067 BS).

The National Population Policy 2014 and National Health Policy 2014 prioritize enhancing maternal and child health and reducing mortality. Nepal Health Sector Strategy 2015-2020

(NHSS) put forward multi-sectoral priorities to address issues identified from the first and second phases of the Nepal Health Sector Programme (NHSP – I & II) to improve the health status of its citizens. The NHSS set quantitative targets (baseline and milestone) for health outcomes to be achieved by the end of the strategy period. The targets for NMR and U5MR were set as 17.5 and 28 deaths per 1,000 live births (Ministry of Health and Population (MoHP), 2015).

The GoN released its 25-year vision document (B.S. 2076-2100) in 2019 with the motto 'Prosperous Nepal, Happy Nepali' which aims to internalize development related envisions of the constitution into future periodic plans. This document foresees a total of five five-year plans, the fifteenth plan (2019/20 - 2023/24) as the first and the ongoing sixteenth plan (2024/25 - 2028/29) as the second. It enlists U5MR, MMR and e0 to measure progress, suggesting that these indicators will gain more prominence in upcoming periodic plans. The current sixteenth five-year plan (2024/25-2028/29) aims to reduce NMR, U5MR and MMR from 21, 33 (NDHS, 2022) and 151 (MoHP et al., 2023) in the base year 2022/23 to 13, 22 and 85 by 2028/29. In addition, the plan reassures the long-term targets of achieving U5MR and MMR to 8 and 20 by the end of 2043/44 AD (2100/2101 BS). It also aims to increase life expectancy at birth from 71.3 years in the base year 2022/23 to 73 years by the end of the plan period and to 80 years by 2043/44(National Planning Commission (NPC), 2024).

Mortality analysis in the context of demographic and epidemiological transition theories

This report's analysis shall begin by exploring how the pattern of birth and death rates occur through the lens of the demographic transition theory and also explore how this shift leads to the transition of morbidity and mortality as hypothesized in epidemiological transition theory.

Demographic transition theory

A demographic transition describes the historical shift from a state of high birth and death rates to low birth and death rates in relation to developments and advancements with economic, technological and education-based factors. During the transition, population growth is seen more rapidly as a result of a decline in mortality which tends to occur before a decline in fertility. In addition, the population is seen to move from being predominantly rural to predominantly urban, and from having a young age structure to an older age structure (referred to as population ageing). These five processes – mortality decline, fertility decline, population growth, urbanization and ageing are interconnected, with mortality decline being the key initiating process (Dyson, 2011).

The analysis of Nepal's demographic data over the last several decades indicates that the country is experiencing rapid demographic changes as a result of positive socioeconomic developments (National Planning Commission (NPC), 2017). Within a few decades, Nepal has

achieved a significant decline in mortality rates, fertility rates, population growth rates, while experiencing rapid improvements in life expectancy. Nepal is currently in Stage II, in which the death rate and birth rate are low but the death rate remains slightly higher than birth rate, yet it is rapidly approaching Stage III, in which the death rate and the birth rate are low (UNFPA Nepal, 2017). While both birth and death rates are low, the birth rate is higher than the death rate. From the 2011 census, the CBR is 24 per 1,000 population yet the CDR is only around 7 per 1,000 population. Nepal is further considered to currently be in the lower end of the second stage and approaching the third stage as mortality is declining, life expectancy at birth is steadily increasing, birth rates are falling, and major improvements in infant and maternal mortality have been recorded (Suwal, 2012). The NSO estimates the CBR and CDR to be at a rate of 14 and 7 respectively (National Statistics Office (NSO), 2081 BS).

Epidemiological transition theory

The epidemiological transition theory, first conceived in the 1960s (Omran, 1969) and published in its original form in 1971 (Omran, 1971), describes changing patterns of population distributions in relation to changing patterns of mortality, fertility, life expectancy, and the leading causes of death. Following the growing interest in demographic, health and social-science literature, Omran (1998) revised and republished the theory which is based on experiences from Western countries and identifies five stages: i) the age of pestilence and famine; ii) the age of receding pandemics; iii) the age of degenerative, stress, and man-made diseases; iv) the age of declining cardiovascular mortality (CVM), ageing, lifestyles modification, emerging and resurgent diseases, and; iv) the futuristic stage, or the age of aspired quality of life, with paradoxical longevity and (futuristic stage) persistent inequities.

Omran (1998) proposed three stages of the transition in non-Western societies: i) the age of pestilence and famine; ii) the age of receding pandemics, and; iii) the age of triple health burden. Omran postulated the third stage – i.e., 'age of triple health burden' – to be more challenging for non-western societies. The age of triple health burden has occurred since the 1970s or later and entails at least three major health burdens superimposed upon one another (Figure 1.1), namely: i) unfinished old health problems; ii) rising new health problems, and; iii) ill-prepared health systems and medical training.

Unfinished old sets of health problems: Despite a decline in morbidity and mortality in Nepal, old sets of health problems (such as communicable diseases, perinatal and maternal morbidity and mortality, malnutrition, poor sanitation, and tenacious problems of poverty, low literacy, overpopulation and limited access to health care and safe water) remain an overtaxing health burden, especially in rural areas.

Rising new sets of health problems: A gradual increase in degenerative diseases (such as heart diseases, stroke, cancer, and metabolic disorders), stress (especially despair and depression), and man-made diseases continue due to traditional lifestyles, risky health habits , and a lack of access to special technologies allows for the prevalence of these conditions to exacerbate. Traditional lifestyles can exacerbate man-made diseases through a combination of outdated health practices and limited adaptation to modern risks. Diets high in salt, fat, or carbohydrates, combined with reduced physical activity, contribute to obesity and metabolic disorders. The cultural normalization of tobacco use and reluctance to seek modern medical care further delay diagnosis and treatment of preventable conditions. In some cases, stigma around mental health discourages individuals from seeking help, increasing the burden of untreated psychological disorders. Additionally, traditional housing and cooking methods can expose individuals to harmful environmental pollutants, heightening the risk of respiratory diseases. Together, these factors amplify the prevalence and impact of man-made diseases. In addition, challenging issues arise concerning younger and older populations. Younger persons may be more likely to engage in risky behavior and often lack access to reproductive health services. Younger populations are increasingly engaging in risky behaviours that contribute to the rise of man-made diseases. These include smoking, substance use, and unhealthy dietary habits marked by high consumption of processed foods and sugary drinks. Sedentary lifestyles, driven by excessive screen time and limited physical activity, further heighten the risk of obesity and metabolic disorders. Mental health challenges such as stress, anxiety, and depression are often neglected due to stigma or lack of support, while risky sexual behaviour and limited use of preventive healthcare services expose young people to additional health threats. Collectively, these behaviours set the stage for early onset of chronic illnesses and compound the long-term burden of preventable diseases. On the other hand, older populations face a range of challenges that heighten their vulnerability to man-made diseases.

Degenerative conditions such as heart disease, stroke, cancer, and diabetes become more prevalent and difficult to manage with age. Mental health issues, including depression and loneliness, are common due to social isolation and the loss of close relationships. Access to healthcare is often limited by financial, physical, or geographic barriers, while low health literacy can make it difficult for older adults to understand and manage their conditions effectively. The need to take multiple medications for various chronic illnesses increases the risk of harmful drug interactions. Additionally, the erosion of traditional family support systems leaves many without adequate care, and declining mobility further reduces their ability to maintain healthy, active lifestyles. Together, these factors compound the health risks faced by older individuals in the context of rising man-made diseases. Rising from elements outlined in the Western fourth stage, these emerging and resurgent diseases coincide with the third stage for developing countries.

Lagging or ill-prepared health systems and medical training: In most non-Western countries, health systems are geared mainly to acute diseases and short-term care and are ill-prepared for prevention and care for chronic diseases or for long-term medical or rehabilitative care. They may also not be prepared to handle the problems of ageing and may experience growing difficulties in providing quality services which requires reshaping health care models and priorities, as well as implementing structural adjustment and reorientation of medical education and training that emphasizes knowledge and skills to face old and new problems. Community participation and continued improvement in the status of women are equally needed.

Figure 1.1: Epidemiological transition theory for non-Western societies

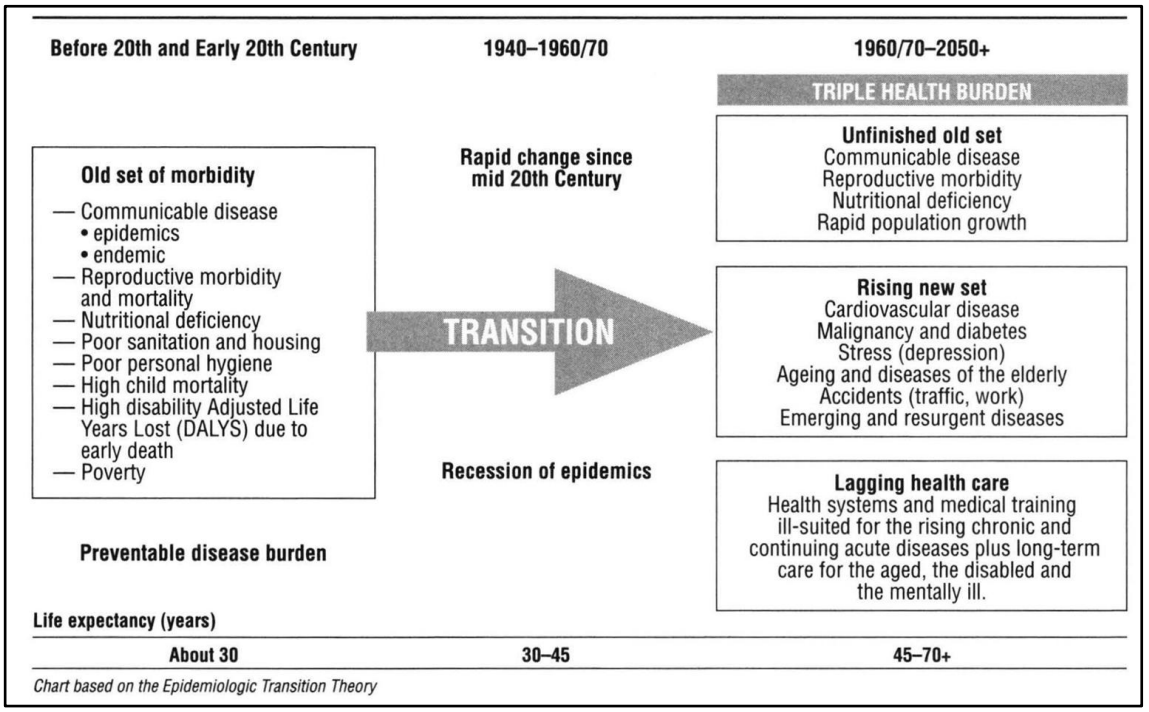


Figure source: (Omran, 1998).

Nepal achieved significant progress toward Stage II through massive health interventions in the twentieth century, especially with improved vaccination coverage and public health measures which benefitted from international initiatives. However, the country is still grappling with and transitioning through Stage III and is marked by the three previously mentioned health burdens. Premature mortality due to NCDs has risen from 51 percent in 2010 to 71 percent in 2019 (Ministry of Health and Population (2077/78 BS)) and this figure is expected to reach a rate of four out of five deaths (78.64%) by 2040 (Achyut Raj Pandey et al., 2020). The increasing disease burden is associated with decreasing quality of life, increase in disability adjusted life years

(DALYs) and catastrophic health expenditures. Mortality from communicable, maternal, neonatal and nutritional (CMNN) diseases is in a declining trend, however it is still a matter of concern for some underprepared urban and rural areas. Therefore, the double burden of NCDs and CMNN diseases poses significant challenges for Nepal's health system at a time when the new federal structure handed greater responsibility to the provinces and local governments, while these bodies work to ensure momentum. This demands for a greater synergy of efforts from all the tiers in terms of resource mobilization, training, research, and development.

The GoN collects information on death through its vital registration system and further conducts periodic censuses and surveys to estimate mortality rates. Death data collected from vital registration should be the most reliable periodic data for computing mortality rates on an annual basis for various administrative regions for Nepal. However, underreporting of death and coverage of reporting restricts accurate and timely compilation of mortality estimates. In this context, the government mostly relies on sample surveys for mortality estimates, namely Nepal Demographic and Health Surveys (NDHSs) and Nepal Multiple Indicator Cluster Surveys (NMICSs). However, these surveys only provide mortality estimates up to the provincial level, meaning that any further disaggregation – for example, by district and local levels and wards – is not available. Therefore, mortality rates for the disaggregated administrative regions are often computed using data collected from decennial censuses.

This report computes CDR, SCDR, IMR, CMR, U5MR and e_0 across spatial regions and by various socio-economic groups (referred to as differentials from here onwards) for Nepal. The rationality for this classification is determined by the nature of the available data. Under spatial classification, mortality rates are estimated for Nepal, ecological zone, provinces, and districts, whereas under differentials, mortality rates are computed by DEGURBA[1], caste and ethnicity groups[2], and wealth quintile[3]. Concepts and definitions of terms used throughout the report are provided in Annex 1 – Technical notes. The specific objectives of the report include:

[1] Degree of urbanization (DEGURBA) – This is the UN-Habitat designed system for classifying the degree of urbanization of territorial areas. For Nepal, the system classifies each ward into an urban, Peri-urban or rural area, different from the existing nominal classification of urban (metropolitan, sub-metropolitan and municipal) and rural areas. Details available in (National Statistics Office (NSO), 2024).

[2] NPHC 2021 identifies 142 caste and ethnicity groups that are categorized under 8 broad groups (National Statistics Office (NSO), 2023). See Annex 1, for the categories.

[3] Five wealth quintiles generated from information on household assets, utilities and characteristics using principal component analysis to compute a composite index from 17 variables – 9 (household assets), 4 (utilities), and 4 (housing characteristics). Each household is categorized as lowest, lower, middle, higher and highest that show increasing wealth status of the household. Detailed methodology is available in (National Statistics Office (NSO), 2024).

i. To compare the level, pattern, and trend of mortality rates across the spatial and differential classifications for Nepal.

ii. To compare the level, pattern, and trend of mortality in Nepal with global, regional, and South Asian levels.

iii. To identify the determinants of mortality.

iv. To discuss policy implications of findings and integrate them into policy recommendations.

This report, however, does not estimate NMR as NPHC 2021 lacks necessary data to compute the rate. Furthermore, MMR estimates are not discussed in this report as these figures are previously published in MoHP/CBS publications (Ministry of Health and Population (MoHP) and Central Bureau of Statistics (CBS), 2022).[4] The publication of this report coincides with a growing demand for mortality indicators across provinces, districts and local levels, especially following the newly practiced three-tiered governing system in Nepal.

b. Report outline

This thematic report consists of eight chapters. The first chapter includes an introduction which consists of the context and objective of the report, outlining a mortality analysis in the context of demographic and epidemiological transition theories, and providing a report outline. The second chapter deals with the quality evaluation of census data and the methodology adopted to compute the mortality indicators in this report. This chapter begins by evaluating the mortality related questions in various population censuses of Nepal and discusses the limitations of the NPHC 2021 questionnaire. Then the quality of data is evaluated with respect to data sources, missing age, heaping/smoothing, mortality sex ratio, gender parity index, and quality of data on CEB. Chapter three provides an overview of mortality, in which the distribution of households with death and deceased persons, number of deceased persons by five-year age group and sex, percentage of households with death, population pyramid of deceased persons, and central mortality rates are discussed. The mortality sex ratio, gender parity with regard to mortality, the population pyramid of deceased persons, and crude and standardized measures of morality are further discussed in this chapter. Chapter four describes life table and adult mortality indicators, including life expectancy at birth and characteristics of population aged 60 years. Chapter five presents discussion on estimates of mortality indicators in early years of life derived from direct method. Mortality differentials and determinants of mortality have been presented in chapter six, where mortality by DEGURBA, castes and ethnicity group of the household head and wealth quintile of the household are analysed. A detailed analysis on causes

[4] Available at: https://censusnepal.cbs.gov.np/results/downloads/national?type=report

of death is presented in chapter seven. Chapter eight discusses the conclusions and recommendations drawn from the analysis. Annexes are presented at the end of the report which cover data tables and maps discussed and concepts and definitions of terms used throughout the report are included as a glossary. A detailed discussion on indirect estimation of early age mortality indicators is included in the annex 5 which covers the selection of a suitable model life table and alternative mortality rates for early ages computed from this method.

CHAPTER 2

DATA QUALITY EVALUATION

This chapter presents an evaluation of NPHC 2021 questionnaire and the related dataset. Based on this assessment, the methodology adopted for computing mortality rates is explained. The chapter begins by providing a critical evaluation regarding the mortality-related questions from the 1971 census onwards and provides a thorough examination of the NPHC 2021 questionnaire. Following this, the quality of data and its evaluation is presented along with an explanation of the methods adopted to minimize errors.

Census questionnaires

Nepal conducted its 12th census from November 11-25 2021, employing three types of questionnaires: i) a house and household listing form (register households for the census and collect housing information); ii) a main questionnaire, including a mortality and fertility section to collect household and individual information, and; iii) a community questionnaire, collecting fundamental information concerning all 6,743 wards – lowest administrative areas – of the country. The Central Bureau of Statistics, now the National Statistics Office, conducted the entire operation and published the results in March 2023.

A tabular explanation of the variations in questions covered by different censuses is presented in Table 2.1. The 1971 census included questions on the sex of the deceased, age at death, and the relationship of the deceased to the head of the household. In addition, if the deceased was an infant, information was collected on the age at death in days for neonatal deaths and in months for post-neonatal deaths. The subsequent censuses of 1981 and 1991 retained this core set of questions but discontinued the collection of data on neonatal and post-neonatal deaths. The 2001 census introduced a new component to capture the cause of death, along with the year and month of death.

The 2011 and 2021 censuses discontinued the separate recording of the year and month of death, instead requesting only the age at death. To gather information on maternal mortality, both censuses included an additional close-ended question in cases where the deceased was a female aged 15–49 years, aimed at identifying the condition of the deceased at the time of death. Furthermore, the 2021 census adopted a close-ended question format to record the cause of death, replacing the open-ended format used in the 2011 census.

Table 2. Mortality related questions in Nepal censuses (1971 – 2021)

Mortality information/census year	1971	1981	1991	2001	2011	2021
Deceased in Household	√	√	√	√	√	√
Name of the deceased						√
Age at death	√	√	√		√	√
Year of death				√		
Month of death				√		
Sex of the deceased	√	√	√	√	√	√
Exact age of infant death in days or months						
Relationship of the deceased to the household head	√					
Cause of death (uncoded)				√	√	
Cause of death (coded)						√
Condition of the deceased (Female 15-49 yrs.)					√	√

Table source: (Central Bureau of Statistics (CBS), 2022)

In line with previous censuses, NPHC 2021 also provided separate sections for mortality and fertility in the household section. To collect information on death, the household head/representative is asked whether any usually residing member/s of the household died during the 12 months preceding the census date. If any death is reported, additional information – namely name, sex, age (at death), and cause of death – are also recorded. In the case that the deceased is a female aged 15-49 years, the condition at the time of death is also collected. For reference, the mortality and fertility sections of the NPHC 2021 questionnaire are provided as Figure 2.1.

Figure 2.1: Mortality and fertility sections – NPHC 2021 main questionnaire

Death Related Information

14. Has anyone in your household died in the last 12 months ?
1. Yes 2. No → Question No. 16
Number of deaths.....

15. Please give details of the deceased person

S.N.	Name and surname of the deceased person	What is the sex of the deceased person? Male……1 Female…..2	What was the age at the time of death (In completed years)?	What was the main cause of death of the deceased person? (See codes below)	If the deceased was a woman aged 15 to 49 years, what was her condition at the time of her death? Pregnant …1 Delivery …...2 Within six weeks after the end of pregnancy or delivery…….3 Other……..4
(1)	(2)	(3)	(4)	(5)	(6)
1					
2					
3					

Communicable disease……...1 Vehicle accident…3 Reproductive/childbirth complications….5 Suicide……...7 Other…9

Non-communicable disease…2 Other accident……4 Homicide……...6 Natural disaster….8

Birth Related Information					
Only for ever married women aged 15-49 years					
How many children has …. [Name]…… given live birth to until now? (Living together, living separately, and dead after live birth) (If no live births→29)		Among the live births given by …. [Name]…. How many of them died later?		How many live births has …. [Name] …. had during the last 12 months? (include children who died and those still alive)	
Sons	Daughters	Sons	Daughters	Sons	Daughters
(26)		(27)		(28)	

Source: (Central Bureau of Statistics (CBS), 2022)

Limitation of NPHC 2021 mortality-related questions

With regard to measuring mortality, the NPHC 2021 questionnaire follows a majority of the recommendations provided by the UN in its 'Principles and Recommendations for Population and Housing Census, Revision 3'. There are, however, many shortcomings in the questionnaire which prevent it from providing a full analysis of mortality using census data alone. Firstly, the lack of questions regarding maternal/paternal orphan hood does not allow for an indirect estimation of adult mortality and hence its direct estimates are obtained from household deaths in the past 12 months. Secondly, the lack of a question which links the mother with a deceased child makes it impossible to connect a mother's characteristics to the child for further analysis on infant mortality. Thirdly, the age at death is reported in completed years, making it impossible to estimate neonatal mortality. As such, an additional question with the purpose to collect information on the month of death should have followed for cases of death reported at age 0. Furthermore, a more robust age at death could be calculated if information on the date of death was collected. Fourthly, collecting information on deaths for the past three years would increase the number of deaths recorded, resulting in more reliable estimates. Finally, if information on children surviving was collected (in addition to children ever born and children who have died) then cross validation of wider data sets would be possible. The NPHC 2011 included a provision to include all three categories, but removing the 'child surviving' category in 2021 might have some negative effect on truly recalling the total number of children born by individual women. As a final reflection, if COVID-19 had been provided as an answer category in response to the question on the cause of death, an excellent opportunity to cross verify census data with data from administrative records may have been realized.

Use of census data for mortality analysis

Census data on fertility and mortality is not sufficient to serve as a substitute for reliable birth and death statistics from civil registrations; rather they are useful, particularly for countries where birth or death registration is lacking or incomplete (United Nations, 2017). Therefore, the

straightforward approach for estimating periodic mortality statistics for any administrative/political sub-divisions of a country would be from a vital registration system (VRS) if such is reliable and of good quality. In Nepal, VRS began in 1977 as a pilot programme in 10 districts and was later expanded to cover the entire country. The system was operationalized in 2016 and now operates in 99.2 percent of the 6,743 wards of the country (Department of National ID and Civil Registration (DoNIDCR), 2081 BS). However, registration data are not fully reliable in terms of timeliness, completeness, and accuracy as they suffer from issues of under and late reporting, age misreporting, duplication, amongst others (Department of National ID and Civil Registration (DoNIDCR), 2081 BS). It has not been possible to compare the quality of census death records in comparison with VRS data. There are a number of reasons why the two data sets could not be compared. The limited access to detailed VRS death records to compare age-sex distribution of death presents a first issue. Additionally, the lack of a question in the census to verify whether the death was registered or not creates a comparability issue as it may be possible that a death was registered but not enumerated in the census, or conversely that a death enumerated in the census may not have been registered, or that a death may have not been recorded in both collection methods. Moreover, there seems to have been no provision in place in the census questionnaire to record death in collective/institutional households or in one-person households, which may also account for the under-enumeration of deaths.

In countries where VRS or census data do not give reliable death records, surveys are often conducted to estimate mortality rates. In Nepal, the Demographic and Health Survey (DHS) and Multiple Indicator Cluster Survey (MICS) are the most reliable and periodic surveys that provide information on mortality statistics. These surveys, however, contain huge limitations in that the estimates from these surveys are representative up to the sampling domain (provincial) level only, with any aggregate below this level – district, municipality or ward – not being estimated. To gather estimation at a more granular domain level, unless there are significant quality issues, the primary alternative is to use census data. However, the use of census data does carry its own limitations. The primary scope of a census is to conduct a complete enumeration of the population in a country, territory or area periodically (at least once every 10 years) in terms of a well-defined reference period, and the mortality and fertility information obtained are the byproducts of the census process. The information collected from censuses regarding births and deaths are for the 12 month period preceding the census. Whilst this is not necessarily a shortcoming for collecting data of the total population, it may pose a problem regarding small number variability due to small number of deaths when estimating the mortality rates for lower levels such as municipalities. There is a general practice among dedicated surveys such as the DHS or MICS to collect information for 3-year and 5-year periods preceding the survey for the purpose of computing fertility and mortality estimates, and this range is usually implemented to avoid underrepresentation due to small numbers of deaths in the survey. For MMR purposes, 7-

year data periods are usually preferred. These limitations often demand the use of indirect techniques in order to allow for cross-verification.

Generally, census data suffers from errors arising from numerous causes including errors in reporting and/or measurement biases. For example, respondents may be reluctant to report the recent death of a household member, or the enumerator may not probe multiple times or may not ask the question correctly. Such cases are more sensitive when reporting neonatal, infant and under-five deaths. Furthermore, in the event of the death of an individual from a one-person household, the event is not recorded in the census as death details are collected from households which exist at the time of the census enumeration. Similarly, there is no provision in the NPHC 2021 questionnaire to record a death in households in collective settings, i.e., the institutional households by definition. However, the deceased persons in these households may have been reported from their closest relative's household – if any exist and as per Nepali tradition, culture and practice – despite the norms set for defining a usually residing household member for counting purposes. Additionally, there is a chance of double counting of deaths, especially in the case of senior citizens living alone as private households who may be recorded by multiple member households belonging to their offspring. The UN Principles and Recommendations for Population Census prescribes using exact reference dates or the date of death instead of a period of the last 12 months. The NPHC did not use the exact date for the reference period, which might have also caused some under/over-reporting of deaths due to a misunderstanding of the reference period. Likewise, errors in the declaration of age may also bias the observed age structure of mortality. However, there is no available information and no studies found to corroborate this conjecture in the NPHC 2021 data set.

Data quality evaluation

Mortality sex ratio (MSR)

The mortality sex ratio is a crude summary measure of how death occurs by sex and it is usually expressed as number of male deaths per 100 female deaths. A value greater than 100 signifies a greater number of male deaths compared to female deaths in the population. The mortality sex ratio help assess differential pattern in death occurance or reporting between males and females.

The mortality sex ratio for Nepal is 137.6, meaning that there are around 138 male deaths for every 100 female deaths. The 2011 census documented a mortality sex ratio of 135, with 73,961 male; 54,621 female and 1,396 sex not-stated deaths from 126,245 households (Central Bureau of Statistics (CBS), 2014).

Overall, male deaths show a slightly higher increase compared to female deaths, which may suggest underreporting of female deaths, among other possible factors. Under registration of female deaths are also observed by Pandey & Adair (2022) based on the completeness of death registration at the national and subnational levels of Nepal. Three sources were used to assess the completeness of death registration, namely offline registration, online registration of vital statistics data, and CRVS survey data. Male death registration was higher than female in spite of the low completeness of death registration for both sexes. The study observed that, due to existing male dominated property ownership and provision of social security allowance for widows, male deaths were more likely to be registered for death registration certificate for property/ownership transfer or access to social security allowance, particularly for adult deaths.

Inaccuracies in death reporting often disproportionately affect women, especially in areas where social, cultural, or systemic factors may lead to gaps in the documentation of female mortality. However, the risk factors for mortality in Nepal between men and women are considerably different. For example, overseas labour workers are predominantly comprised of men, many of whom work in harsh conditions in labor-intensive jobs with limited health care which intensifies the chances of their death or worsen their long-term health leading to early mortality (Paudyal, et al., 2020). On the domestic front, men face greater exposer to risks such as working in high-risk industries, substance abuse, untreated/undiagnosed mental health and stress conditions, road-traffic accidents, and fatal incidents due to their outdoor occupational roles (Pandey, et al., 2020). It is further established globally that men are more prone to some diseases and have weaker immune system than women (Klein & Flanagan, 2016). However, the unusually high mortality sex ratio may indicate some problems in data quality.

Among the provinces, Karnali (146.3) shows a very high mortality sex ratio, followed by Sudurpashchim (144.3) and Lumbini (142.1). Relatively lower values are observed for Madhesh (132.4) and Bagmati (135.4) provinces. Rukum-East has the highest mortality sex ratio of 174.0, while Taplejung has the lowest value of 110.9. Further details are available in Map 2.1. Interestingly, it is observed that male deaths exceed female deaths in all spatial levels for Nepal. The number of male deaths is higher compared to female deaths. Comparatively speaking, the mortality sex ratio is lower in the Mountain districts of Koshi (Taplejung, Sankhuwasabha and Tehrathum) and Khotang. Bhaktapur, Lamjung, Mustang and Baglung are distinct districts with relatively lower values. The mortality sex ratio is higher for districts bordering Lumbini and Karnali provinces. In Sudurpashchim, Baitadi and Darchula show a high mortality sex ratio compared to other districts of the same province. The high mortality sex ratio in areas of Karnali and Sudurpashchim provinces may suggest underreporting of female deaths in these areas.

Map 2.1: Mortality sex ratio, by province and district, Nepal, NPHC 2021

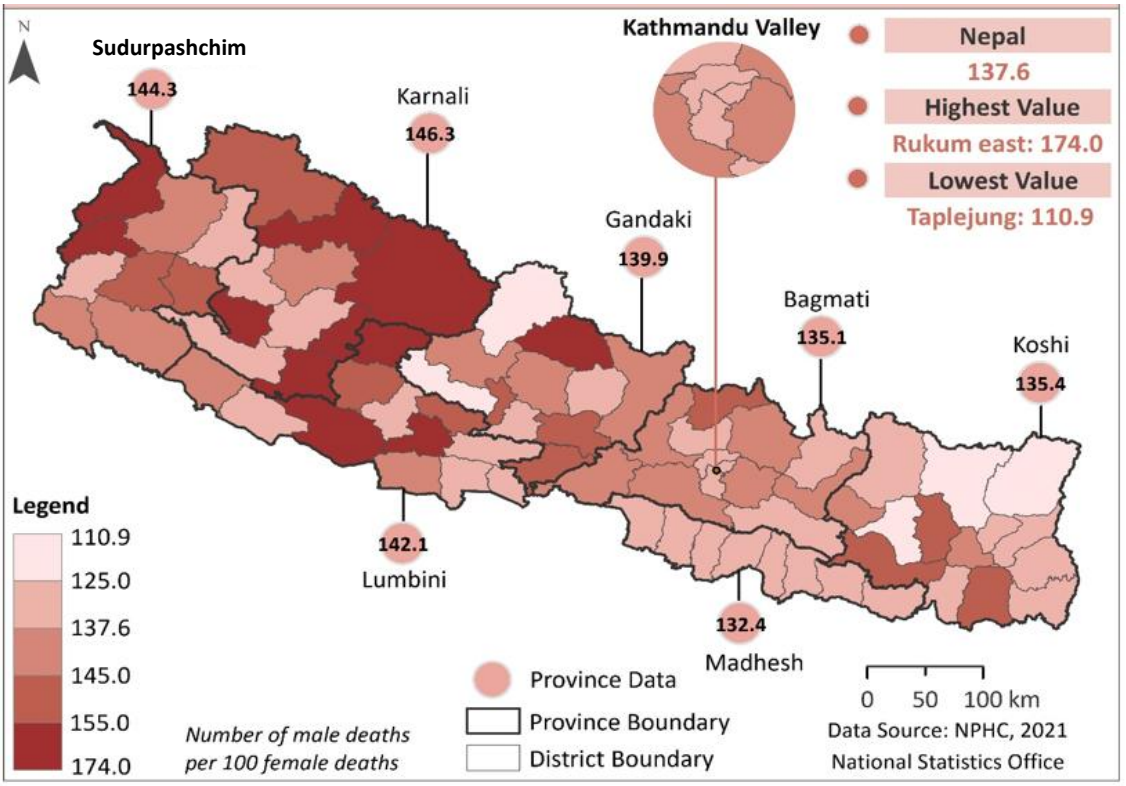
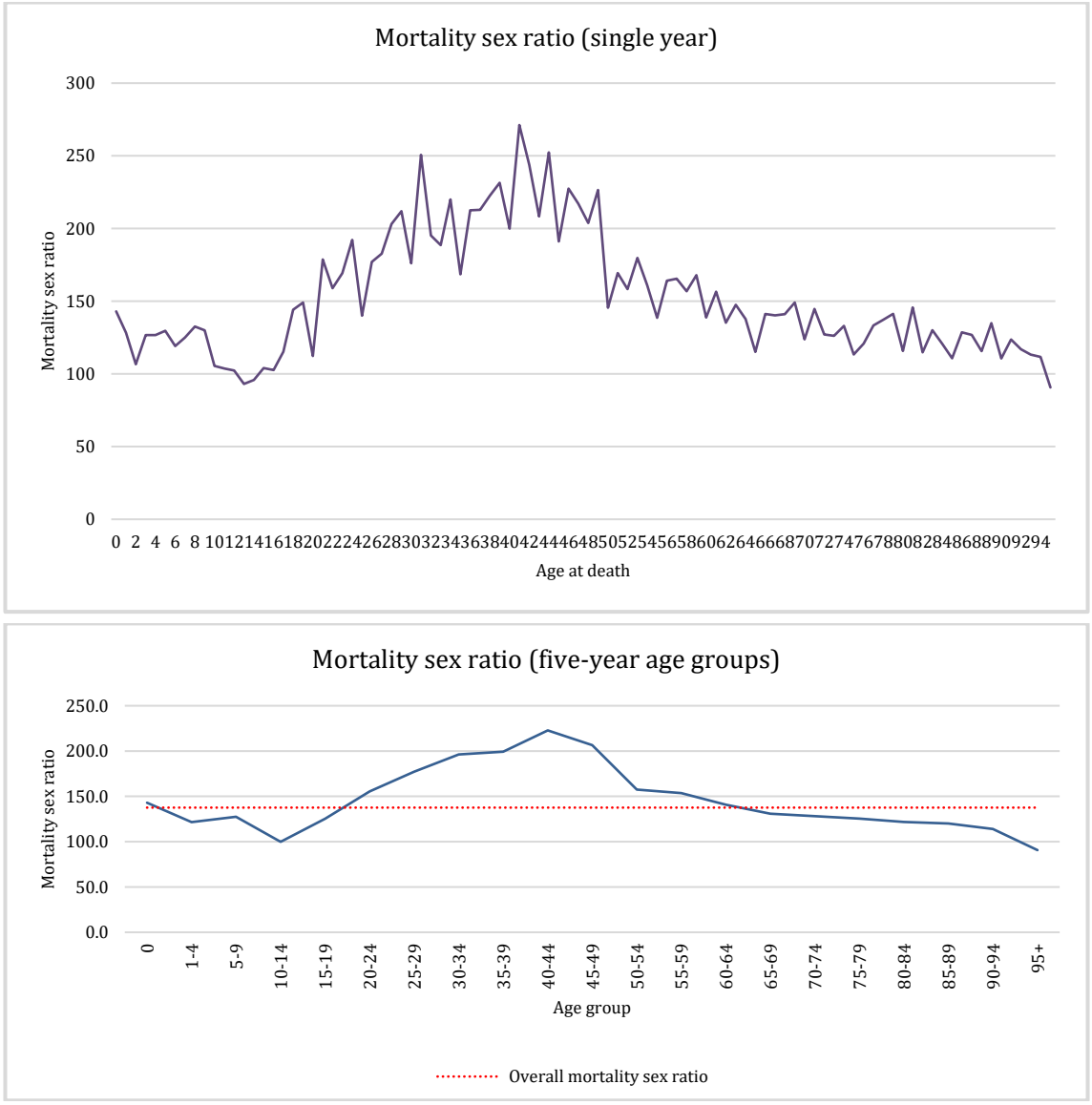


Figure 2.2 shows the mortality sex ratio for single age and five-year age groups. The figure shows that death record data are much smoother when grouped into five-year bands. The graph however still indicates that the mortality sex ratio is higher for age groups 20-24 until 60-64 than for the overall national average. The highest values are seen in the age group 40-44 years, with the figure starting to decline from the group 65-69 onwards, and reaching a lowest value in the ages 95 and over, which is seen due to higher number of female deaths in the older ages as women survive more years in later life than their male counterparts. The mortality sex ratio for infants is slightly higher than the national average, with the ratio for the 1-4 year age group dropping by a figure of nearly 20 less male child deaths than for infants, and reaching a 1:1 ratio at 10-14 years. As previously discussed, the increasing trend in the mortality sex ratio, especially in twenties to fifties group, is a matter of concern. This may also be a result of female death underreporting or other factors associated with male morbidity. NPHC 2021 shows that nearly 7.5 percent of the total population are absentee through formal and informal channels, or temporarily absent but have close family ties and are expected to return. Men constitute around four-fifths of this population and 62 percent of these men are between ages 20-44 years. On average, 1,700 to 2,100 people seek foreign employment through legal channels (Ministry of

Labor, Employment and Social Security, Foreign Employment Board). Women are only permitted to work in relatively safer and physically less-challenging jobs. In FY 2078/79, 1,479 people died abroad and their corpses were returned home. The increasing number of foreign labour death or fatal illness or disability indicates that foreign employment requires greater safety and security measures for Nepali workers. This might also affect the astonishingly high mortality sex ratio and should be further explored.

Figure 2.2: Mortality sex ratio by single year and five-year age groups, Nepal, NPHC 2021



The mortality sex ratio at the municipality level (local government) are much higher or lower, ranging from 0 to 440. When analyzing the actual number of deaths reported in these areas by sex, the ratios seem to be affected by a small number problem (for example, 4 male deaths vs 2 female deaths in one of the municipality and zero death in other) as well as showing a relatively low population in these areas. However, such high ratios are not common. One reason for such unusual figures is likely attributed to the underreporting of female deaths or low population size, an error which may contribute to a deterioration of the quality of data and the mortality indicators derived from them. The mortality sex ratios at the municipality level are not described in detail here, however Annex 3: Map A3.1 contains further data for reference.

Mortality gender parity index (MGPI)

The mortality gender parity index (MGPI) examines whether there is parity or disparity between the sexes for which the ratio of female and male values of an indicator are measured. For this report, MGPI is defined as the ratio of female CDR to male CDR. A value greater than 1 suggests higher female CDR whilst a value lower than 1 indicates higher male CDR.

Figure 2.3 displays MGPI values for Nepal, ecological zones, and provinces. It is clear that mortality for males is higher than that of females across all levels of disaggregation. Comparatively speaking, the value is highest for Madhesh (0.76) and Bagmati (0.74) while it is lowest (i.e., female mortality rates are lowest) for Gandaki, Lumbini and Sudurpashchim provinces.

Figure 2.3: Mortality gender parity index – Nepal, ecological region and province, NPHC 2021

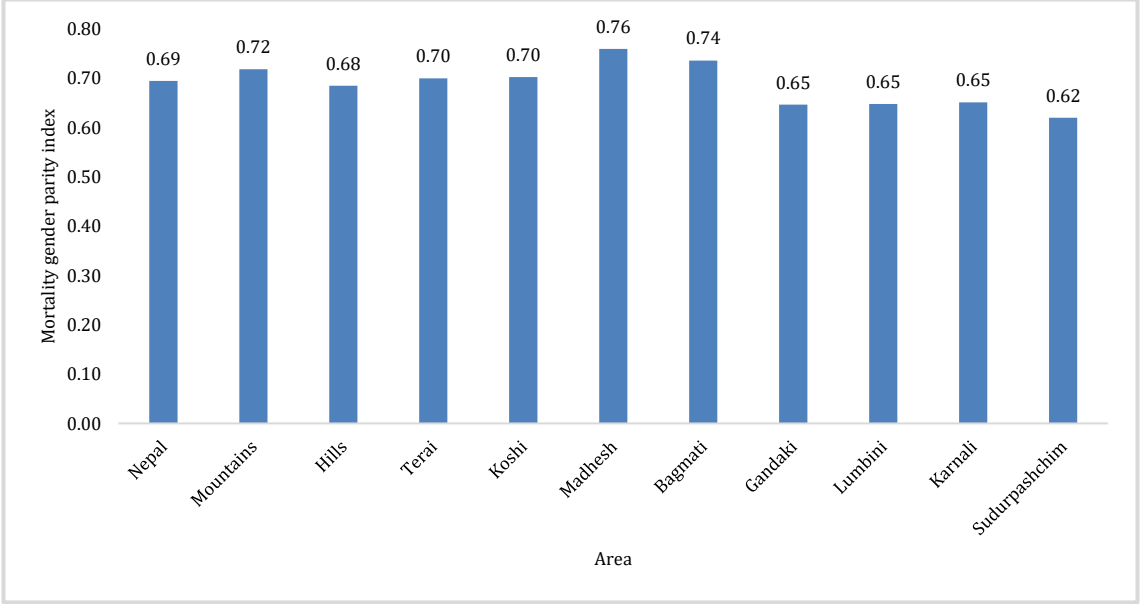
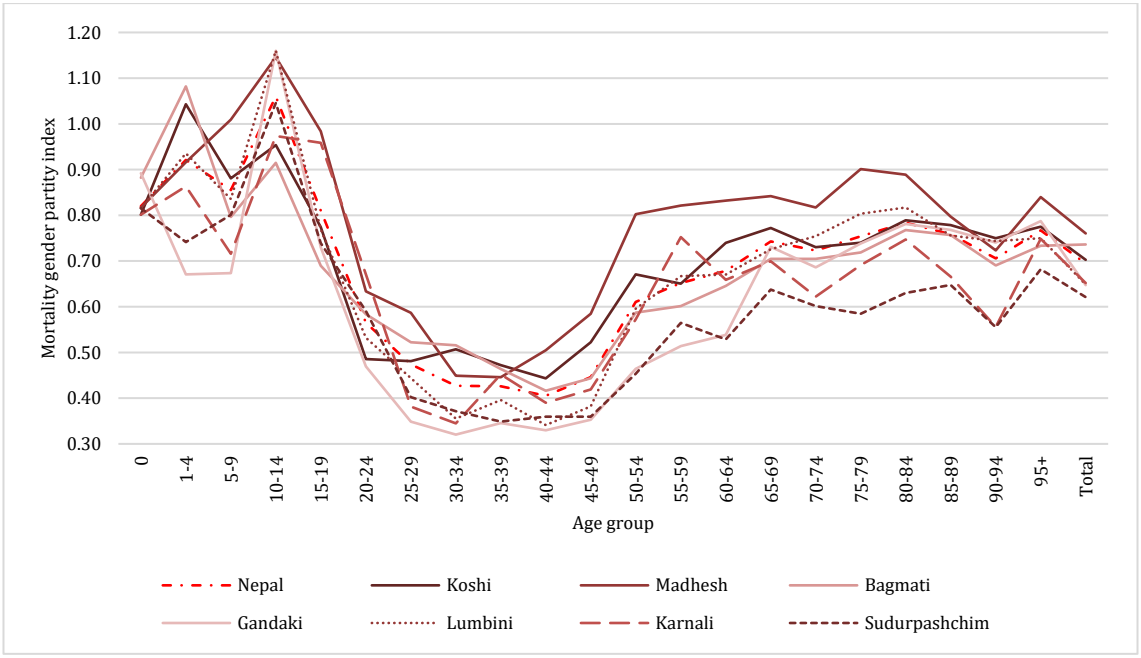


Figure 2.4 presents the mortality gender parity index for Nepal and its provinces by five-year age groups. In general, the pattern of MGPI across different age groups is similar for Nepal and its provinces. The values are slightly over 1 for the 10-14 years age group and less than 1 for the remaining age groups. The MGPI values are lowest for age groups 25-29 years through to 45-49 years in all areas, except Madhesh and Koshi provinces which show low values between the age group 30-44 years. The MGPI for Koshi and Bagmati provinces is slightly greater than 1 for ages 1-4 years. Its value is greater than 1 for all area, yet more significantly for Madhesh, Lumbini and Gandaki provinces.

Figure 2.4: Mortality gender parity index for five-year age groups; Nepal and province, NPHC 2021



Annex 3: Table A3.1 presents the mortality sex ratio and mortality gender parity index for Nepal, provinces, and districts. The corresponding map for this data is provided in Map 2.2. A strong negative correlation (-0.79) exists between the mortality sex ratio and gender parity index.

Map 2.2: Mortality gender parity index, by province and district, Nepal, NPHC 2021

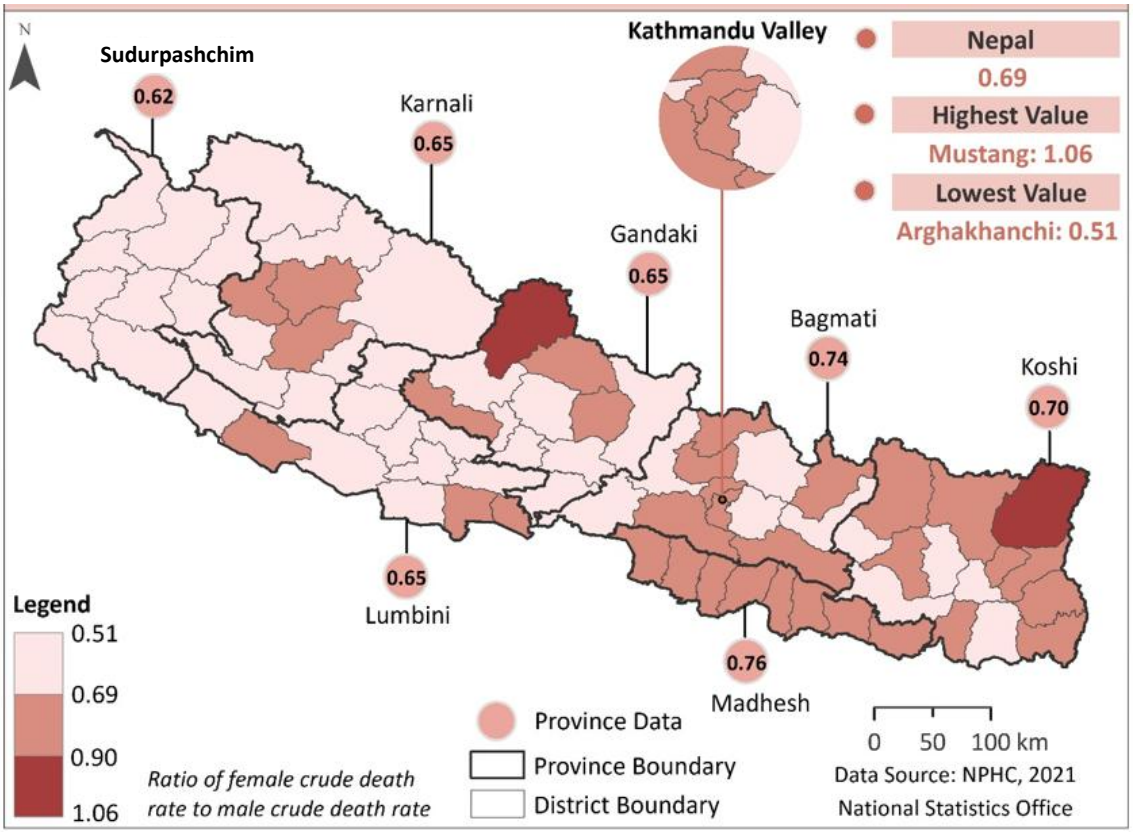


Table 2.2 presents the top and bottom 10 districts by MGPI values. Generally, districts from Karnali, Lumbini and Sudurpashchim provinces have the lowest MGPI values. Arghakhanchi (0.51), Baitadi (0.54), Rukum-East (0.54), Dang (0.56) and Doti (0.56) constitute the lowest MGPI values. Likewise, Mustang (1.06), Taplejung (0.92), Sankhuwasabha (0.85), Parsa (0.82) and Manang (0.82) have relatively higher MGPI values. It should be noted here that only Mustang has a MGPI of more than 1, which suggests that the male CDR is higher than the female CDR in all districts except Mustang.

Table 2.2: Bottom and top 10 districts for mortality gender parity index, NPHC 2021

Bottom 10				Top 10		
District	**MGPI**	**Rank**		**District**	**MGPI**	**Rank**
Arghakhanchi	0.51	77		Mustang	1.06	1
Baitadi	0.54	76		Taplejung	0.92	2
Rukum-East	0.54	76		Sankhuwasabha	0.85	3
Dang	0.56	75		Parsa	0.82	4
Doti	0.56	75		Manang	0.82	4
Gulmi	0.56	75		Bhaktapur	0.81	5

Bottom 10				Top 10		
District	**MGPI**	**Rank**		**District**	**MGPI**	**Rank**
Salyan	0.58	74		Bara	0.79	6
Achham	0.58	74		Khotang	0.78	7
Rolpa	0.58	74		Lalitpur	0.78	7
Darchula	0.58	74		Kathmandu	0.78	7

Age and sex

The age and sex of the deceased are the most important characteristics for assessing quality of data and eventually computing mortality rates. In this regard, the age and sex composition of the deceased must be assessed prior to conducting further analysis.

Post enumeration survey

Post enumeration surveys (PES) are often conducted in many countries to assess the coverage of population censuses and to indicate content errors. A PES is an independent household-based sample survey that verifies answers obtained from the census and assesses the extent of content and coverage errors. It is often conducted by an independent body, either an external organization or a different unit than that which conducted the census, and where the human resources which were involved in the census operation are not involved. Nepal has conducted PES since the 1981 census. Unlike previous PES, where only coverage errors were measured, the latest edition conducted in 2022 assessed content errors in age, sex, marital status, literacy status and place of birth. It measures a net omission rate of 2.58 percent, or 2.9 percent for males and 2.3 females by sex. With regard to the content errors, it reports a small 0.13 percent sex misreporting against a noticeable degree of error in age reporting (26.9%). However, the indices used to measure age heaping/digit preference and age-sex accuracy show age reporting issues for both the census and PES (National Statistics Office (NSO), 2022). Given the high prevalence of age misreporting of persons living in the households, as reported by the PES, it may be the case that a similar error may be applicable to reporting age of deceased members of the household. But the PES 2022 did not include any questions to measure the undercounting of deaths and content errors in death-related information in the census. The age heaping in population and death data has significantly diminished after applying the smoothing technique discussed in the subsequent section.

Adjustment of 'age not stated'

An initial thorough examination of age sex data on death and population identifies 481 cases reported as 'age not stated' (0.0024%) out of the total 198,463 deaths that were reported from

non-institutional[5] households in Nepal. Of them, 335 are male and 146 are female. Age not reported cases are proportionally distributed over ages to obtain adjusted deaths (National Statistics Office, 2025b).There are no cases of sex not reported in NPHC 2021 dataset.

Age heaping and smoothing

Digit preference is a common phenomenon when reporting a completed age instead of date of birth. Directly enumerating the age of an individual is a less preferable approach of data collection for age-related demographics as this results in less accurate age data. This misreporting often occurs due to misunderstanding by the respondent regarding the last or the next or nearest birthday, or the tendency to round the ages to nearest ages ending in '0' and '5' due to imprecise recall or any other cultural or social bias towards some particular digits. This tendency of the population to prefer/round the ages to terminal digits when reporting age is referred to as 'age heaping'. Since the census 2021 questionnaire asks the respondent to report age at death in completed years, the death data also suffer from this inaccuracy.

The Myers' index is a widely used method to detect digit preference for ages ending in 0-9 (Shryock & Siegel, 1976). The Myers' blended index produces an index of preference for each terminal digit, indicating the deviation from 10 percent of the proportion of the total population reporting ages with a given terminal digit. This approach is considered as an improvement when considering the limitations of Whipple's index.

The effects of age heaping are clearly visible from the Whipple's index and the Myer's index. Figures presented in Table 2.3 shows that the age reporting of death data of females is worse than for males when reflecting on the Whipple's index, at a rate of 213.1 which his considerably higher than the threshold 175. The Myers' indices for reported deaths for females, males and both sexes are each around double that of the figure for the reported population, indicating that individuals are unable to report the age of a deceased person as accurately as for the living population. The deterioration in age reporting is seen greater for females as compared to males. The NPHC 2021 questionnaire contains a separate question to provide the date of birth, in addition to another question for completed age of individuals usually living in a household, yet the mortality section provides no provision for writing the date of death of household members which may have further exacerbated the inaccuracy in age reporting for deceased persons in addition to the factors discussed earlier in this report. Table 2.3 additionally reveals that misreporting/inaccuracy in ages for both reported death and for the living population are corrected considerably after the application of appropriate smoothing techniques which shall be discussed later.

[5] The non-institutional households are same as conventional households operated as private households by individuals which comprise of members usually living under the same roof, sharing the same kitchen in one management and managed by a household head.

Table 2.3: Whipple's and Myers' indices by sex for age reporting, Nepal, NPHC 2021

Index	Death		Population	
	Reported	Smoothed	Reported	Smoothed
Whipple's				
Female	213.1	104.8	149.1	101.7
Male	192.5	104.0	148.8	101.8
Both sexes	200.1	104.3	148.9	101.7
Myers'				
Female	20.0	1.0	10.1	0.6
Male	17.5	1.4	9.6	0.7
Both sexes	18.6	1.1	9.9	0.6

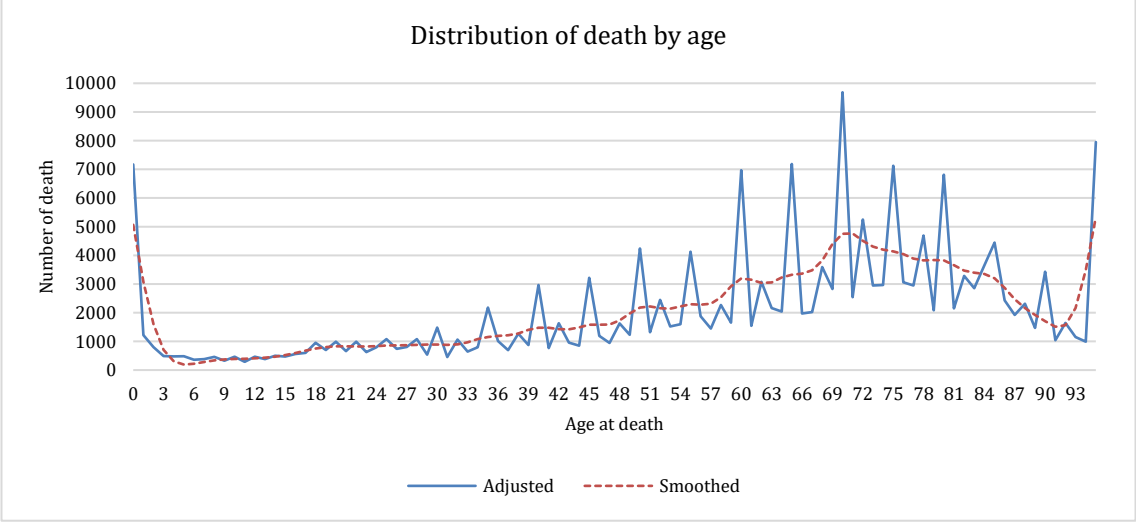
The Myers' index for Nepal shows varying degrees of deviation with considerable heaping seen in ages ending in '0' followed by '5'. The summary index of preference for all terminal digits also varies across these units and further details are provided in Annex 2: Table A2.1. The table presents Myers' index scores (% deviation from uniformity) for reported age at death and population in NPHC 2021, with the positive scores showing the preference and the negative scores showing the avoidance of the digits concerned. The scores for both reported deaths and population show a higher preference for digits '0' and '5' and a lower preference for '2'and '8', while an understatement/avoidance is seen for digits '1', '3', '4', '6', '7' and '9'. This tendency is again higher for reported deaths than for the reported population and more so for females than for males (Annex 2: Table A2.2).

The effects of digit preference are controlled by smoothing the reported/adjusted deaths and the reported population to obtain adjusted figures. The smoothed death and population data is utilized when using the mortality section of NPHC 2021. The r function *smooth.spline()* is used for smoothing reported population and death data and it is composed of several cubic splines or polynomials that are fitted to different segments (piecewise) of the data points and joined together to produce a smooth curve. The splines capture the overall trend of the data while smoothing out the random fluctuations or noise. The splines are particularly useful in capturing the non-linear trends in data. The *smooth.spline()* function finds the best balance between fitting the data well (low residual error) and maintaining smoothness (avoiding overfitting) by minimizing the overall error between the data points and the predicted values from the spline/curve. This is achieved by using a method of least squares, or also referred to as *'penalized least squares'*. The degrees of freedom (df) or the smoothing parameter (spar) are the two alternative parameters to determine the trade-off between the goodness-of-fit and the smoothness of the curve. The 'df' controls how much freedom the spline has to adjust to the data while 'spar' controls directly how smooth the spline should be. A higher value of 'spar' results in a smoother curve (less fit to the data), while a lower 'spar' allows the spline to closely follow the data points. The lower values of 'df' produce smoother curves and higher values give

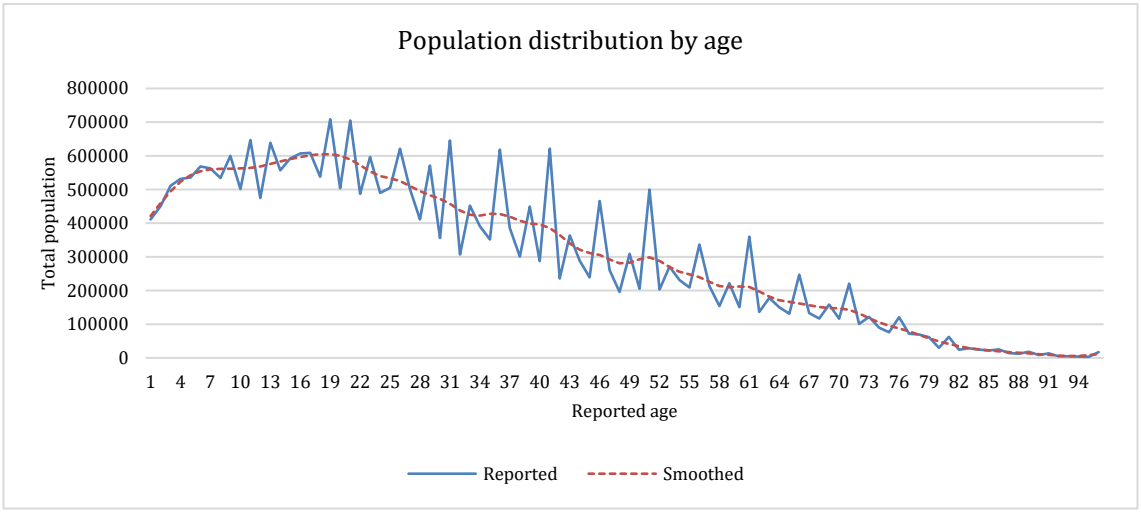
more flexibility to capture the data variability. Further details on smoothing are available from the literature (National Statistics Office, 2025b).

Due to age heaping in different ages, specifically in those years with the last digits as '0' or '5', *smooth.spline()*, was used for smoothing of the reported population and death data. The degree of freedom was set to (df=25) based on the number of ages bearing the impact of age heaping. To avoid over-smoothing, several iterations were made to check the incidence of age heaping. Figure 2.5 shows the effects of smoothing on the death and population distribution by age for Nepal (both sexes). This method is also employed for ecological zones and provinces. The province pattern is then used to control smoothing for districts. The resulting smoothed death and population distribution is then used to generate life tables and compute estimates for adult mortality[6].

Figure 2.5: Distribution of death/population by age (both sexes) – Nepal (adjusted and smoothed)



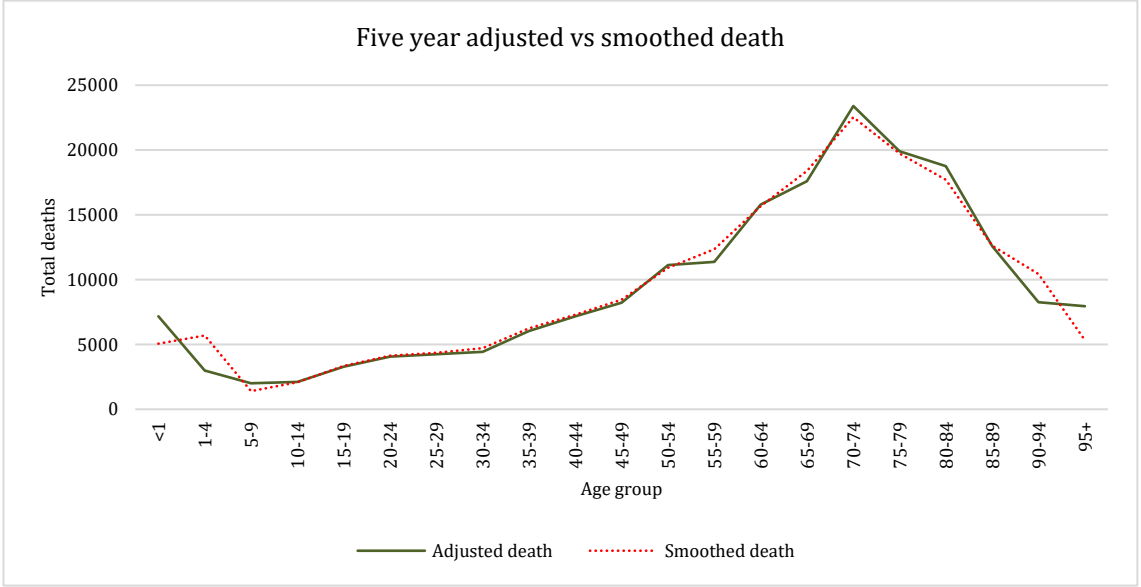
[6] In the annex 5, the unsmoothed female population data has been utilized in the CEBCS method to arrive at the indirect estimates of early-age mortality indicators.

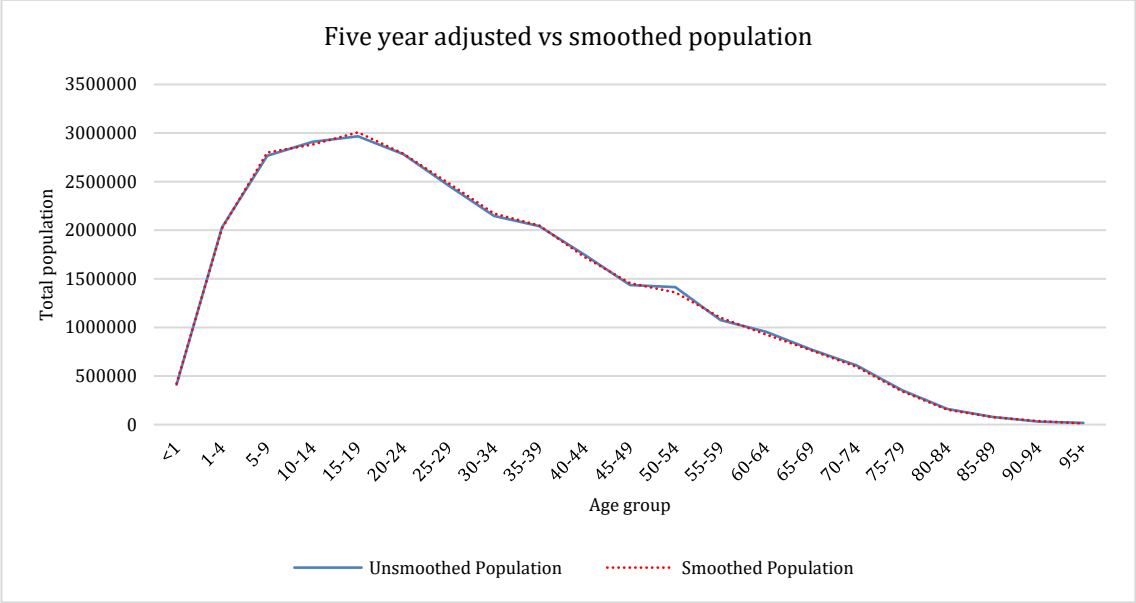


Age grouping

Figure 2.6 depicts the plots of death and population figures for reported and smoothed data by five-year age group. The number of deaths in the age group 5-9 years is astonishingly lower than the number in 0-4, and from 5-9 years the figure gradually increases until reaching its highest inflection point at 70-74, after which the figure starts declining. The unsmoothed and smoothed plots for both death and population figures show how the employed smoothing technique normalizes the reported data.

Figure 2.6: Adjusted and smoothed death/population by five-year age groups, Nepal, NPHC 2021





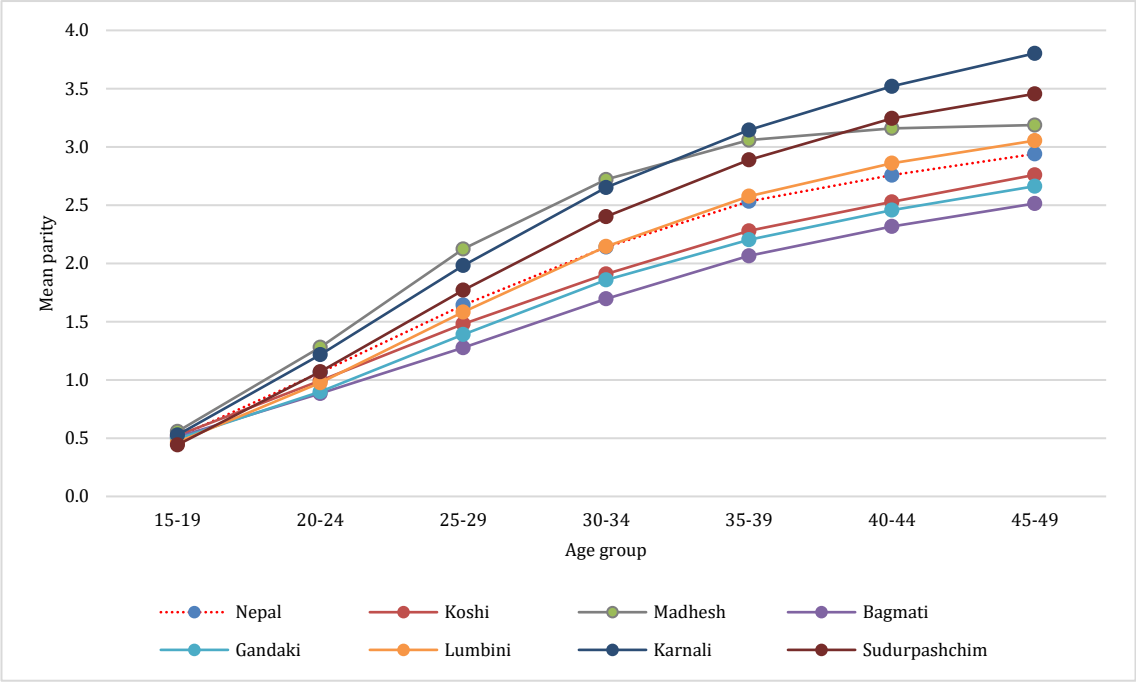
Once smoothed, the deviation from 10 for terminal digits ending in 0-9 significantly declines, subsequently decreasing the summary index of terminal digit preference. These values are provided for Nepal, males, females, and both sexes in Annex 2: Figure A2.1. Details of the summary index of terminal digit preference before and after smoothing for Nepal, ecological zone, province, and males, females are presented in Annex 2: Table A2.1 and Table A2.2.

Children Ever Born (CEB)

Mean parity

The quality of reported data on children ever born is assessed using different methods. One approach involves assessing the mean number of children ever born, known as mean parity. Mean parity is derived by dividing total number of children ever born in a particular age group by the total number of women in the same age group. Typically, the rate of the mean parity (average total number of co-resident, absent and dead children born to women) is expected to increase steadily with women's age. The NPHC 2021 collected information on children ever born to women of reproductive ages on a retrospective basis and as such a recall bias may have some effect in data quality. This usually results in the underreporting of children by women who have either passed away long ago or have grown up and now live independently. As a result, mean parity often does not increase proportionally with age among older women, which is a commonly observed pattern in demographic studies. Figure 2.7 shows the mean parity for Nepal and its provinces. The values are more or less constant for women aged 35 years and over, except for in Madhesh Province, indicating a reliable data set on children ever born.

Figure 2.7: Mean parities, Nepal and province, NPHC 2021

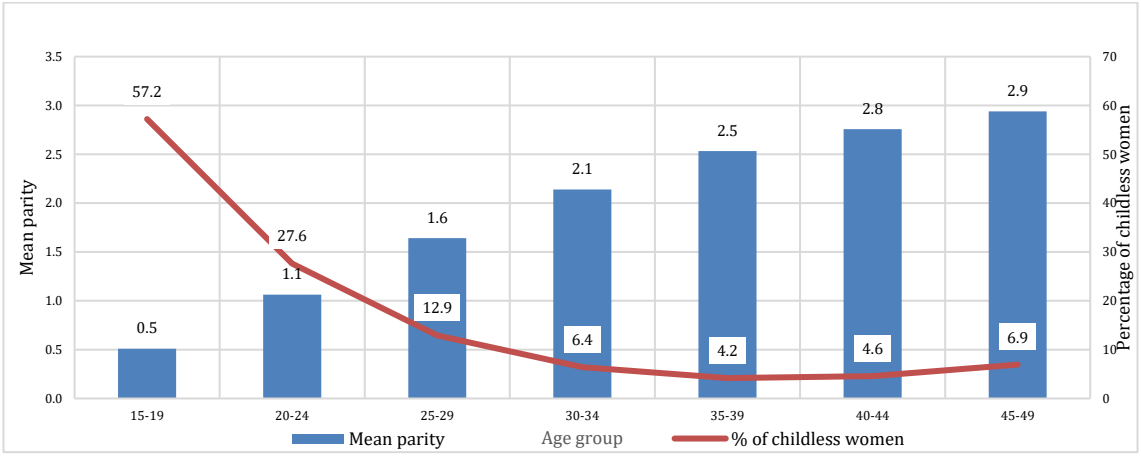


Childlessness

Another measure for evaluating data quality on children ever born is through examining the proportion of women who remain childless. Typically, childlessness decreases significantly with increasing age; in other words, older women are less likely to be without children. Reflecting underlying levels of primary sterility and voluntary childlessness, the proportion of childless women in the oldest age groups should range between 3-10 percent yet this proportion may be even higher in low fertility countries. A higher proportion of childlessness in the older groups may indicate significant errors in the data if exceeding a rate of 10 percent (Moultrie et al., 2013).

Table 2.4 and Figure 2.8 show that the childless women for the oldest child-bearing age 45-49 in Nepal is well below 10 percent, offering a good indication that the reported data on children ever born are of acceptable quality. However, an increment of this proportion by around 2.5 percentage points from the 35-39 to 45-49 age group is a matter of concern. This is somewhat inconsistent with the established trend and may indicate that some women did not report their live births and categorised themselves as childless. However, the figures may also reflect other factors, such as fertility treatments which are common more now than in the past, meaning that women who would have remained childless in the past may now, with some medical advancement, have the opportunity to bear children. Overall, some degree of underreporting in children ever born data may be inferred.

Figure 2.8: Mean parity and percentage of childless women by five-year age groups for women, Nepal, NPHC 2021



The quality of data on children ever born can also be evaluated by identifying cases of implausible parities. A parity is considered implausible if a woman reports having more children than is biologically feasible for her age. It is generally assumed that women aged 12 and older are able to give birth approximately every 18 months (Moultrie et al., 2013). Based on this assumption, the maximum number of children for women in each reproductive age group was calculated to assess the validity of the reported parity data. With this assumption, the maximum number of children that a woman can give birth to in the age groups of 15-19, 20-24 and 25-29 are 5, 8, 11 respectively. Table 2.4 presents data published by the NSO in the 2021 census national report and shows neither any improbable number of births, nor 'not stated' parities for any women in any age group. Conversely, census 2011 data (Central Bureau of Statistics, 2014) recorded around 4 percent of the total ever married female population reporting 'not stated' parities, where the highest 'not stated' parities reported in the 20-24 age group was double that of the total.

The average parity of women in the 45-49 age group (cohort fertility) and the total fertility rate (TFR) derived from the data on recent fertility can also be compared to assess the data quality of CEB. If fertility is constant for a long duration and data were accurately reported, the two measures should be close, and for many populations most of the childbearing is already completed in this age group. The cumulative fertility of women in this group, therefore, should be somewhat aligned with the fertility rates reflected in the TFR. If fertility rates are falling, the average parity of older women should be greater than TFR. As errors of underreporting of recent births will artificially depress the TFR, while omission of older women's births will artificially depress the average parity in that group, it is important to ensure that both the measures are plausible (Moultrie et al., 2013). If the TFR is substantially lower than average parity of women

aged 45-49, this may indicate issues with data quality, such as underreporting or inaccurate reporting of fertility events, especially in the younger age groups. This demands further research in fertility modelling.

The fertility rate of Nepal has declined from 3.25 per woman in 2001 to 2.52 in 2011 (Central Bureau of Statistics (CBS), 2014) and to 1.94 (National Statistics Office, 2025a) in 2021. The average parity of women in the 45-49 age group (2.9 children per woman) exceeds the current TFR by one child. This also indicates some potential underreporting in birth data, however, the data is of acceptable quality to conduct indirect estimation.

The sex ratios at birth for different age groups vary from 110 to 114 males for 100 female children born, is very high compared to the natural values that range between 103 to 108 in the absence of sex-selective abortion. This ratio is even higher than the national sex-ratio at birth for the oldest age group. This indicates that there might be some underreporting of female births at the older age groups of women, or misclassification of sex.

Sex ratio of CEB by age group of mother

The sex ratio of CEB by age group of mother is also useful to access abnormal patterns of fertility and to even identify sex selective abortion.

Table 2.4 shows that the sex ratios at birth for different age groups vary from 105 to 124, while the sex ratios of CEB vary from 110 to 114 males for 100 female children ever born. This rate is high when compared to the natural values that range from 103 to 108 in the absence of sex-selective abortion. The ratio is even higher than the national sex-ratio at birth for senior age groups of women and especially for ages 35 and over, indicating some potential underreporting of female births at the older age groups of women, misclassification of sex, or sex selective abortion.

Table 2.4: Number of ever married women by age group, CEB and last 12 months births by sex and parity, NPHC 2021.

Parity	Age group						
	15-19	20-24	25-29	30-34	35-39	40-44	45-49
0 Children	122042	254229	151067	71740	45076	41330	51014
1 Children	76584	417521	396715	237650	137362	88847	64824
2 Children	12585	196142	414641	461264	425525	313679	203507
3 Children	1718	43311	151933	220119	265025	232625	185290
4 Children	339	8026	43500	88127	126840	125769	116146
5 Children	52	1238	9749	28894	51116	58849	62085
6 Children	0	185	2389	9025	19016	25545	30565
7 Children	0	12	486	2503	6726	10194	13739
8 Children	0	0	0	850	2665	4485	6378

Parity	Age group						
	15-19	20-24	25-29	30-34	35-39	40-44	45-49
9 & More children	0	0	0	107	743	1960	3370
Number of women	213320	920664	1170480	1120279	1080094	903283	736918
CEB male	57001	511794	1009315	1257700	1437207	1315196	1153777
CEB female	51523	467432	912962	1139247	1298660	1175666	1012489
CEB both sexes	108524	979226	1922277	2396947	2735867	2490862	2166266
Sex ratio of CEB	110.6	109.5	110.6	110.4	110.7	111.9	114.0
Mean parity	0.51	1.06	1.64	2.14	2.53	2.76	2.94
% of childless women	57.2	27.6	12.9	6.4	4.2	4.6	6.9
Last 12 months birth male	19034	78890	65140	34172	14162	4438	2238
Last 12 months birth female	18151	73155	57392	28910	11689	3761	1803
Sex ratio at birth	104.9	107.8	113.5	118.2	121.2	118.0	124.1

Methodology

Two methodological approaches are applied after examining the quality of information obtained from the census questionnaires. The first approach involves computing estimates from age-sex information on deaths and population made available from the mortality section of the census (after necessary adjustment and smoothing). For this method, life tables are constructed from smoothed data to obtain estimates of IMR, CMR, U5MR, e_0, life expectancy at age 60 and the share of population surviving to this age. The second approach involves the use of information on children ever born and children surviving to obtain early life mortality indicators (IMR, CMR, U5MR) using suitable model life table, more often referred to as the CEBCS method.

Life table method

This method uses smoothed age-sex data on death and population to construct life tables from which direct estimates are obtained. The mortality rates from the life table method are computed using the operational definitions described below:

Crude death rate is computed using the following formulae:

$$CDR = \frac{Death_{adjusted,smoothed}}{\left(Population_{adjusted,smoothed} + \frac{death_{adjusted,smoothed}}{2} - \frac{birth_{adjusted,smoothed}}{2}\right)}$$

Age-specific death rates are computed using the following formulae:

$$ASDR = \frac{Death_{adjusted,smoothed}}{\left(Population_{adjusted,smoothed} + \frac{death_{adjusted,smoothed}}{2}\right)}$$

The smoothed age specific death rate ($_nm_x$) is converted to $_nq_x$ (probability of dying between ages x to x+n) to construct life tables from which direct estimates of IMR, U5MR can be inferred and made e_0 available. Detailed methodology on smoothing and construction of life tables are available in the literature (National Statistics Office, 2025b). The standardized crude death rate (SCDR) is obtained by using the population distribution of Nepal as the standard population.

CEBCS method

The CEBCS method relies on information from the fertility section of the census questionnaire to compute indirect estimates of IMR, CMR and U5MR using data on children ever born (CEB), children surviving (CS) and total women classified by five-year age group. Detailed methodology regarding the CEBCS is available from UN sources (United Nations, 1990) and its application in NPHC 2021 data is presented in Annex 5. This analysis has been carried out for the purpose of research only and the users are advised to use the values estimated from the direct method to represent mortality rates.

Details of the indicators that are computed along with the method used for computing the indicators/rates are provided in Table 2.5.

Table 2.5: Mortality indicators/rates computed from mortality and fertility sections

SN	Census Questionnaire (Question/Column number)	Level of Analysis	Indicators/Rates	Method
1	Q14	Household	Percentage of households with death	Reported
2	Q15	Age-sex	Mortality sex ratio	Reported
3	Q15	Age-sex	Population pyramid of deceased persons	Reported
4	Q15	Both sex	Percentage of death by cause	Reported
5	Q15	Both sex	Crude death rate	Reported/life table
3	Q15	Both sex	Mortality gender parity index	Reported
6	Q15	Age-sex	Age-specific death rate	Reported/smoothed
7	Q15	Age-sex	Standardized crude death rate	Smoothed
8	Q26, Q27 and Q28	Age-sex	Infant mortality rate	ASDR/life table/CEBCS
9	Q26, Q27 and Q28	Age-sex	Child mortality rate	ASDR/life table/CEBCS
10	Q26, Q27 and Q28	Age-sex	Under 5 mortality rate	ASDR/life table/CEBCS
11	Q15	Age-sex	Life Expectancy at Birth	ASDR/life table
12	Q15	Age-Sex	Percentage of population surviving to age of 60 years	ASDR/life table
13	Q15	Age-Sex	Life expectancy at age of 60 years	ASDR/life table

CHAPTER 3

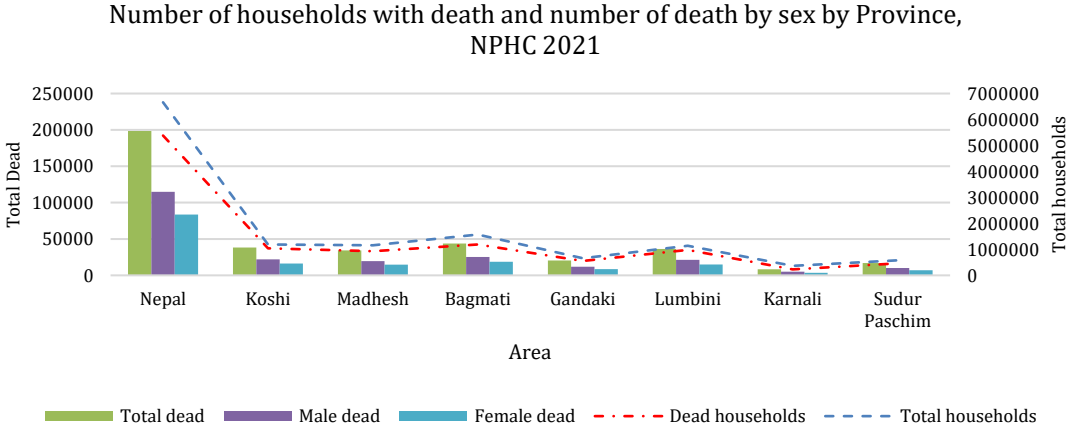
MORTALITY OVERVIEW

This chapter provides an overview of mortality as a foundation to the following chapters. The following indicators are discussed in this chapter to provide a glimpse of how mortality occurs prior to approaching mortality rates: percentage of households with death, cause of death, age-sex pyramid of deceased persons, and the percentage of death by sex. There were 198,463 deaths (114,996 males and 83,517 females) reported from 192,178 non-institutional households in Nepal, of which about 96.7 percent reported only one death, 3.1 percent reported 2 deaths, and the remaining reported more than 2 deaths with up to maximum of 6 deaths in some households. Households which had more than one deaths are not separately analyzed; all the households which reported a death in the past 12 months preceding the census are considered as the "households with death" irrespective of the number of deceased persons recorded.[7]

Distribution of households with death and deceased persons

Figure 3.1 shows the distribution of total households, households with death/deceased by sex (left-vertical axis), and the total number of households (right-vertical axis). This figure provides a glimpse of mortality across Nepal and its provinces.

Figure 3.1: Households with death by sex, Nepal and provinces, NPHC 2021

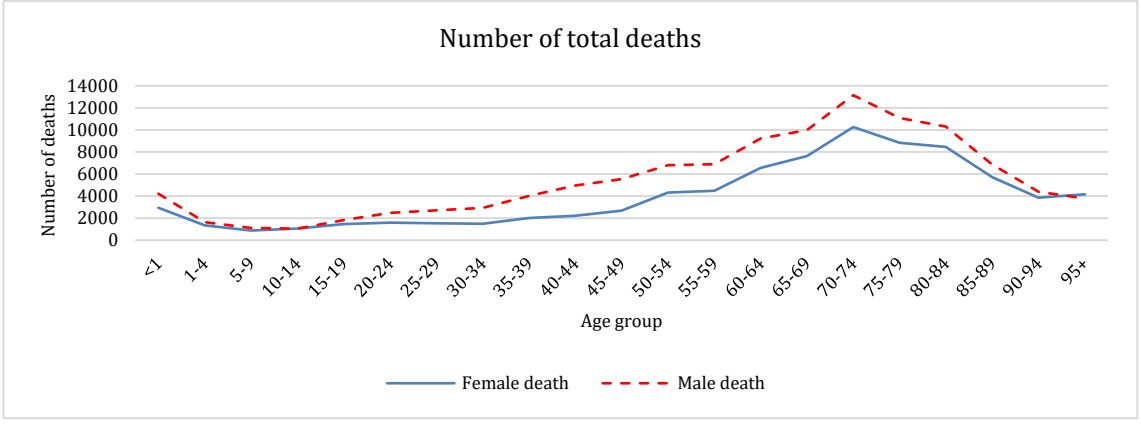


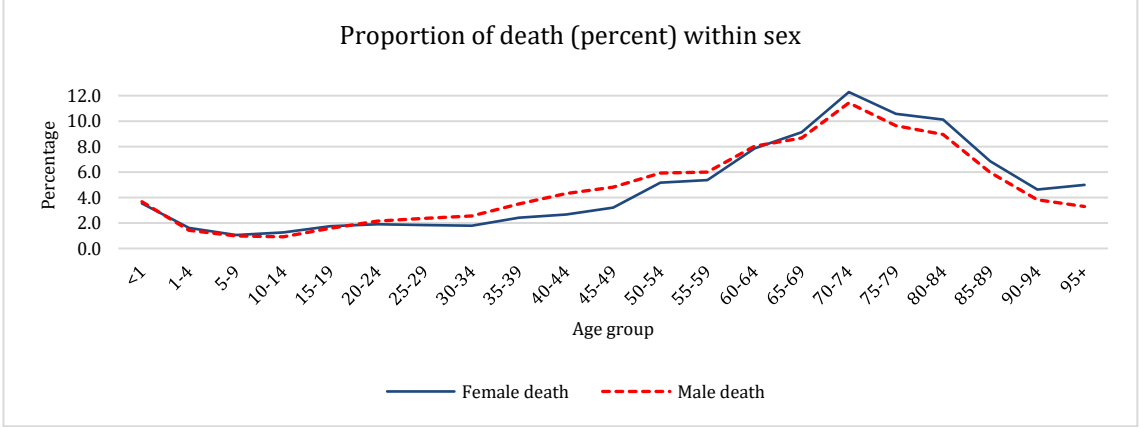
[7] NPHC 2021 mentions this as the households with at least one death.

Number of deceased persons by five-year age group and sex

Figure 3.2 shows that the number of male deaths is greater than the female deaths in every five-year age group. The difference is insignificant at age group 10-14 yet starts to widen from the age group 15-19 until 90-94, with the two rates overlapping each other at age 95+. This shows higher number of male deaths per women death in every age group greater than 10-14 and until 90-94. However, the proportion of death for different age groups out of total deaths by sex show a different pattern; the two proportions appear to be similar until the age group 15-19 yet the male death proportions are higher than female death from 20-24 to 55-59, overlapping at age group 60-64 and female death proportions exceeding male death proportions for all the older age groups. This reveals that the proportions of female deaths are larger than the male proportion at the older ages, whilst the opposite is generally seen between the working age 15-59.

Figure 3.2: Total number and proportion of death for five-year age groups by sex, Nepal, NPHC 2021

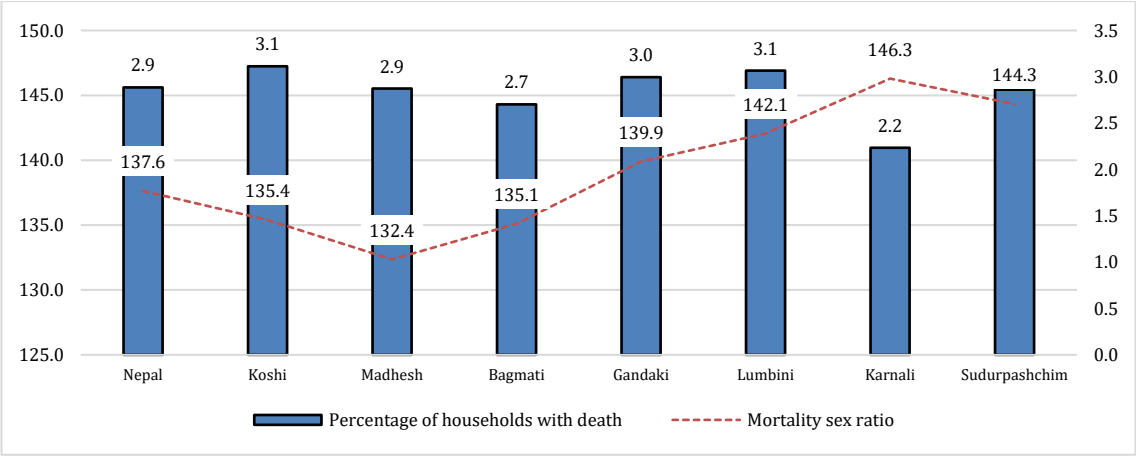




Percentage of households with death

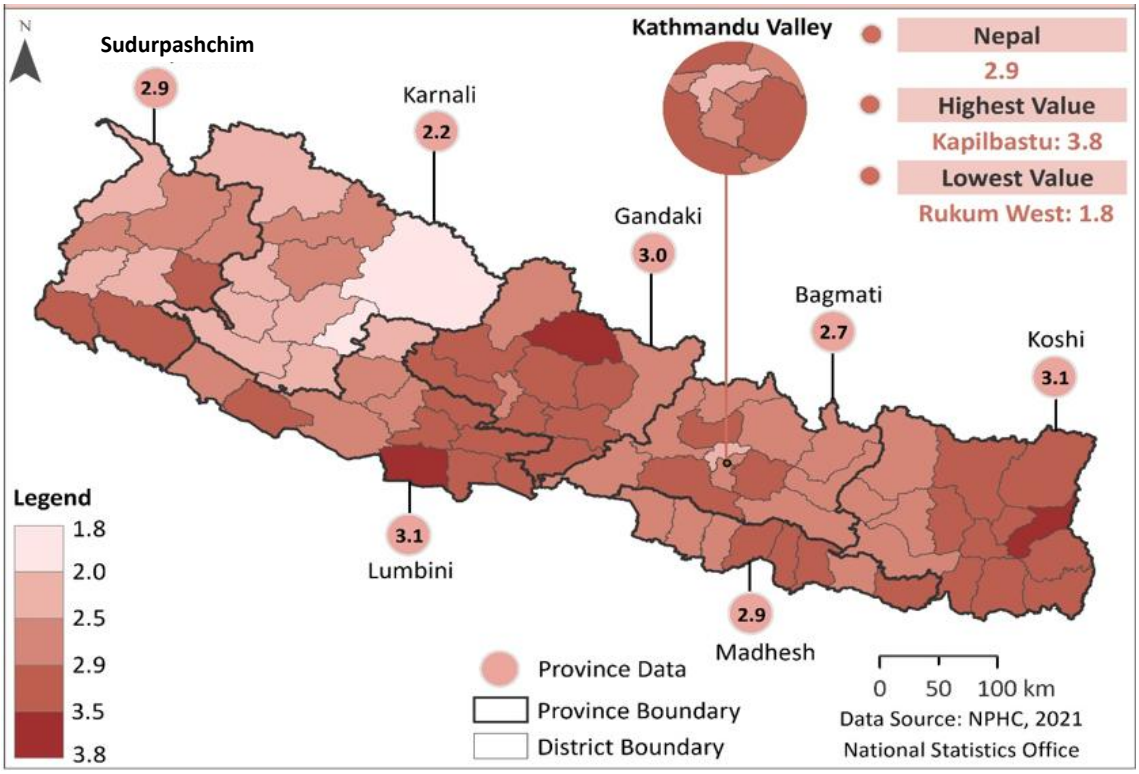
The percentage of households reporting a death offers insight into the distribution and occurrence of mortality across households in Nepal. This value expresses the number of households with deaths per 100 households. For Nepal, this value stands at 2.9 percent. Koshi (3.1 %) and Karnali (2.2 %) provinces show the highest and lowest values.

Figure 3.3: Percentage of households with death and mortality sex ratio, Nepal and province, NPHC 2021



Map 3.1 presents the provincial and district-level distribution of the percentage of households with deaths. The map shows high percentage clusters in the mid-Hill region of Koshi (Panchthar, Tehrathum, Dhankuta) and Morang; Eastern Tarai region of Lumbini (Nawalparasi-West), Rupandehi and Kapilbastu); and Manang and Syangja from Gandaki Province. In particular, Rukum-East is the only district in Lumbini showing the lowest percentage of households with deaths, similarly to Rukum-West, which lies in Karnali. Astonishingly, seven out of ten districts of Karnali Province (with the exception of Mugu, Jumla and Surkhet) show distinctly low percentage values, whereas the exceptional districts show values hovering around the national average of 2.9 percent. In Sudurpashchim Province, Doti shows the lowest percentage. The percentage of households with deaths is provided in detail in Annex 3: Table A3.1 and the districts with bottom and top 10 values are shown in Table 3.1. Districts from Karnali Province – namely Rukum-West, Dolpa, Humla, Jajarkot and Dailekh – have the lowest value (lower or around 2%) (Table 3.1). Kapilbastu has the highest value of 3.8%, nearly one percentage point more than the national average of 2.9 percent. The value of Kapilbastu is followed by Panchthar, Manang, Tehrathum and Syangja. There is a difference of more than 2 percentage points between the districts with the highest and lowest values; for every 100 households, there are two more households with a death in Kapilbastu than Rukum-West. Eight of the bottom ten districts belong to Karnali Province, with Rukum-West having the lowest percentage.

Map[8] 3.1: Percentage of households with death – province and district, NPHC 2021



[8] The class values have been assigned in increment of 0.5 (2.0, 2.5, 3.5) as far as possible, considering data range from 1.8-3.8. Value of 2.9 is national value, which helps to show how many districts are below national average and above national average.

Table 3.1: Bottom and top 10 districts – percent of households with death, NPHC 2021

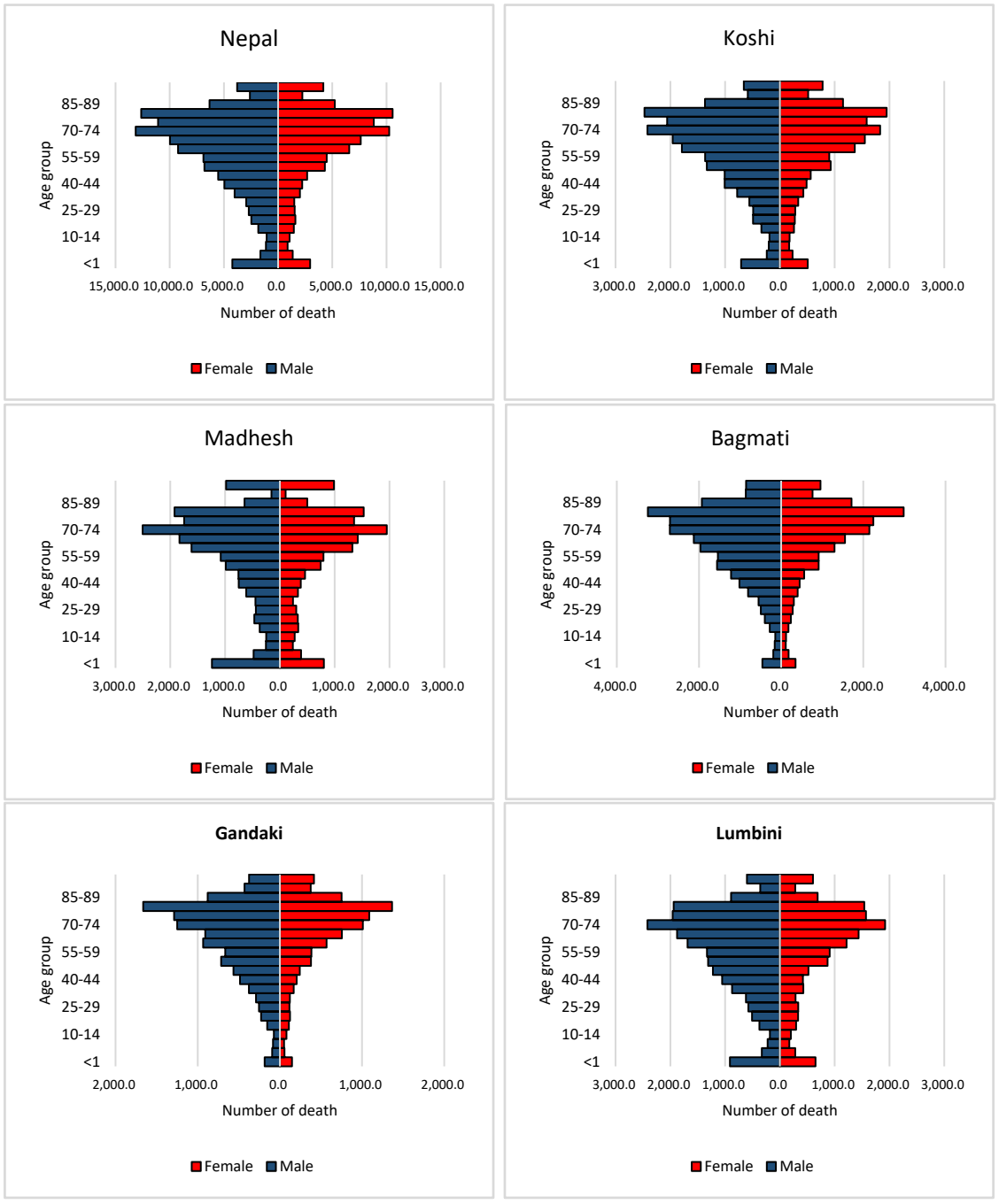
Bottom 10				Top 10		
District	**Percentage**	**Rank**		**District**	**Percentage**	**Rank**
Rukum-West	1.77	77		Kapilbastu	3.82	1
Dolpa	1.91	76		Panchthar	3.80	2
Humla	2.03	75		Manang	3.56	3
Jajarkot	2.09	74		Tehrathum	3.50	4
Dailekh	2.11	73		Syangja	3.47	5
Rukum-East	2.15	72		Dhankuta	3.45	6
Salyan	2.32	71		Morang	3.31	7
Kalikot	2.35	70		Rupandehi	3.31	7
Doti	2.35	70		Nawalparasi-West	3.31	7
Surkhet	2.38	69		Kavrepalanchok	3.30	8

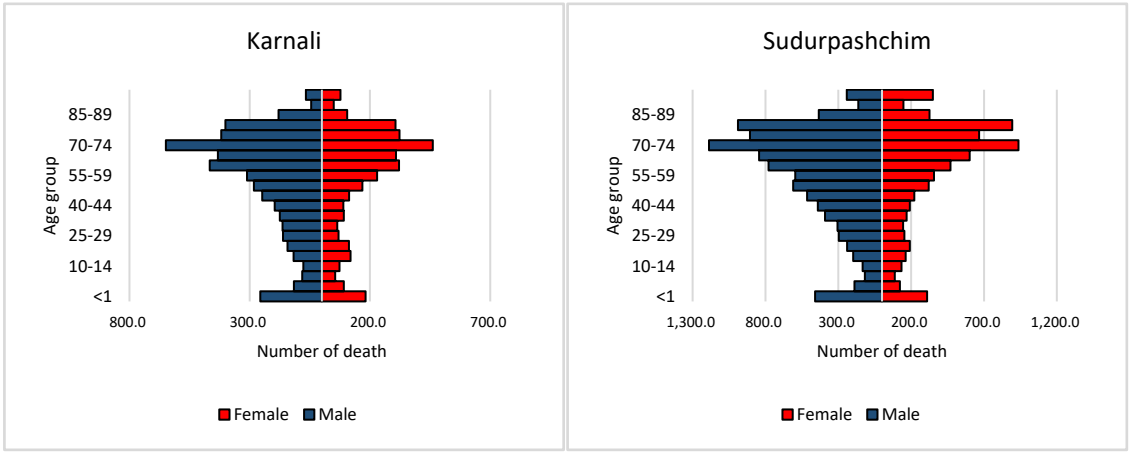
There is a high variation in the percentage of households recording death at the municipality level, which ranges from zero to more than five percent. At the municipality level, the ratios are seen to be greatly affected by the small number variability problem. Furthermore, some of the municipalities with high rates of per household deaths have a disproportionately higher proportion of older people per household. It is evident that when the same number of deaths occur in two municipalities with a different number of households, per household deaths are larger in the municipality with the smaller number of total households. The percentage of households with death at the municipality level are not presented in detail in this section but can be referenced in the Annex 3: Map A3.1.

Population pyramid of deceased persons

The population pyramid of deceased persons provides an image of how deaths have occurred by age and sex. The most important observations are the age-specific mortality trends and gender differences in mortality. The pyramids can be drawn using either absolute numbers or percentages, which can be derived separately for each sex or from the total. For these purposes, the smoothed age data for death has been used to generate the pyramids. Figure 3.3 presents the absolute number of deaths by age groups in each province, showing the contribution of each in the total deaths for Nepal.

Figure 3.4: Population pyramid of deceased persons by actual number of deaths by province, NPHC 2021

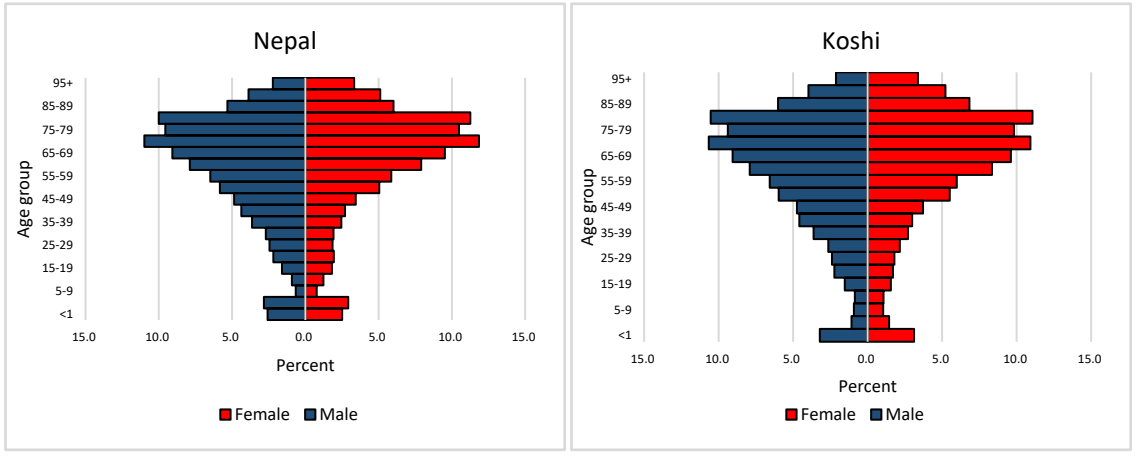


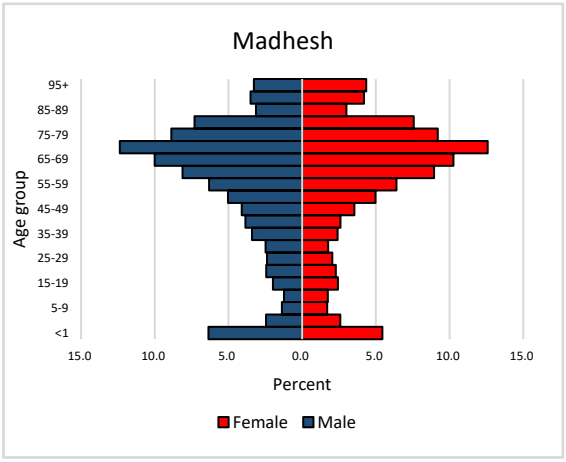


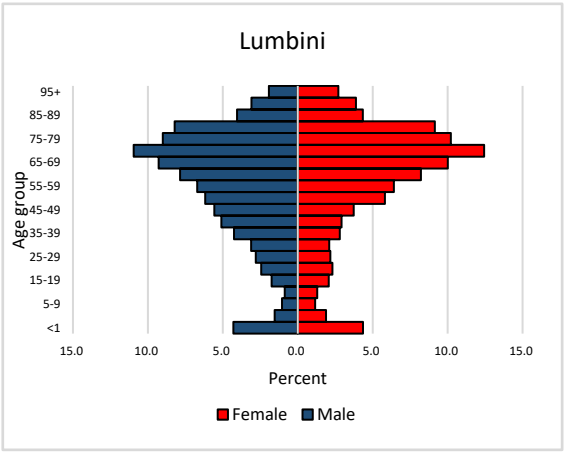
The proportionate contribution of death by each age group to the total deaths for each sex can be drawn from the percentage of deaths for each sex rather than the total. Figure 3.5 portrays the percentage population pyramid of deceased persons for Nepal and its seven provinces and further details are provided in the Annex 3: Table A3.2. The figure outlines the percentage of male deaths on the left and the percentage of female deaths on the right side of the pyramid. The percentages are computed for each sex from their respective totals.

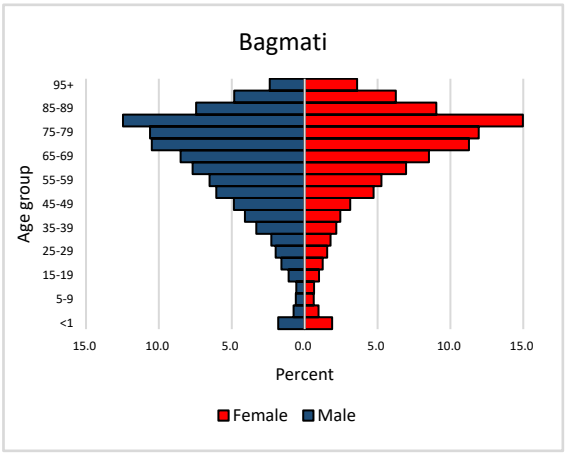
The given pyramids suggest that Madhesh and Karnali have a larger share of infant deaths, followed by Lumbini and Sudurpashchim provinces. In Madhesh, nearly 6.5 percent of all male deaths are deaths under 1 years of age. In Gandaki and Bagmati provinces, the share of infant death is lower yet a higher share of deaths in older ages is seen, particularly in the 70-85 year age group.

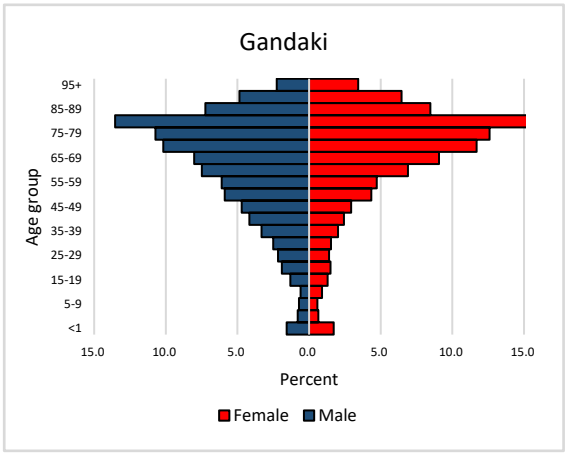
Figure 3.5: Percentage population pyramids of deceased persons, Nepal and province, NPHC 2021

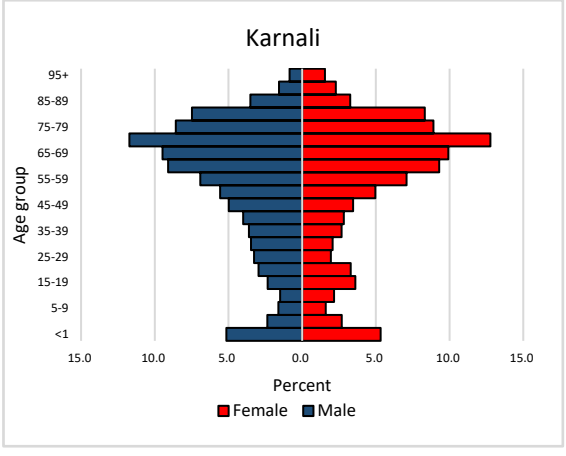


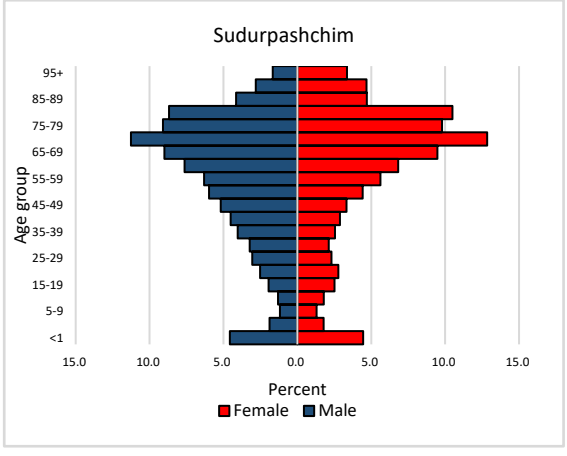

Madhesh
95+
85-89
75-79
65-69
55-59
45-49
35-39
25-29
15-19
5-9
<1
Age group
15.0
10.0
5.0
0.0
5.0
10.0
15.0
Percent
Female
Male


Lumbini
95+
85-89
75-79
65-69
55-59
45-49
35-39
25-29
15-19
5-9
<1
Age group
15.0
10.0
5.0
0.0
5.0
10.0
15.0
Percent
Female
Male


Bagmati
95+
85-89
75-79
65-69
55-59
45-49
35-39
25-29
15-19
5-9
<1
Age group
15.0
10.0
5.0
0.0
5.0
10.0
15.0
Percent
Female
Male


Gandaki
95+
85-89
75-79
65-69
55-59
45-49
35-39
25-29
15-19
5-9
<1
Age group
15.0
10.0
5.0
0.0
5.0
10.0
15.0
Percent
Female
Male


Karnali
95+
85-89
75-79
65-69
55-59
45-49
35-39
25-29
15-19
5-9
<1
Age group
15.0
10.0
5.0
0.0
5.0
10.0
15.0
Percent
Female
Male


Sudurpashchim
95+
85-89
75-79
65-69
55-59
45-49
35-39
25-29
15-19
5-9
<1
Age group
15.0
10.0
5.0
0.0
5.0
10.0
15.0
Percent
Female
Male

Central mortality rates

Mortality rates are often computed to quantify the occurrence/frequency of mortality across units. These rates are computed for a central or average point of a time period – most often the mid-year – and hence are referred to as central death rates. Selecting a central point of time smooths out the effect of any seasonal factors affecting death and helps compare the rate across different time periods and regions. The computation of central death rates requires two types of data, one for death in the numerator and one for population *'exposed to the risk of dying'* in the denominator. In this analysis, for the numerator, smoothed death data (discussed in chapter two) is used. For the denominator, the conventional practice is to use the 'mid-year' population as a proxy for the *'exposure to risk'*. The mid-year population can also be obtained by using age-sex intercensal growth rates between the two successive censuses (NPHC 2011 and 2021). In this thematic report, the mid-year population is approximated by adjusting half of the reported births and deaths during the 12-month period preceding the census which allows for a more representable denominator for the CDR. Based on the hypothesis of the uniform occurrence of births and deaths over the years, the mid-year population is obtained by adding half of the reported deaths and subtracting half of the reported births during the 12-month period preceding the census from the population on the census day, considering the insignificant overall effect of migration.

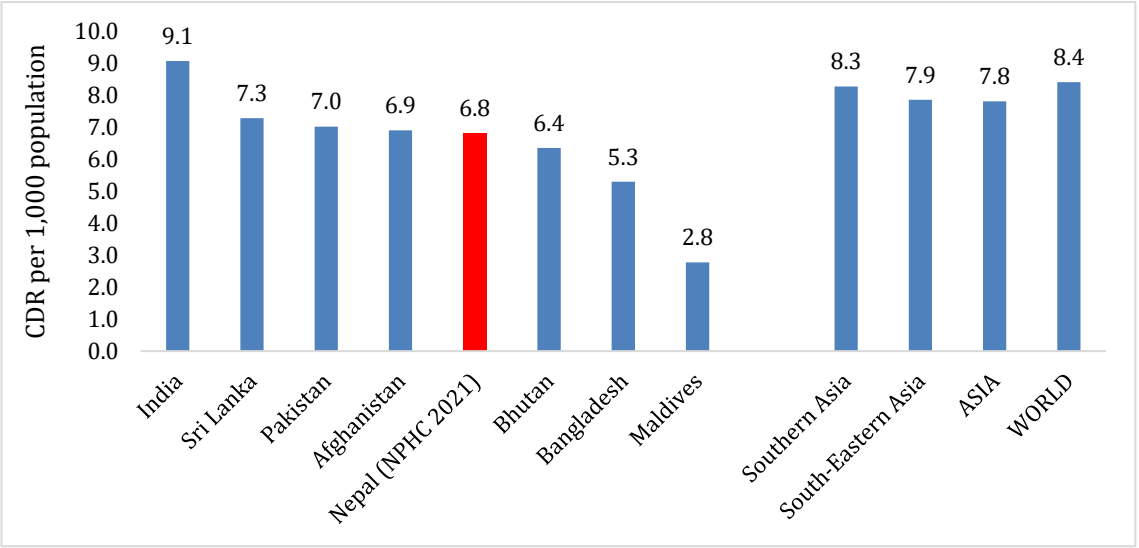
In the following sections, three central death rates – namely the Crude Death Rate, Age-specific Death Rate and Standardized Crude Death Rates – are discussed. The rates presented below are computed from smoothed death and population data.

Crude death rate (CDR)

Crude death rate is the simplest of all the central death rates as it expresses the total deaths with respect to 1,000 mid-year population in a given year. The crude death rate for Nepal for 2021 is computed as 6.8 deaths per 1,000 population. In Nepal, a decreasing CDR trend is seen from 13.5, 13.3, 10.2, 7.3 and 6.8 for the census years 1981, 1991, 2001, 2011 and 2021 respectively. The crude death rate is highly affected by the age-sex composition of a population as death rates usually vary for different age groups (or sex) – in other words, the rates are prone to be higher in populations with a larger share of children and older persons. CDRs are therefore not comparable across units (countries, geographic/administrative/groups). For reference, their values are provided in Annex 3: Table A3.1 and Map A3.2.

Figure 3.6 presents the CDR for neighboring countries in Southern Asia; South-Eastern Asia; Asia and for global rates. As can be seen in Figure, Nepal's CDR sits above the values for Bangladesh and Bhutan, yet well below other countries and areas with the exception of Maldives, which has the lowest value of 2.8 deaths per 1,000 population.

Figure 3.6: International comparison of Crude Death Rate, 2022



Data Source: UN, DESA, Probabilistic Population Projections based on the World Population Prospects 2022. Nepal values: NPHC 2021.

Standardized crude death rate (SCDR)

Standardized crude death rates refer to rates adjusted for age structure in order to simplify the comparison of populations with different age distributions. The SCDR can be obtained from a direct or indirect standardization process. In the direct standardization, the CDR or ASDR of the population being studied are applied to a standard population's age distribution,[9] whereas in the indirect standardization, the reverse order is actioned. The direct standardization technique has been used in this analysis. Nepal's population age structure has been considered as standard and obtained the SCDR of ecological zones, provinces and districts in this process. Standardization is normally used to control the effects of extraneous influences when comparing conditions among populations. In the case of age standardization, the extraneous influence that is 'standardized' among the populations involved in the comparisons is their age composition.

The SCDR has a benefit over CDR as it can be compared across units. The SCDR helps normalize the impact of age structure and focus on differences in actual mortality rates. However, as they are influenced by the choice of standard population, the rates may obscure emerging mortality patterns within age groups or subpopulations if they are used in isolation. It is therefore important to consider other measures alongside the SDR to form a complete understanding of mortality trends.

[9] See annex I for details on computation formulae.

Using Nepal as standard (6.8 deaths per 1,000 population), the SCDR is higher for Tarai (7.1) compared to Hill (6.4) and Mountain (6.1) zones. Likewise, of the provinces, Lumbini (7.5 deaths per 1000 population) has the highest SCDR, followed by Koshi (7.0) and Sudurpashchim (6.8). The lowest SCDR is observed for Karnali (6.3) and Bagmati/Gandaki (6.4) provinces. Standardized crude death rate values by spatial units are provided in Annex 3: Table A3.1. Based on the table, a map showing SCDR by spatial units for both sexes has been presented below in Map 3.2. Table 3.2 presents the unadjusted and adjusted SCDR values for Nepal and provinces. The unadjusted values were published as the preliminary estimates from raw data and the adjusted figures are the latest final values derived from the adjusted data.

Map 3.2: Standardized crude death rate (both sexes) by province and district, NPHC 2021

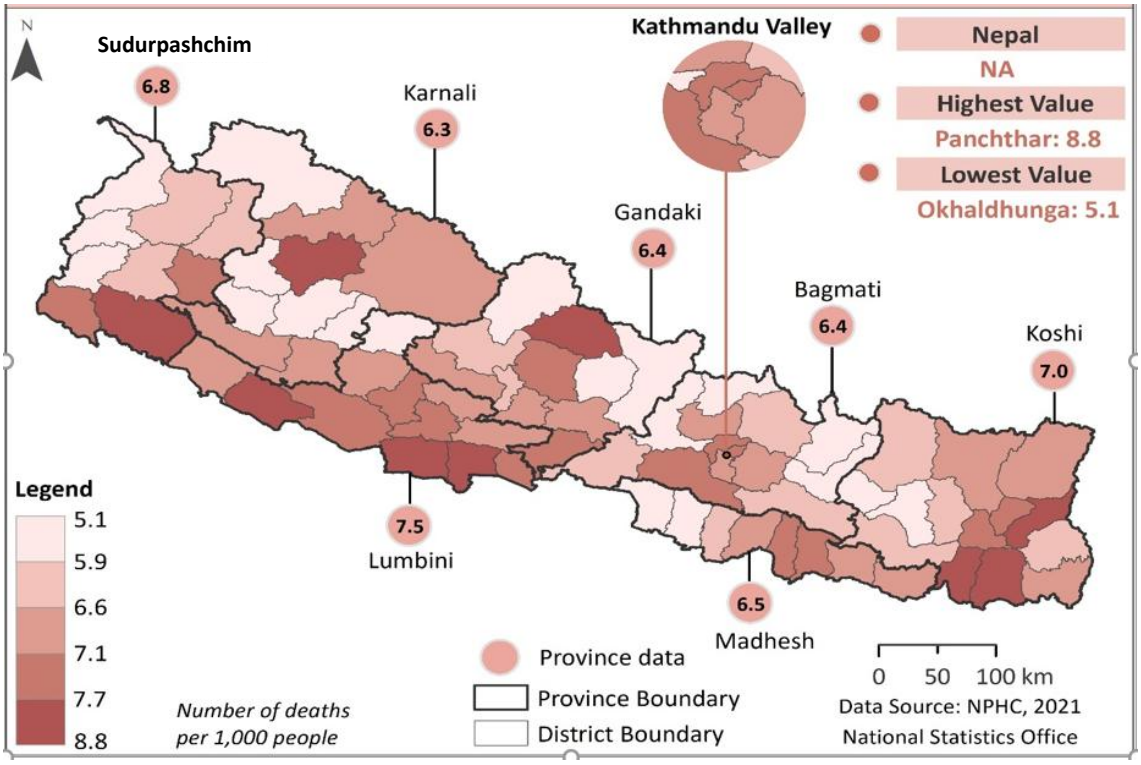


Table 3.2: Unadjusted and adjusted Standardized Crude Death Rates, Nepal and Province, NPHC 2021

Area	Unadjusted SCDR	Adjusted SCDR
Nepal	6.99	6.8
Province		
Koshi	7.33	7.0
Madhesh	6.66	6.0
Bagmati	6.70	6.4

Area	Unadjusted SCDR	Adjusted SCDR
Gandaki	6.72	6.4
Lumbini	7.77	7.5
Karnali	6.42	6.3
Sudurpashchim	7.00	6.8

The bottom and top 10 districts by SCDR values are presented in Table 3.3. The five districts with the lowest SCDR values are Okhaldhunga (5.1), Humla (5.3), Darchula (5.3), Ramechhap (5.3) and Rukum-West (5.3). In contrast, Panchthar (8.8), Banke (8.5), Kapilbastu (8.3), Manang (8.3) and Rupandehi (8.2) are the five districts with the highest SCDR.

Table 3.3: Bottom and top 10 districts by Standardized Crude Death rates, NPHC 2021

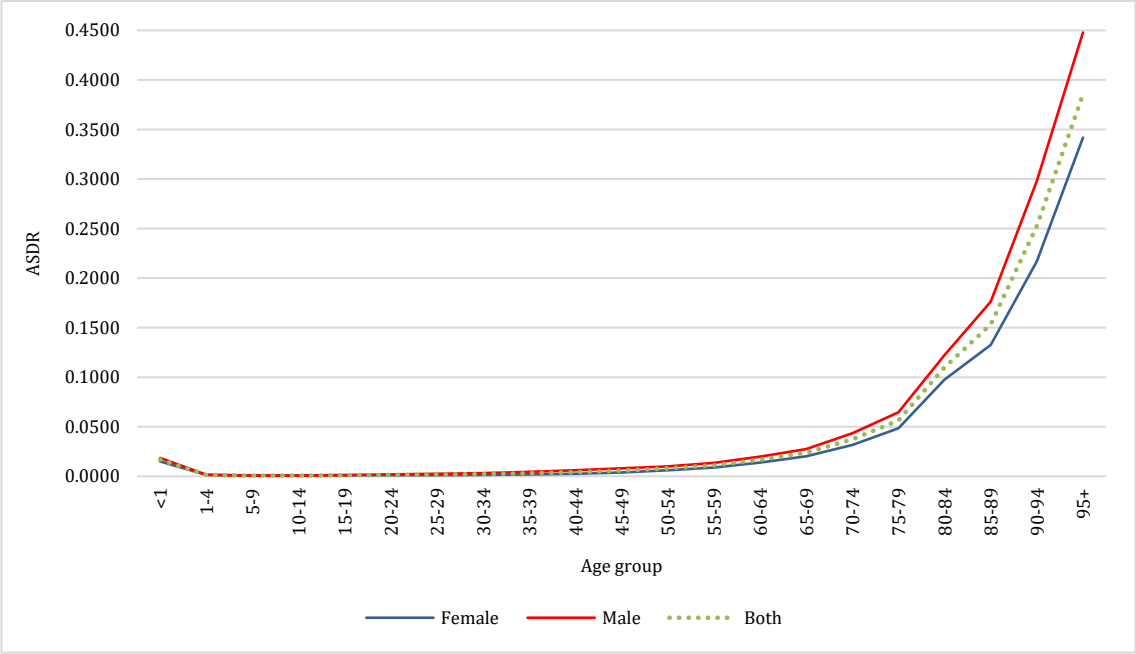
Lowest 10		Highest 10	
District	**SCDR**	**District**	**SCDR**
Okhaldhunga	5.1	Panchthar	8.8
Humla	5.3	Banke	8.5
Darchula	5.3	Kapilbastu	8.3
Ramechhap	5.3	Manang	8.3
Rukum-West	5.3	Rupandehi	8.2
Gorkha	5.4	Sunsari	8.0
Khotang	5.5	Jumla	8.0
Dailekh	5.6	Morang	7.9
Rukum-East	5.7	Kailali	7.8
Rasuwa	5.7	Dhanusa	7.7

Age-specific death rate (ASDR)

Age specific death rate is the ratio of the number of deaths in a specific age group to the population of the same age group expressed in 1,000. When plotted on a graph, age specific death rates show fluctuation by age and are useful to examine mortality patterns across units. These rates provide an insight into how mortality occurs during different ages of the same population, that is to say the mortality patterns for children, adults and older persons. More precisely, ASDRs function as CDRs across age groups or intervals. Age-specific death rates in developing countries often follow a U-shaped curve, and when mortality levels improve, the effect is seen more clearly in younger than in older ages, with the curve tending to become J-shaped.

Figure 3.7 depicts the ASDRs for Nepal by sex and also hints toward improving mortality levels in the country. For this report, ASDRs are obtained using the smoothed death and smoothed population data.

Figure 3.7: Age-specific death rate for males, females and both sexes – Nepal, NPHC 2021



From the figure, it is apparent that mortality is slightly elevated for infants as compared to that for other groups below the age of 59 years. More prominently, it is clear that the age specific death rate is particularly high in the later years of adult life.

CHAPTER 4

ADULT MORTALITY AND LIFE TABLES

Life table has several specific and critical roles in mortality reporting and health planning. It provides reliable estimates of life expectancy at birth and at various ages, allowing for an accurate understanding of population health trends. Life tables are essential for calculating infant, child, and under-five mortality rates—key indicators for assessing child health and evaluating progress toward Sustainable Development Goals, particularly SDG 3. In a country with incomplete civil registration and vital statistics (CRVS) systems, life tables offer an alternative method for estimating mortality using census and survey data. They help identify regional disparities by enabling comparisons of mortality patterns across provinces and districts, guiding targeted public health interventions and resource allocation. Life tables also supply the survival probabilities needed for population projections, which inform long-term planning in areas such as education, labor, and infrastructure. Overall, life tables are a vital tool for policymakers, planners, and researchers in Nepal to understand demographic dynamics, prioritize health investments, and improve health outcomes across the country.

This chapter presents life tables which form the foundational tool to infer life expectancy at birth, life expectancy at age 60 and proportion of population surviving to age 60, and the infant and child mortality rates to be discussed in the next chapter. In spite of some underreporting, the death information obtained from the households for the last 12 months period in the census generally capture the current mortality pattern. The ASDR values resulting from smoothing of death and population data as discussed in chapter two are used to compute life tables for Nepal and provinces. For the districts, the ASDR are further adjusted to smooth erratic patterns mainly due to the smaller population and number of deaths. Mortality rate relative ratio is used to align the district age-specific mortality rates with the provincial age pattern and adjusted mortality rates are calculated (National Statistics Office, 2025b).

a. Life tables

In its simplest form, the entire life table is one form of combining mortality rates of a population at different ages into a single statistical model (Shryock & Siegel, 1976). Life tables may either be complete (single year) or abridged (age groups). As cohort or generational life tables are not practical, current or period life tables are usually constructed. This report utilized constructed

abridged period life tables separately for both sexes, females, and males, using the Mortcast package in R programming.

The constructed life tables for Nepal for both sexes, females, and males are provided in Tables 4.1, 4.1A and 4.1B. Life expectancy (expected years of life) for x=0 gives values of life expectancy at birth while that for x=60 gives life expectancy of the population at 60 years of age. The corresponding l_x value for x=60 gives survivors from the initial hypothetical cohort of 100,000, which is used to compute the percentage of survivors to age 60 years. Life tables by province for both sexes, males and females are provided in Annex 4: Table A4.1.

Barclay (1958) explains a life table as 'a life history of a hypothetical group, or cohort, of people, as it is diminished gradually by deaths'. The cohort loses a predetermined proportion at each age, and thus represents a situation that is artificially contrived. This is executed through the following simplifying assumptions:

a. The hypothetical cohort is 'closed' against migration in or out. Hence, there are no changes in membership, except the losses due to death.

b. People in the hypothetical cohort die at each age according to a schedule fixed in advance and not changing.

c. The cohort starts with a standard number of births (always set at a round figure, usually 100,000) called the 'radix' of the life table. The standardized aspect facilitates comparisons between different life tables. At each age (except the first few years of life), deaths are more or less evenly distributed between one birthday and the next.[10]

d. The cohort normally contains members of only one sex. It is possible to construct a life table for both sexes together, but the differences between male and female mortality at most ages is sufficient to justify treating them separately.

Life tables are used to calculate survival rates that are essential for population projections (e.g., 5-year survival rates). These survival rates also support indirect estimation of net migration using the residual method, by comparing projected and observed populations over a period such as 10 years. Calculation of survival rates rely on l_x column in the life table – l_x and l_{x+5} for 5-year survival rates.

[10] Due to differential age-specific risk factors, death patterns and length of the age-interval cause different average time lived by the individuals dying in different age-interval. For example, the deaths of infants are more concentrated during the first few days or months leading to a lower average time than expected 0.5 years.

Table 4.1: Abridged life table[11] for both sexes Nepal, NPHC 2021

Age Group	x	n	$_nm_x$	$_nq_x$	l_x	$_nd_x$	L_x	$_nS_x$	T_x	e_x	$_na_x$[12]
<1	0	1	0.016879	0.016631	100000	1663	98529	0.980979	7143919	71.44	0.1156
1-4	1	4	0.001477	0.005887	98337	579	391960	0.994728	7045390	71.65	1.6035
5-9	5	5	0.000727	0.003628	97758	355	487903	0.996407	6653429	68.06	2.5000
10-14	10	5	0.000713	0.003558	97403	347	486150	0.995611	6165526	63.30	2.5000
15-19	15	5	0.001114	0.005556	97057	539	484017	0.993501	5679376	58.52	2.6502
20-24	20	5	0.001482	0.007386	96518	713	480871	0.991934	5195359	53.83	2.5917
25-29	25	5	0.001756	0.008743	95805	838	476992	0.990360	4714488	49.21	2.5750
30-34	30	5	0.002163	0.010757	94967	1022	472394	0.987243	4237496	44.62	2.6101
35-39	35	5	0.003044	0.015110	93945	1420	466367	0.982137	3765102	40.08	2.6331
40-44	40	5	0.004222	0.020902	92526	1934	458037	0.975484	3298735	35.65	2.6251
45-49	45	5	0.005789	0.028551	90592	2586	446808	0.966402	2840698	31.36	2.6213
50-54	50	5	0.008010	0.039302	88006	3459	431796	0.953792	2393890	27.20	2.6200
55-59	55	5	0.011158	0.054352	84547	4595	411843	0.933543	1962095	23.21	2.6301
60-64	60	5	0.016719	0.080399	79951	6428	384473	0.905032	1550251	19.39	2.6222
65-69	65	5	0.023714	0.112232	73523	8252	347960	0.860910	1165778	15.86	2.6178
70-74	70	5	0.037306	0.171215	65272	11176	299562	0.795831	817818	12.53	2.6022
75-79	75	5	0.056246	0.247873	54096	13409	238401	0.668534	518255	9.58	2.6075
80-84	80	5	0.109709	0.429751	40687	17485	159379	0.517835	279854	6.88	2.4803
85-89	85	5	0.153314	0.545357	23202	12653	82532	0.371481	120475	5.19	2.3543
90-94	90	5	0.252522	0.733950	10549	7742	30659	0.191966	37943	3.60	2.1476
95+	95	5	0.3853037	1	2806	2806	7284	0	7284	2.60	2.5954

[11] * A life table includes the following columns (anatomy of a life table):

x to x+n: Age interval between exact ages for each row of the life table

$_nm_x$: Age specific death rates between ages x and x+n

$_nq_x$: Probability of dying between ages x to x+n – probability of the population in each age interval that are alive at the beginning of the interval, to die before reaching the end of the interval. The proportion is computed from the observed mortality rates of an actual population and is used to derive the remaining columns of the life table.

l_x: The number of persons surviving in the the life table at exact age x (Conventionally, l_0 = 100,000)

$_nd_x$: The number of persons dying between ages x and x+n in the life table population

L_x: Total person-years lived between ages x and x+n – total number of person-years in the stationary population for each age interval. It can be viewed as the average population size between birthdays, assuming equal distribution of deaths throughout the year.

T_x: Total person-years lived above age x – this column records the stationary population in the indicated age interval and all subsequent intervals. It is the cumulative sum of the $_nL_x$ values. It can be viewed as the total number of person-years that would be lived for a particular age cohort if the cohort were to progress through the remainder of the life table.

e_x: Life expectancy at age x, equivalent to T_x/l_x

nax: Average person-years lived between ages x and x+n for persons dying in the interval

[12] The Coale- Demeny rule was applied to approximate a0, (the average age at death for infants). See thematic report report 'Population Projections for Nepal, 2021 - 2051' (National Statistics Office, 2025b) for details on methodology.

Table 4.1A: Abridged life table for Females, Nepal, NPHC 2021

Age Group	x	n	nmx	nqx	lx	ndx	Lx	nSx	Tx	ex	nax
<1	0	1	0.014922	0.014729	100000	1473	98703	0.982971	7431692	74.32	0.1195
1-4	1	4	0.001412	0.005629	98527	555	392782	0.995016	7332989	74.43	1.6090
5-9	5	5	0.000676	0.003375	97973	331	489036	0.996495	6940207	70.84	2.5000
10-14	10	5	0.000728	0.003634	97642	355	487322	0.995755	6451171	66.07	2.5000
15-19	15	5	0.001008	0.005026	97287	489	485253	0.994698	5963849	61.30	2.5831
20-24	20	5	0.001096	0.005466	96798	529	482680	0.994427	5478596	56.60	2.5248
25-29	25	5	0.001148	0.005723	96269	551	479990	0.993838	4995915	51.90	2.5423
30-34	30	5	0.001359	0.006772	95718	648	477033	0.992072	4515925	47.18	2.5983
35-39	35	5	0.001865	0.009283	95070	883	473251	0.989275	4038892	42.48	2.6231
40-44	40	5	0.0025	0.012427	94187	1170	468175	0.984767	3565641	37.86	2.6416
45-49	45	5	0.003773	0.018701	93017	1739	461044	0.976022	3097466	33.30	2.6775
50-54	50	5	0.006086	0.030002	91277	2739	449988	0.963865	2636422	28.88	2.6638
55-59	55	5	0.008804	0.043127	88539	3818	433728	0.945916	2186434	24.69	2.6521
60-64	60	5	0.013789	0.066775	84720	5657	410270	0.919715	1752706	20.69	2.6435
65-69	65	5	0.020122	0.096033	79063	7593	377332	0.880553	1342436	16.98	2.6314
70-74	70	5	0.031688	0.147317	71470	10529	332261	0.822799	965104	13.50	2.6169
75-79	75	5	0.048413	0.21718	60942	13235	273384	0.701892	632843	10.38	2.6333
80-84	80	5	0.097497	0.392154	47706	18708	191886	0.561443	359459	7.53	2.5067
85-89	85	5	0.132527	0.492361	28998	14278	107733	0.425908	167573	5.78	2.3905
90-94	90	5	0.216889	0.676047	14721	9952	45884	0.233223	59841	4.07	2.2147
95+	95	5	0.341695	1	4769	4769	13956	0.000000	13956	2.93	2.9266

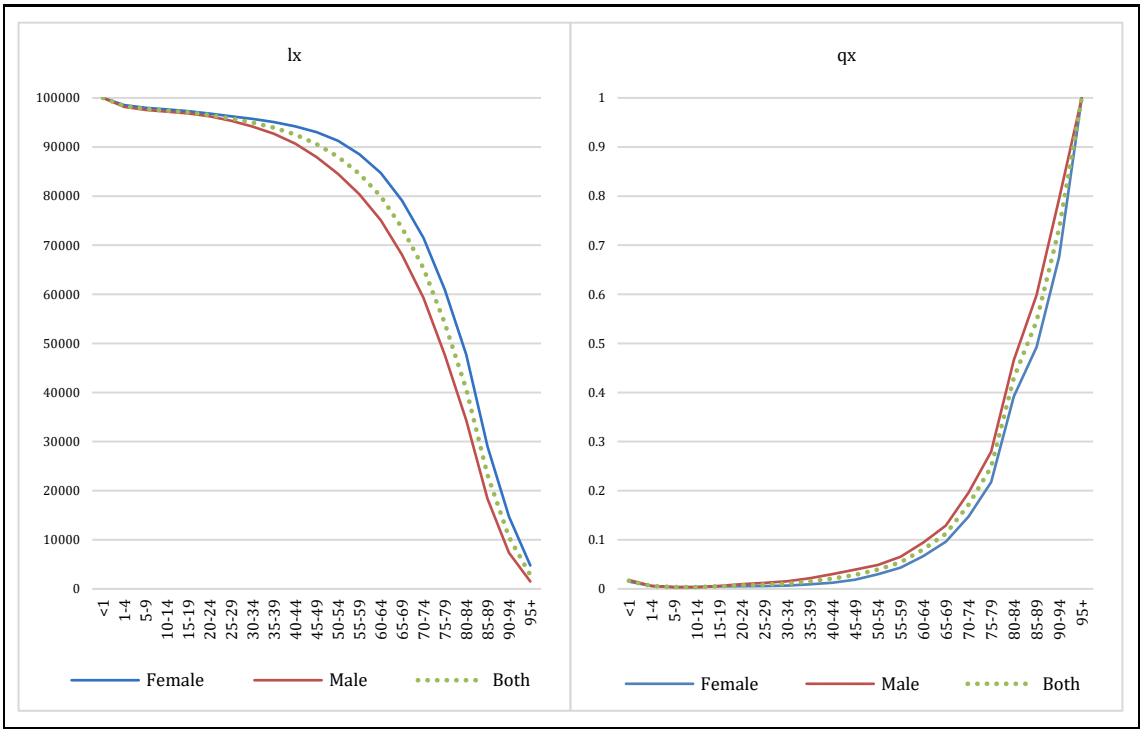
Table 4.1B: Abridged life table for Males, Nepal, NPHC 2021

Age Group	x	n	$_nm_x$	$_nq_x$	l_x	$_nd_x$	L_x	$_nS_x$	T_x	e_x	$_na_x$
<1	0	1	0.018584	0.018283	100000	1828	98377	0.979243	6872136	68.72	0.1122
1-4	1	4	0.001535	0.006118	98172	601	391245	0.994471	6773759	69.00	1.5987
5-9	5	5	0.000773	0.003858	97571	376	486915	0.996327	6382514	65.41	2.5000
10-14	10	5	0.000698	0.003486	97195	339	485126	0.995470	5895600	60.66	2.5000
15-19	15	5	0.00122	0.006084	96856	589	482929	0.992210	5410473	55.86	2.7080
20-24	20	5	0.001919	0.009551	96267	919	479167	0.989024	4927545	51.19	2.6440
25-29	25	5	0.002483	0.01234	95347	1177	473907	0.986213	4448378	46.65	2.5961
30-34	30	5	0.003119	0.015482	94171	1458	467373	0.981576	3974471	42.21	2.6136
35-39	35	5	0.004418	0.02186	92713	2027	458763	0.974118	3507098	37.83	2.6314
40-44	40	5	0.006125	0.030185	90686	2737	446889	0.965403	3048335	33.61	2.6105
45-49	45	5	0.007983	0.039159	87949	3444	431428	0.956298	2601446	29.58	2.5856
50-54	50	5	0.010003	0.048838	84505	4127	412573	0.943625	2170019	25.68	2.5892
55-59	55	5	0.013534	0.065555	80378	5269	389315	0.921017	1757445	21.86	2.6138
60-64	60	5	0.019778	0.09442	75108	7092	358566	0.889964	1368130	18.22	2.6062
65-69	65	5	0.027455	0.12881	68017	8761	319110	0.840601	1009565	14.84	2.6062
70-74	70	5	0.043325	0.196128	59255	11622	268245	0.767951	690454	11.65	2.5879

Age Group	x	n	$_nm_x$	$_nq_x$	l_x	$_nd_x$	L_x	$_nS_x$	T_x	e_x	$_na_x$
75-79	75	5	0.06457	0.279244	47634	13301	205999	0.635651	422210	8.86	2.5815
80-84	80	5	0.12217	0.465955	34332	15997	130943	0.475426	216211	6.30	2.4547
85-89	85	5	0.176249	0.598426	18335	10972	62254	0.315475	85268	4.65	2.3186
90-94	90	5	0.297956	0.794761	7363	5852	19640	0.146618	23014	3.13	2.0650
95+	95	5	0.447849	1	1511	1511	3374	0.000000	3374	2.23	2.2329

Figure 4.1 shows the patterns of l_x and q_x for both sexes, females, and males. The graphs show that until 20 years of age, the pattern of survivors (l_x) from the initial 100,000 overlap one another for males and females, after which the pattern widens significantly due to a higher probability of death for males. After 45 years of age, female death increases, so the number of survivor decreases and the gap gradually narrows until 85 years, after which the male and female l_x values remain parallel with more women surviving. The under enumeration of female death discussed earlier may also cause the gap between the male and female survival curves l_x which may have overestimated female survival and life expectancy. The $_nq_x$ plot shows a sharp increase in the probability of dying after 75 years of age for both sexes. For females, irregular patterns in $_nq_x$ are seen between ages 75-84 years.

Figure 4.1: Pattern of l_x and q_x in the life table for Nepal, NPHC 2021



b. Life expectancy

Life expectancy at birth (e_0)

Table 4.2: Adjusted and unadjusted life expectancy at birth by sex, Nepal and Province, NPHC 2021

Area	Life expectancy at birth (Unadjusted)[13]			Life expectancy at birth (Adjusted/Smoothed)[14]		
	Both Sexes	Female	Male	Both Sexes	Female	Male
Nepal	71.3	73.8	68.2	71.4	74.3	68.7
Province						
Koshi	70.4	72.8	67.5	70.7	73.5	68.1
Madhesh	71.8	73.2	69.9	71.9	73.7	70.2
Bagmati	72.4	74.9	69.6	72.8	75.5	70.2
Gandaki	72.1	75.4	68.1	72.3	75.9	68.6
Lumbini	69.5	72.5	66.1	69.7	72.9	66.6
Karnali	72.5	75.5	69.2	72.4	75.6	69.5
Sudurpashchim	71.3	75.2	66.9	71.3	75.4	67.3

Table 4.2 presents unadjusted and adjusted life expectancy at birth (e_0) for Nepal and provinces for both sexes, males and females and the Table 4.3 shows these values in detail. At the provincial level, there is little difference in life expectancy at birth between estimates based on unadjusted data and those derived from adjusted or smoothed data. However, at the district level, the single-year death data were highly erratic. Therefore, the observed age-specific death rates were adjusted and smoothed to reflect the provincial age patterns (as previously discussed) to produce more reliable estimates.

Life expectancy at birth (e_0) in Nepal is 71.4 years for the total population, with females living 74.3 years and males 68.7 years, based on 2021 data. This marks a significant increase in the gender gap in life expectancy—females now outlive males by 5.6 years, more than double the 2.4-year difference recorded in the 2011 census (when female life expectancy was 67.9 years and male was 65.5 years). Over the decade, life expectancy for females increased by 6.4 years, compared to a 3.2-year increase for males.

This greater improvement in female longevity can be attributed to a combination of socioeconomic and health-related advancements that disproportionately benefit women:

[13] These were the preliminary estimates of life expectancy at birth published by the NSO without adjusting the age not reported deaths and from unsmoothed ASDR.

[14] These are the final updated life expectancy at birth computed using adjusted and smoothed population and death data.

1. Improved Female Literacy: Between 2011 and 2021, the literacy rate among women rose from 57.4% to 69.4% (compared to an increase from 75.1% to 83.6% for men). Enhanced literacy empowers women with better knowledge of health, nutrition, and hygiene, and promotes timely healthcare-seeking behavior for themselves and their families. The impact of this is further amplified by growing access to information and communication technologies.
2. Reduced Exposure to Indoor Air Pollution: The share of households using unsafe cooking fuels such as firewood and cow dung declined from roughly three-quarters in 2011 to half by 2021. Since traditional norms often assign cooking responsibilities to women, this reduction has had a direct positive impact on their respiratory health and overall well-being.
3. Greater Economic Participation: There has been a noticeable rise in women's participation in the labor force, particularly in formal employment. Economic empowerment not only improves access to healthcare and nutrition but also fosters autonomy in making health-related decisions.
4. Increased Female Household Leadership: The proportion of female-headed households grew from 25.7% in 2011 to 31.6% in 2021. This shift has enabled more women to take an active role in household decision-making, especially in managing health expenditures and utilizing remittances sent by family members abroad. Female heads are more likely to prioritize family health, education, and nutrition.
5. Expanded Health Insurance Coverage: Improved access to government health insurance schemes has facilitated early diagnosis and treatment of illnesses, particularly benefiting women who might otherwise face barriers in accessing timely healthcare.

Figure 4.2: Life expectancy at birth by sex, Nepal, Ecological region & Province, NPHC 2021

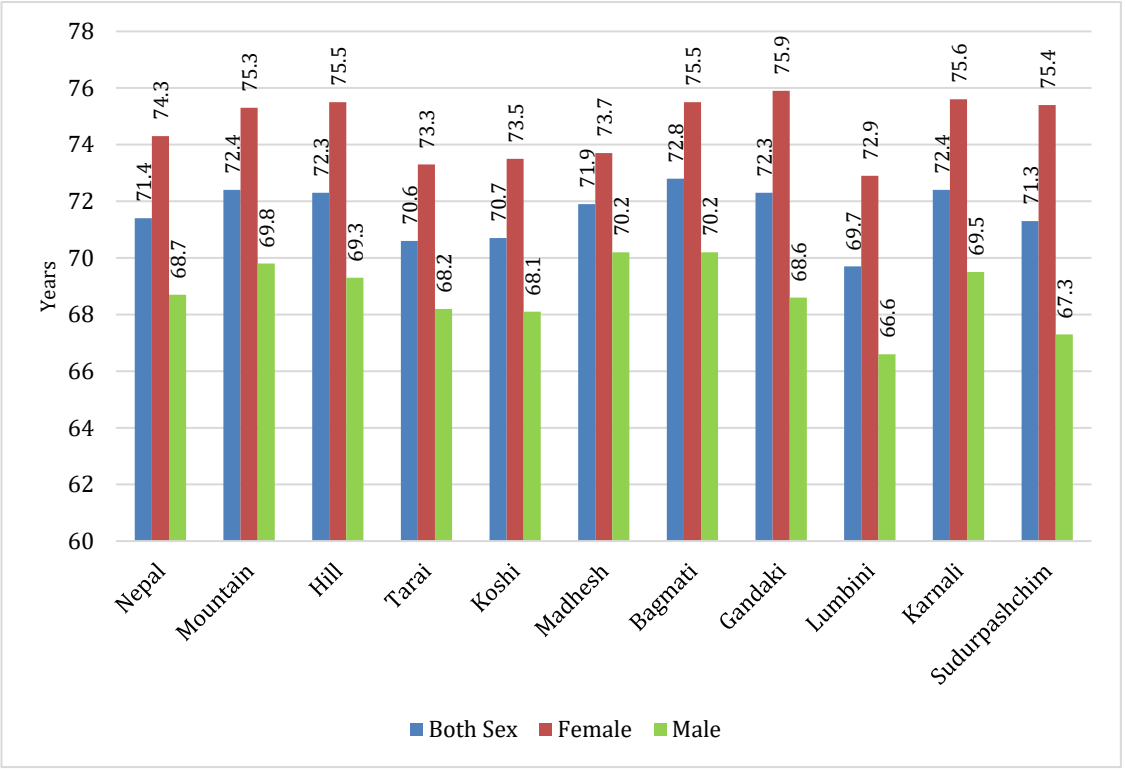


Figure 4.2 shows graphical presentation of life expectancy at birth for ecological zones and province by sex. Mountain and Hill zones show quite similar findings - one year more than the national value. For Tarai zone, the value is low (70.6 years). The females residing in Tarai live 2 years less than females who live in Mountain and Hill zones.

Bagmati Province has the highest e_0 for both sexes at 72.8 years, followed by Karnali (72.4 years) and Gandaki (72.3 years) provinces. Lumbini Province has the lowest value at 69.7 years for both sexes combined. The highest female e0 is seen in Gandaki (75.9 years), and the lowest is in Lumbini (72.9 years) province. The highest male e0 is seen for Bagmati/Madhesh (70.2 years) while the lowest is for Lumbini (66.6 years). Despite lagging behind in most development indicators and having the highest poverty rate among all provinces, Karnali reports a life expectancy at birth comparable to more developed provinces such as Bagmati and Gandaki. This unexpected finding raises important questions about the drivers of health and longevity in the region and the reliability of the underlying data.

Karnali shows lower adult, elderly, infant, and child mortality rates (Chapter 3: Figure 3.5; Chapter 5: Table 5.1), which may partly reflect positive developments, including targeted maternal and child health interventions implemented over the past decade and lower incidence

of non-communicable diseases. Environmental factors—such as reduced exposure to pollution and more physically active lifestyles—may also play a role in adult and elderly survival, especially in comparison to more urbanized regions like Bagmati and Lumbini.

However, caution is warranted when interpreting these mortality and life expectancy figures. Karnali's remoteness, weak civil registration systems, limited access to health services, and entrenched social norms can lead to systematic underreporting of deaths, especially among infants, children, and elderly women. Such underreporting would artificially elevate life expectancy estimates.

Furthermore, selective out-migration may distort the demographic and health profile of the province. Karnali has the highest net migration rate in the country (-2.6), indicating significant outflows of population, often to provinces like Lumbini and Bagmati, where many families maintain dual residences. If sick or elderly individuals move to these regions seeking better healthcare and die outside Karnali, their deaths may not be captured in provincial statistics. This would result in a "healthy resident effect", whereby only healthier individuals remain, contributing to an inflated life expectancy estimate.

Female life expectancy at birth now exceeds 75 years in four provinces—Gandaki (75.9), Karnali (75.6), Bagmati (75.5), and Sudurpashchim (75.4). While this may reflect genuine improvements—such as increased female literacy, improved maternal and child healthcare, reduced fertility, and biological survival advantages—it may also be influenced by selective male out-migration and lower female involvement in risk-prone behaviors like smoking, alcohol consumption, and hazardous work.

Critically, the exceptionally high male-to-female mortality ratio (137.6)—far exceeding global norms—raises serious concerns about underreporting of female deaths, particularly among elderly women in remote areas. If female deaths are systematically undercounted, the resulting female life expectancy may be overstated.

In sum, while life expectancy improvements in Karnali and among females appear encouraging, they must be interpreted with caution. Data limitations, selective migration, underreporting of deaths, and social disparities all contribute to a complex demographic picture. These anomalies underscore the urgent need for improved data systems and further empirical research to validate mortality patterns and support accurate, evidence-based policy decisions.

Table 4.3: Life expectancy at birth, percentage surviving to age 60 and life expectancy at age 60 by sex - Nepal, ecological region, province and district, NPHC 2021

Area	Life expectancy at birth (e0)			Percentage surviving to age 60			Life expectancy - at 60 years		
	Both Sex	Female	Male	Both Sex	Female	Male	Both Sex	Female	Male
Nepal	71.4	74.3	68.7	80.0	84.7	75.1	19.4	20.7	18.2
Ecological zone									
Mountain	72.4	75.3	69.8	80.6	84.2	76.9	20.7	22.3	19.2
Hill	72.3	75.5	69.3	81.2	86.3	75.9	19.7	21.2	18.3
Tarai	70.6	73.3	68.2	78.9	83.5	74.4	19.0	20.1	18.0
Province									
Koshi	70.7	73.5	68.1	78.5	83.2	73.9	19.3	20.5	18.2
Madhesh	71.9	73.7	70.2	81.1	83.9	78.3	19.6	20.3	19.0
Bagmati	72.8	75.5	70.2	82.6	87.0	78.3	19.3	20.7	18.0
Gandaki	72.3	75.9	68.6	80.5	87.0	73.4	20.0	21.4	18.6
Lumbini	69.7	72.9	66.6	76.8	82.7	70.6	18.8	20.0	17.7
Karnali	72.4	75.6	69.5	81.7	86.0	77.2	19.8	21.5	18.3
Sudurpashchim	71.3	75.4	67.3	79.1	85.3	72.4	19.8	21.9	17.8
District									
Taplejung	70.1	71.0	69.4	76.6	78.7	74.8	20.0	20.0	20.2
Sankhuwasabha	70.5	72.0	69.1	79.0	81.3	76.8	19.3	20.1	18.6
Solukhumbu	72.4	75.0	69.9	78.8	83.9	74.9	21.7	22.4	20.6
Okhaldhunga	75.6	79.3	72.5	82.8	85.9	79.7	23.8	26.6	21.5
Khotang	74.5	76.5	72.6	83.1	86.7	79.6	22.0	22.5	21.6
Bhojpur	71.3	74.9	68.2	79.9	84.7	75.2	20.0	21.9	18.5
Dhankuta	69.4	73.5	66.3	77.5	82.3	72.9	18.5	20.5	17.0
Tehrathum	69.5	71.6	67.6	75.9	78.8	73.3	18.8	20.1	17.6
Panchthar	67.0	69.6	64.7	73.1	77.3	69.0	17.5	18.6	16.7
Ilam	71.6	73.4	69.9	79.7	83.1	76.6	19.8	20.1	19.5
Jhapa	70.7	73.4	68.1	79.4	84.6	74.2	18.7	19.6	17.9
Morang	69.0	72.4	66.1	77.6	83.2	72.1	17.5	19.2	16.1
Sunsari	69.4	71.9	67.0	78.8	83.0	74.6	17.1	18.4	15.9
Udayapur	72.5	76.1	69.2	81.7	87.1	76.1	20.2	21.8	18.7
Saptari	71.0	73.1	69.0	81.0	84.5	77.5	18.9	19.6	18.2
Siraha	70.9	72.8	69.0	80.1	83.6	76.5	18.7	19.3	18.2
Dhanusa	69.7	71.5	68.0	78.9	82.3	75.3	17.6	18.2	17.1
Mahottari	70.6	72.2	69.0	80.7	83.8	77.6	18.3	18.6	18.0
Sarlahi	71.1	72.9	69.5	81.0	83.8	78.4	18.8	19.6	18.2
Rautahat	72.3	74.5	70.5	82.5	84.7	80.3	19.8	21.4	18.7
Bara	73.2	74.8	71.8	83.7	85.8	81.8	19.8	20.7	19.1
Parsa	73.6	75.1	72.5	84.5	86.5	82.7	19.7	20.4	19.1
Dolakha	74.1	77.2	71.1	83.2	88.8	77.3	21.1	22.4	19.7
Sindhupalchok	72.5	75.9	69.8	80.6	84.2	77.2	20.7	23.0	18.9

Area	Life expectancy at birth (e0)			Percentage surviving to age 60			Life expectancy - at 60 years		
	Both Sex	Female	Male	Both Sex	Female	Male	Both Sex	Female	Male
Rasuwa	73.8	76.0	71.9	81.2	86.3	78.4	22.0	23.4	20.2
Dhading	73.6	77.0	70.5	80.5	86.2	75.5	21.9	23.1	20.7
Nuwakot	71.5	74.0	69.2	79.0	82.8	75.2	20.0	21.3	19.0
Kathmandu	72.1	74.6	70.0	84.9	88.5	81.6	17.0	18.5	15.6
Bhaktapur	72.0	74.2	70.0	84.5	88.1	81.1	17.3	18.4	16.1
Lalitpur	72.1	74.9	69.7	84.3	89.1	79.8	17.3	18.8	16.0
Kavrepalanchok	70.7	74.6	67.4	79.8	86.5	73.3	18.7	20.4	17.2
Ramechhap	75.3	79.7	71.1	82.3	88.3	76.2	23.5	25.7	21.4
Sindhuli	72.7	75.3	70.4	81.7	85.5	78.1	20.6	22.0	19.3
Makwanpur	70.6	73.7	67.9	78.8	83.7	74.0	18.3	20.1	16.9
Chitawan	72.8	75.9	69.9	82.4	87.3	77.2	19.5	21.0	18.3
Gorkha	75.1	79.1	71.3	81.6	87.1	75.6	23.2	25.4	21.4
Manang	67.8	74.7	61.9	75.0	85.2	67.8	18.5	20.9	15.8
Mustang	74.3	76.2	73.6	89.1	91.4	88.1	19.3	20.0	19.3
Myagdi	72.6	76.7	69.3	80.1	88.1	73.6	20.8	22.3	19.1
Kaski	71.2	75.0	67.9	80.9	86.7	74.9	17.9	20.0	16.1
Lamjung	73.7	76.3	70.9	82.9	88.6	76.8	20.9	21.6	20.2
Tanahu	71.1	75.2	67.0	79.8	86.8	72.0	18.9	20.6	17.4
Nawalparasi-East	70.9	74.5	67.2	80.0	87.1	72.3	18.2	19.6	17.0
Syangja	71.9	76.1	67.3	80.2	88.3	70.8	19.5	20.8	18.1
Parbat	73.4	78.0	69.1	81.7	88.3	74.4	20.5	22.8	18.5
Baglung	71.4	74.3	68.3	79.9	86.1	72.6	19.5	20.1	19.0
Rukum-East	73.8	78.4	69.8	81.8	88.6	75.1	21.8	24.1	19.7
Rolpa	71.5	76.2	66.9	78.7	86.0	70.6	19.7	21.9	17.8
Pyuthan	70.4	74.1	66.3	77.0	83.7	68.6	19.3	20.8	17.8
Gulmi	71.0	75.7	65.8	77.8	86.7	66.8	20.1	21.5	18.8
Arghakhanchi	70.6	76.2	65.2	76.9	85.4	66.4	19.7	22.4	18.0
Palpa	71.0	74.8	67.2	78.5	85.0	70.7	19.0	20.8	17.5
Nawalparasi-West	69.6	72.2	67.2	77.9	83.1	72.7	17.9	18.7	17.2
Rupandehi	68.9	71.4	66.5	77.0	82.0	71.9	17.1	18.1	16.3
Kapilbastu	67.9	70.6	65.3	74.8	80.0	69.9	17.8	18.8	16.9
Dang	69.8	74.0	66.0	78.0	85.0	70.8	17.9	19.9	16.3
Banke	67.4	69.9	65.0	74.4	78.6	70.2	17.5	18.6	16.5
Bardiya	70.9	74.0	67.8	79.2	84.7	73.2	19.4	20.7	18.3
Dolpa	72.1	75.2	69.4	79.7	83.9	76.9	20.8	22.0	19.2
Mugu	70.4	73.9	67.6	80.8	85.9	75.1	18.9	20.3	18.1
Humla	75.3	79.3	72.8	86.1	88.9	84.4	21.4	24.2	19.5
Jumla	70.2	73.2	68.1	83.0	85.8	79.4	16.3	18.4	15.4
Kalikot	73.5	76.6	71.0	82.1	84.8	79.6	21.2	23.8	19.2
Dailekh	74.3	78.3	70.7	83.9	89.1	78.4	21.0	23.1	19.3
Jajarkot	73.7	77.0	71.1	82.4	85.8	80.9	20.9	23.5	18.4

Area	Life expectancy at birth (e0)			Percentage surviving to age 60			Life expectancy - at 60 years		
	Both Sex	Female	Male	Both Sex	Female	Male	Both Sex	Female	Male
Rukum-West	75.2	79.9	71.7	84.3	88.8	80.0	21.7	25.1	19.3
Salyan	71.6	75.5	68.1	81.4	87.2	75.4	18.7	20.8	17.0
Surkhet	71.1	74.1	68.2	79.9	84.7	74.7	18.8	20.2	17.6
Bajura	71.8	75.7	69.0	81.2	84.7	78.1	19.8	22.5	17.9
Bajhang	72.9	77.6	68.0	80.0	85.3	74.6	21.2	24.4	17.5
Darchula	75.3	80.3	71.4	83.7	88.9	79.8	22.1	25.0	19.7
Baitadi	74.2	80.3	69.0	82.6	89.1	75.7	21.6	25.4	18.5
Dadeldhura	74.2	79.0	70.4	84.7	88.6	80.3	20.5	24.0	17.9
Doti	72.7	78.2	67.1	79.8	87.8	71.2	21.2	24.0	18.0
Achham	70.7	76.7	65.0	76.8	85.5	68.2	20.3	23.4	17.2
Kailali	69.2	72.9	65.7	77.4	83.7	70.7	17.9	19.8	16.4
Kanchanpur	70.4	73.9	66.9	79.2	85.4	72.5	18.3	19.8	16.8

Table 4.4: Bottom and top 10 districts for life expectancy at birth for both sexes, NPHC 2021

Bottom 10			Top 10		
District	Life expectancy at birth	Rank	District	Life expectancy at birth	Rank
Panchthar	67.0	77	Okhaldhunga	75.6	1
Banke	67.4	76	Humla	75.3	2
Manang	67.8	75	Ramechhap	75.3	2
Kapilbastu	67.9	74	Darchula	75.3	2
Rupandehi	68.9	74	Rukum-West	75.2	3
Morang	69.0	73	Gorkha	75.1	4
Kailali	69.2	72	Khotang	74.5	5
Sunsari	69.4	71	Mustang	74.3	6
Dhankuta	69.4	71	Dailekh	74.3	6
Tehrathum	69.5	70	Baitadi	74.2	7
Nawalparasi-West	69.6	69	Dadeldhura	74.2	7
Dhanusa	69.7	68	Dolakha	74.1	8
			Rasuwa	73.8	9
			Rukum-East	73.8	9
			Lamjung	73.7	10
			Jajarkot	73.7	10

Ten districts with the lowest and highest e_0 values (for both sexes) are presented in Table 4.4. When looking at the district level life expectancy at birth, districts from Lumbini and Koshi provinces show lower values of e_0 for both sexes. Okhaldhunga (75.6 years) has the highest e_0, while Panchthar (67.0 years) has the lowest value for both sexes. For females (Table 4.3), the highest e_0 is seen in Baitadi and Darchula (80.3 years) and lowest in Panchthar (69.6 years) with

nearly 10 years between the two. For males, highest e_0 is observed in Mustang (73.6 years) and lowest in Manang (61.9 years).

Table 4.5: Life expectancy at birth for both sexes in various census years

S.N.	Year/duration of estimation	Life expectancy at birth			Source
		Both sexes*	Male	Female	
1	1954	27.8	27.1	28.5	Vaidhyanathan and Gaige, 1973
2	1953-61	36.3	35.2	37.4	CBS, 1974
3	1971	41.1	42.1	40.0	Gubhaju, 1982
4	1981	49.5	50.9	48.1	CBS, 1986
5	1991	54.3	55.0	53.5	CBS, 1993
6	2001	60.4	60.1	60.7	Dangol, 2003
7	2011	66.6	65.5	67.9	CBS, 2014
8	2021	71.4	68.7	74.3	NPHC 2021

Source: (Central Bureau of Statistics (CBS), 2014)

Table 4.5 presents the life expectancy at birth for both sexes, males, and females for different census years. For life expectancy at birth in 2011, the rates of 66.6 years for both sexes were calculated from NDHS 2011 data using CEBCS (Coale-Demeny West models). This value was thought to be the most plausible value as it was nearly aligned with the life expectancy in India (65.96 years) at that same period (Central Bureau of Statistics (CBS), 2014) and possibly aligned due to some similarities in socio-cultural aspects between the two countries. The NPHC 2011's CEBCS data set, using Coale-Demeny West and UN General Model, produced a figure of 69.36 years and 72.2 years respectively. The life table method using the empirical age-specific mortality rates in 2011 produced a figure of 72.1 years.

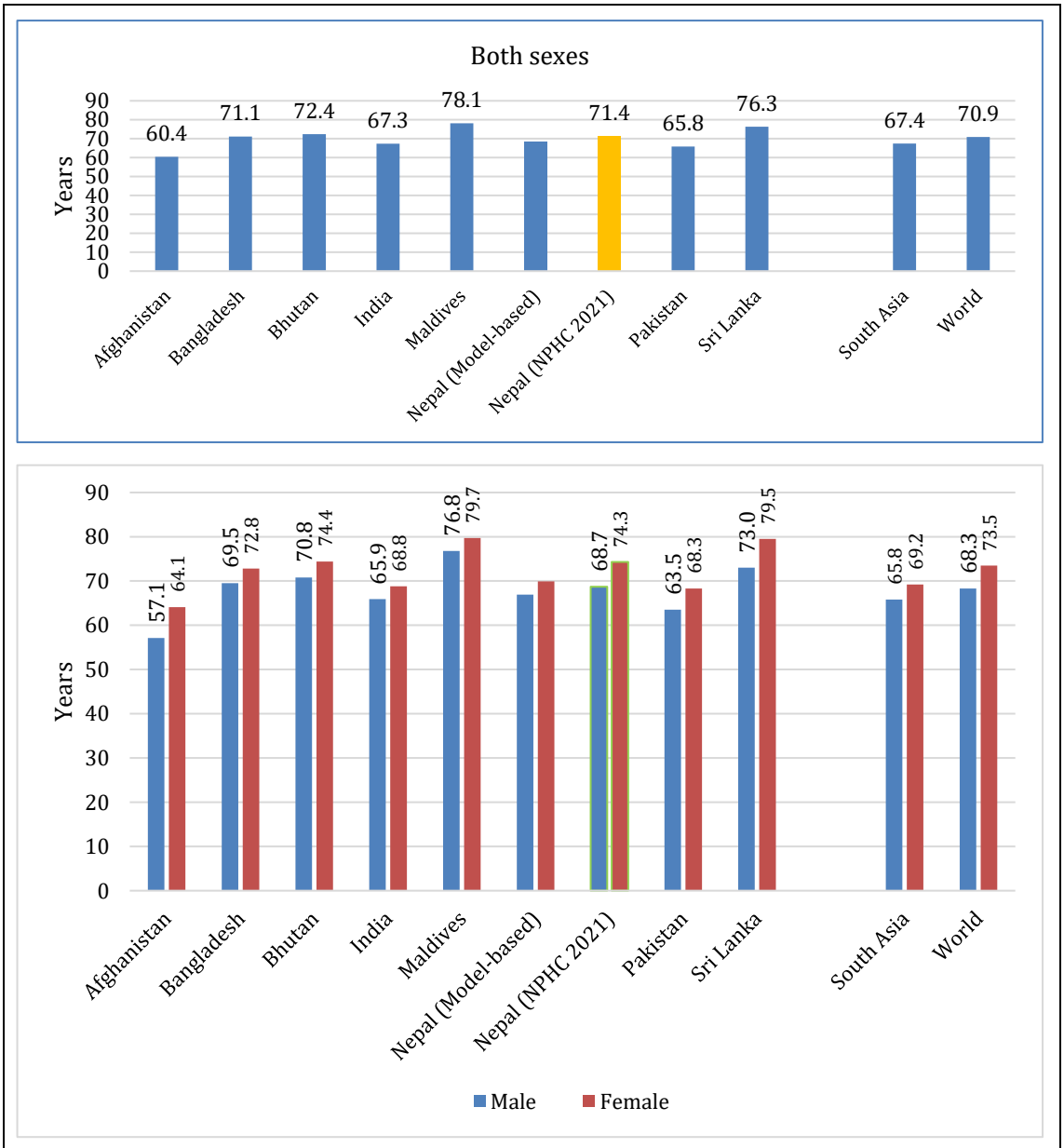
The life table estimate of life expectancy at birth for the 2016-2020 period for India[15] is 70.0, 68.6, and 71.4 years respectively for both sexes, males, and females, and these estimates are also found to be close to corresponding values of 71.4, 68.7, and 74.3 years from NPHC 2021. However, a greater male-female disparity is observed in Nepal's estimated expected life expectancy at birth than in India.

Figure 4.3 displays the comparison of life expectancies by sex for neighboring countries of the SAARC region, South Asia, and the world as derived from the UN data portal. The values are model based and not directly comparable with the values from NPHC 2021. The disparity between the projected male and female life expectancy at birth is also seen at the World level,

[15] https://censusindia.gov.in/nada/index.php/catalog/44377/download/48050/SRS-Abridged_Life_Tables_2016-2020.pdf

where the figures stand at five years apart for males (68.3) and females (73.5) for the year 2021. The disparity is somewhat less in South Asia but it is more in Sri Lanka.

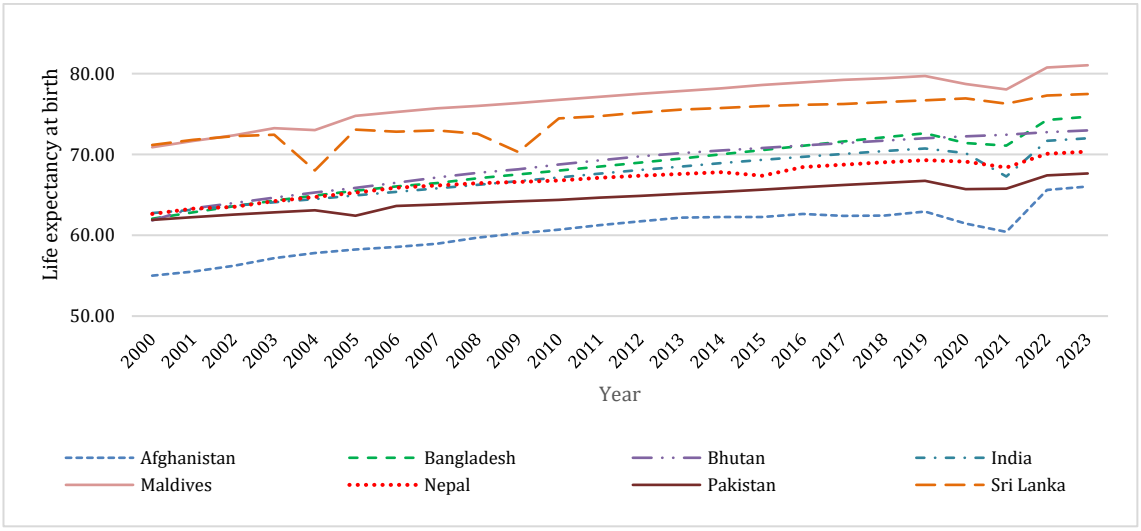
Figure 4.3: Regional comparison of life expectancies at birth, South Asia and the World, 2021



Data Source: UN Population Prospects 2024 data portal (Model-based projections); Nepal (NPHC 2021)

Model based values of e_0 showing the trend and pattern for the South Asian countries, and Nepal from 2000 to 2023 are presented in Figure 4.4 (United Nations, Department of Economic and Social Affairs, Population Division, 2024). Life expectancy at birth for South Asian countries is lowest for Afghanistan followed by Pakistan. Maldives has the highest e_0, which is followed by Sri Lanka, which is an indication of better socio-economic indicators among the South Asian countries. Nepal ranks sixth out of the eight South Asian countries, with only Pakistan and Afghanistan showing lower e_0 values.

Figure 4.4: Regional comparison of life expectancies at birth for both sexes in South-Asian countries



Data Source: UN Population *Prospects 2024 data portal*

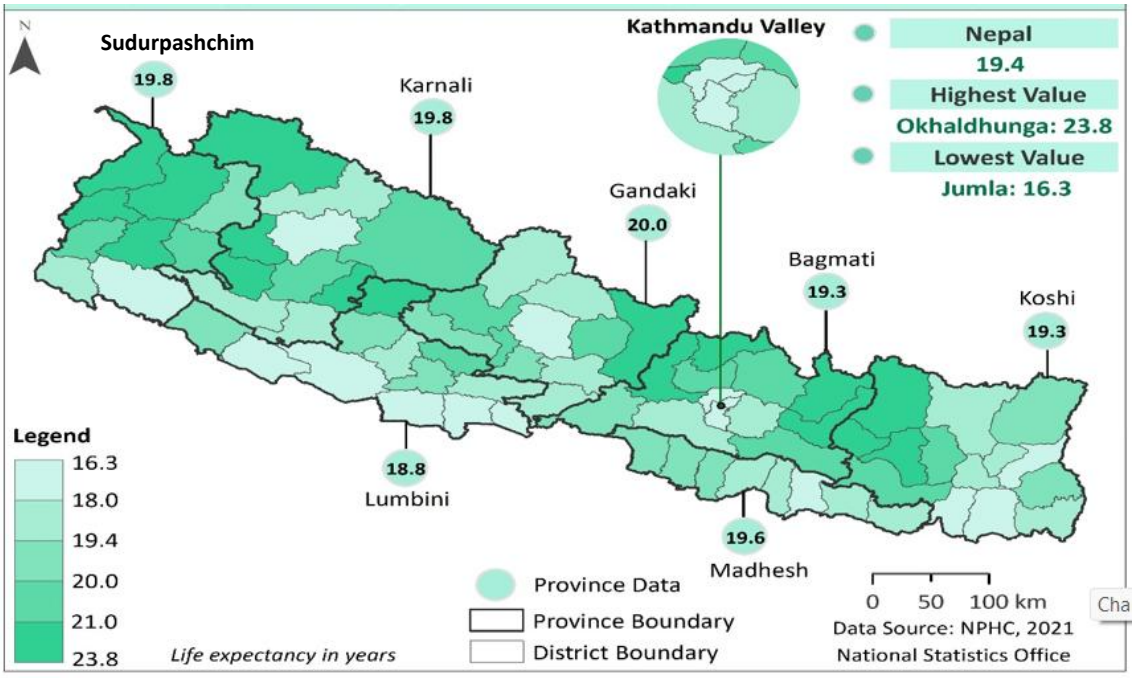
Life expectancy at age of 60 years

The life expectancy at age of 60 years measures the average number of years a person is expected to live after reaching 60 years. This metric helps design sustainable pension systems as a longer life expectancy demands adequate financial resources to support individuals throughout life. The metric also complements healthcare policies by enabling the government to allocate adequate resources to effectively cater to the needs of its ageing population. Moreover, it aids in workforce planning, as extended working years may be considered to balance the ratio of active workers to retirees. This does not only concern living longer but regards the healthy living or the quality of the additional years of life. More importantly, by recognizing the potential for longer life spans at the individual level, people can make informed decisions about their savings and investments to ensure that they have adequate resources to maintain their desired standard of living during life and adopt preventive healthcare measures to maintain a quality of life which is free from illness or disability during their extended years.

The Map 4.1 presents the life expectancy at age 60 years which is derived from the province life tables presented at the Annex 4: Table A4.1 and summarized in Table 4.3. Life expectancy at age 60 year (e_{60}) in Nepal is 19.4 years for both sexes, 20.7 years for females and 18.2 years for males. Whilst not a great deal of difference is seen in the life expectancy between the provinces for both sexes, a disparity can be seen between the sexes. For example, there is a three to four years difference in life expectancy at age 60 years between the males and females in Lumbini, Karnali and Sudurpashchim provinces, with the male value seen to be lower than the female values.

The district values for the life expectancy at age 60 years are given in the same Table 4.3. For both sexes, Okhaldhunga (23.8) and Jumla (16.3) have the highest and lowest e_{60} values. For females the e_{60} values range from 26.6 years for Okhaldhunga and 18.1 years for Rupandehi. For males, Khotang (21.6) and Jumla (15.4) have the highest and lowest values.

Map 4.1: Life expectancy at age 60, NPHC 2021



Globally, life expectancy at age 60 varies significantly across regions and is influenced by a number of factors such as diet and nutrition[16], physical activity, access to quality healthcare and preventive services, socioeconomic conditions[17] such as income, education and social support

[16] https://online.aging.ufl.edu/2024/03/27/exploring-the-factors-that-affect-human-longevity/

[17] https://www.gov.uk/government/publications/understanding-the-drivers-of-healthy-life-expectancy/understanding-the-drivers-of-healthy-life-expectancy-report?

networks, environmental influencers such as living conditions and work environment, and behavioural risk factors such as smoking and alcohol. Figure 4.5 displays the regional comparison of life expectancies at retirement age for 2021. The model-base additional life years after retirement at age 60 for both sexes in Nepal is higher by a figure of one year than that of South-East Asia, and lower than the global average by two years. The NPHC 2021 estimated value for both sexes is the same as global value.

Figure 4.5: International comparison of life expectancy at age 60, Nepal, SAARC, South East Asia, the World, 2021

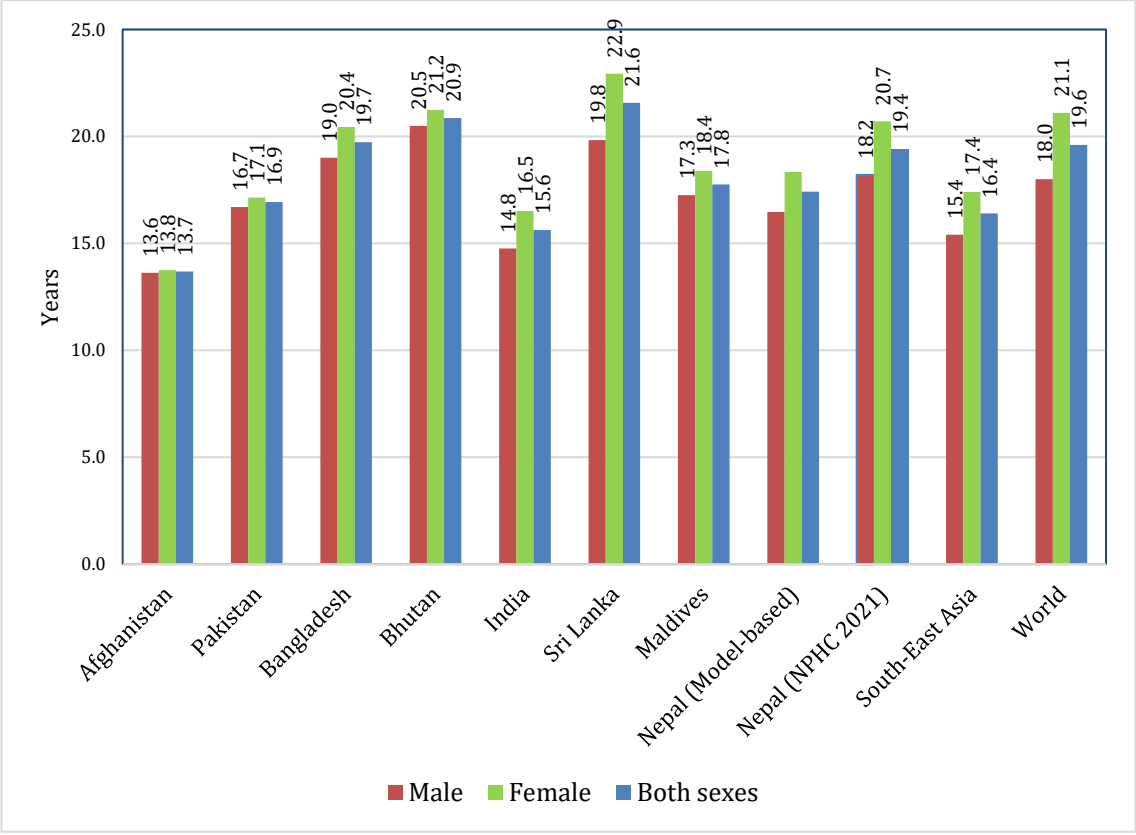


Figure source: https://www.who.int/data/gho/data/indicators/indicator-details/GHO/life-expectancy-at-age-60-%28years%29/ For Nepal: Model-based and NPHC 2021 values

Population surviving to age 60 years

The percentage of the population surviving to age 60 is another important demographic indicator which measures the proportion of people who reach age 60. This indicator reflects health status and mortality pattern of a population and informs decisions on healthcare resource allocation, economic planning for pension systems, and development of social services and

infrastructures such as housing, transportation, and community support systems so that the needs of the aging individuals are met effectively.

Table 4.4 above also displays the proportion of people surviving to age 60 by ecological region and province. More than four out of five people living in Bagmati, Karnali, Madhesh and Gandaki provinces survive to age 60, while fewer than four out of five live to the same age in other provinces, with the lowest seen in Lumbini (76.8%). By sex, an equal proportion (87.0%) of females in Bagmati and Gandaki provinces survive up to this age, whereas the proportion for females surviving to this age is above 80 percent in rest of the provinces. For males, the proportion surviving to this age is highest in Madhesh and Bagmati provinces (78.3%) followed by Karnali (77.2%), with the lowest proportion in Lumbimi province (70.6%).

Map 4.2 depicts the percentage of population surviving to age 60 years for both sexes. The percentage of people surviving to age 60 years is 80.0 percent for both sexes, 84.7 percent for females and 75.1 percent for males. The disparity in the proportion of males and females surviving to age 60 highlights a notable difference in survival rates, with females exhibiting a higher likelihood of reaching age 60 compared to males. Despite the anticipated problems with death data discussed earlier in this report, the findings suggest that women generally have greater longevity and experience lower mortality rates across various age groups. The higher longevity of women may be a result of many health and lifestyle related factors, including biological differences. As a result of this finding, an opportunity may arise for healthcare planners to design targeted health interventions aimed at addressing specific risk factors prevalent in males which cause this lower survival rate, whilst also working to sustain the higher survival rate of females.

The proportion of people surviving to age 60 is highest for Mustang (89.1%) and lowest for Panchthar (73.1%). For females, the value is highest for Mustang (91.4%) and lowest for Panchthar (77.3%) and for males the value is highest for Mustang (88.1%) and lowest for Arghakhanchi (66.4%).

Map 4.2: Percentage of population surviving to age 60, Nepal, Province and district, NPHC 2021

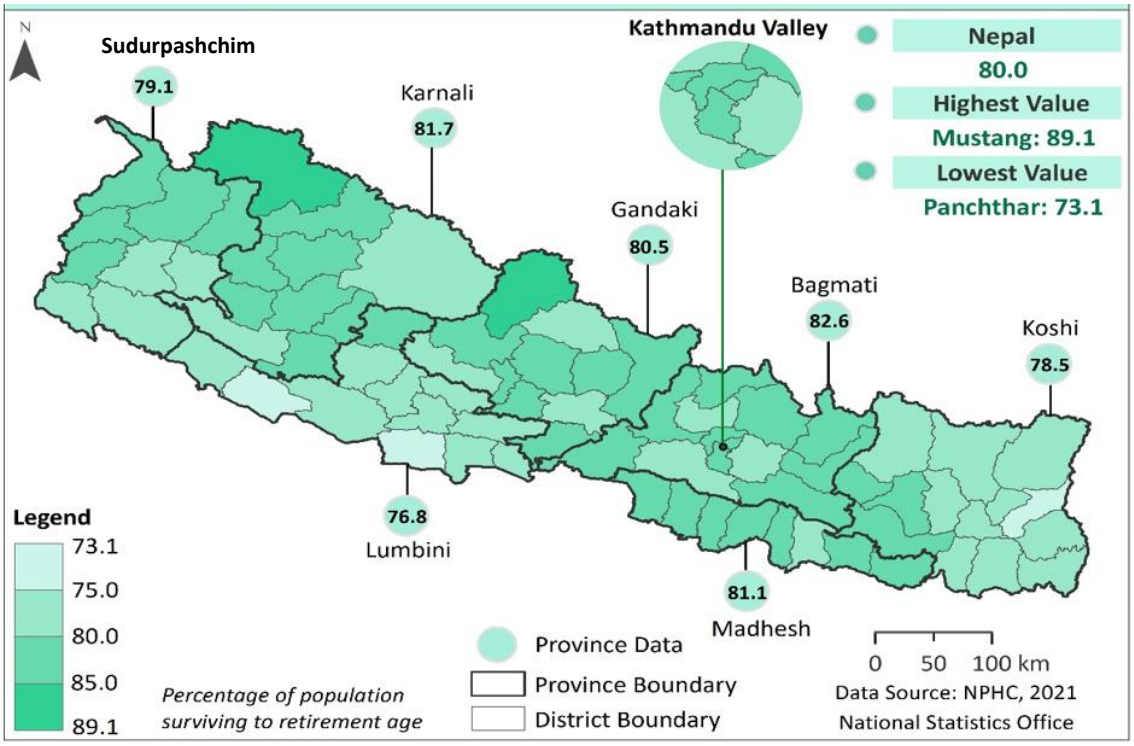
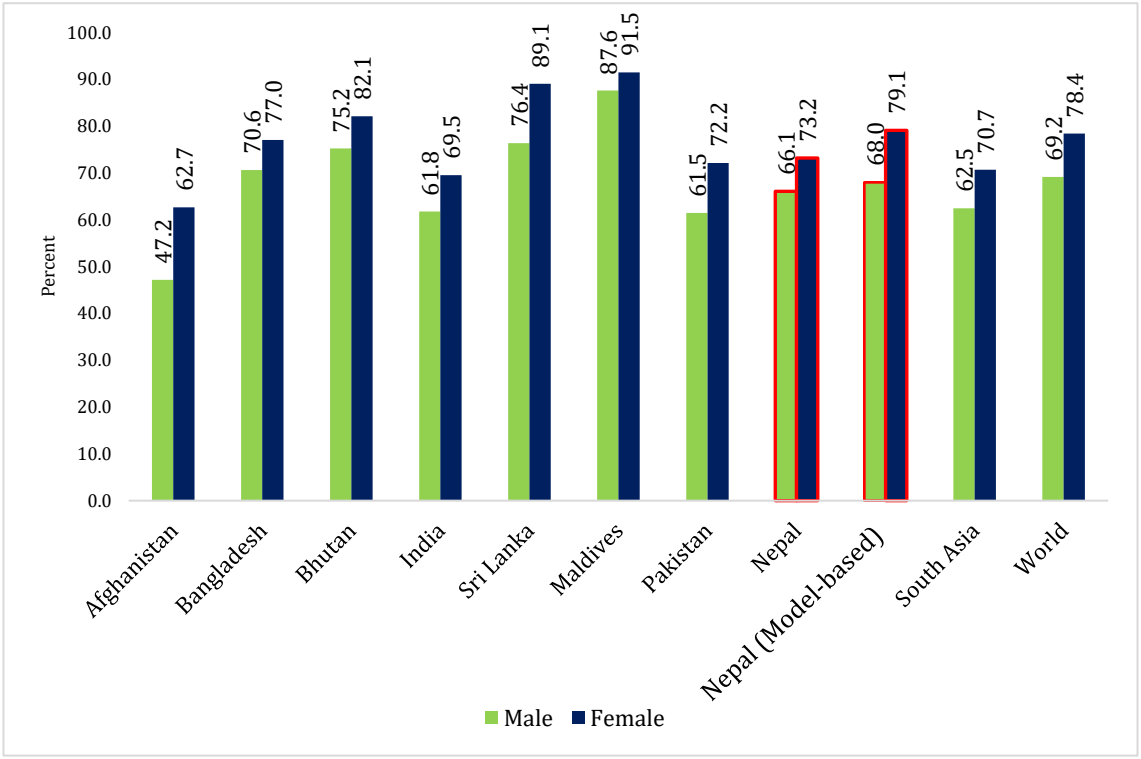


Figure 4.6 presents a regional comparison of the percentage of people surviving to age 65. Age 65 is considered for international comparison, as the data for age 60 is not available for other countries and the world. With regard to this indicator, it is again evident from the figure that Nepal is performing well. The model-based survival rates for Nepal for males and females are three and five percentage points lower than the corresponding global values, while the NPHC 2021 estimated share is around the same as global average. However, it should be noted that the methodology of the two sources differs greatly and the comparison should be taken cautiously.

Figure 4.6: International comparison of survival to age 65 (% of cohort) by sex, Nepal, SAARC, South Asia, the World, 2021



Source:- https://data.worldbank.org/indicator/sp.DYN.TO65.MA.ZS/.

CHAPTER 5

MORTALITY IN EARLY YEARS OF LIFE

Overview

Children under five years of age are considered to be in the early years of life; a period in which their immune system is growing and when they are in the critical window of physical, emotional and cognitive growth (Benitez, 2024). Mortality during this period is relatively high compared to mortality in adulthood and it is commonly agreed that such trends can and should be avoided. Disaggregating mortality of children under five years of age into infants (under age one) and child (between ages 1 and 4) reveals that mortality during infancy is high compared to ages 1-4. Further disaggregation of mortality rates during infancy draws attention to the pattern of mortality in early years of life for Nepal in which nearly two-thirds of all under five deaths occur before the first month of birth (Ministry of Health and Population [Nepal], New ERA, and ICF, 2023). For this reason, the infant mortality rate is often disaggregated into a neonatal mortality rate (within 28 days of birth/before 1 month) and a post-neonatal mortality rate (between 1 and 11 months). The under five mortality rate (U5MR) measures the probability that a newborn will die before reaching five years; the infant mortality rate (IMR) measures the probability that a newborn will die before reaching one year; and the child mortality rate (CMR) measures the probability of child dying between ages 1-4.

Early age mortality indicators in 2021

As mentioned earlier, the NPHC 2021 data obtained from the mortality and fertility sections of the main questionnaire can be differently utilized to compute the early life mortality rates. Utilizing the death-related data for past 12 months, the IMR and CMR can be estimated in two ways. The immediate method is to find the ratio of reported deaths of infants under the age of 1 to the total number of live births in the last 12 months (fertility section of the questionnaire). The other method involves firstly calculating the ASDRs under the age of 1 as the number of deaths per 1,000 population of under age 1, then converting the figure to IMR or ${}_1q_0$ by using life tables. The age-specific death rates can be directly utilized to make an abridged life table which gives the probability of dying for different age groups, where the probability of dying for the lowest two groups gives the infant mortality and child mortality rates respectively. As presented in the life tables in the earlier chapter, the ${}_nq_x$ value for x=0 gives an estimate of the

IMR, while that for x=1 gives an estimate of the CMR. The under 5 mortality rate is calculated using the relationship: $U5MR = IMR + ((1 - IMR).CMR)$ (United Nations, 1990).

Table 5.1 presents the unadjusted and adjusted estimates of early age mortality rates for both sexes, females and males for Nepal and provinces. The mortality rates published earlier have been updated, but the difference is insignificant due to this revision. The lowest IMR for both sexes is seen for Bagmati and Gandaki (11.3) followed by Karnali (13.9) whereas Madhesh and Lumbini have the highest value (19.5).

Table 5.1: Unadjusted and adjusted estimates of Infant and child mortality rates, Nepal and Province, (Direct Estimates) NPHC 2021

Area	IMR (Unadjusted)*			IMR (Adjusted)**				CMR (Unadjusted)*			CMR (Adjusted)**		
	Both sexes	Female	Male	Both sexes	Female	Male		Both sexes	Female	Male	Both sexes	Female	Male
Nepal	17	15	19	16.6	14.7	18.3		5.9	5.6	6.1	5.9	5.6	6.1
Province													
Koshi	19	16	21	18.0	15.7	20.0		5.9	6.0	5.7	5.9	6.1	5.8
Madhesh	21	18	23	19.5	17.0	21.5		6.3	6.0	6.6	6.4	6.0	6.6
Bagmati	12	11	13	11.3	10.4	12.0		4.5	4.7	4.3	4.5	4.6	4.4
Gandaki	12	11	12	11.3	10.7	11.9		4.2	3.3	5.0	4.3	3.3	5.1
Lumbini	20	18	22	19.5	17.3	21.6		6.7	6.4	6.9	6.7	6.5	6.9
Karnali	14	12	15	13.9	12.2	15.3		6.0	5.6	6.4	6.1	5.6	6.6
Sudurpashchim	16	14	18	16.7	14.8	18.4		6.4	5.4	7.3	6.4	5.4	7.3

**Note: Published as preliminary estimates of unadjusted IMR/CMR by the NSO; **Updated values of IMR/CMR using smoothed data*

Figure 5.1 illustrates the infant and child mortality rates for Nepal and its provinces. The data reveal highest infant mortality rate in Madhesh which is followed by Lumbini and Koshi. Similarly, Bagmati and Gandaki show nearly identical rates, but lower than the national average, while Karnali exhibits slightly higher mortality rate than Bagmati and Gandaki.

Figure 5.1: IMR and U5MR by sex, Nepal and Province, NPHC 2021

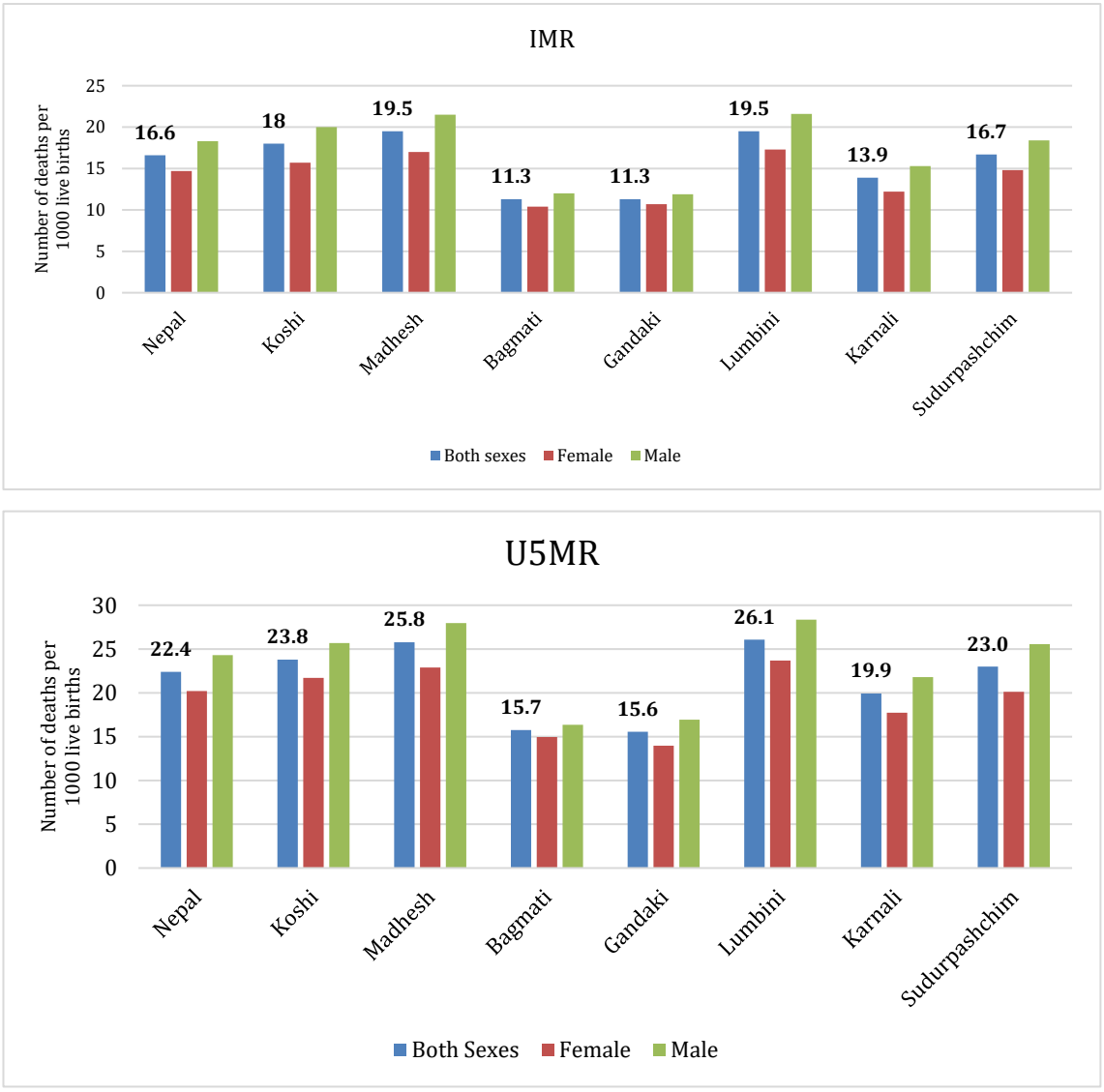


Table 5.2 presents direct estimates of infant mortality rate, child mortality rate, and under-five mortality rate, calculated from a life table based on smoothed age-specific death rates converted into corresponding mortality probabilities. For the census reference period from December 2020 to November 2021—corresponding to June 2021 as the mid-point of the census reference year—the direct estimates for both sexes are 16.6 per 1,000 live births for IMR, 5.9 for CMR, and 22.4 for U5MR. These figures are notably lower than the latest NDHS 2022 estimates, which report 28, 5, and 33, respectively. However, the two sets of estimates are not

directly comparable: the NDHS figures are derived from a five-year recall period (2017–2021), representing mid-2019, whereas the census estimates are based on a single year.

Most surprisingly, the census-based direct estimates are also validated by the indirect estimation results provided in Annex 5: Table A5.6, which show very similar values, indicating minimal variation (The estimates are for the age group 20-24, reference date: 2019.7 – June 2019). Despite issues such as underreporting and age misreporting discussed earlier, the quality of data collection appears to have improved over the past decade, lending confidence to the representativeness of the direct estimates in capturing current mortality trends. Nevertheless, the substantial difference between census and NDHS results may raise confusion. It remains to be studied whether this observed decline in child mortality is attributable to the success of government maternal and child health interventions, increased public awareness in health and hygiene during the COVID-19 period, or other factors such as underreporting of deaths.

This approach marks a shift from previous censuses, which relied exclusively on indirect methods to estimate child mortality. To allow for comparative analysis, the results of indirect estimation have been included in Annex 5: Table A5.8 for users interested in assessing child mortality trends through alternative methodologies.

Table 5.2: Infant, child and under 5 mortality rates, Nepal, ecological region, province and district, (Direct Estimates) NPHC 2021

Area	Infant Mortality Rate			Child Mortality Rate			Under 5 Mortality Rate		
	Both sexes	Female	Male	Both sexes	Female	Male	Both sexes	Female	Male
Nepal	16.6	14.7	18.3	5.9	5.6	6.1	22.4	20.2	24.3
Ecological zone									
Mountain	16.9	15.5	18.2	7.8	7.2	8.3	24.6	22.6	26.3
Hill	12.7	11.6	13.7	4.9	4.7	5.0	17.5	16.2	18.6
Tarai	19.2	16.8	21.2	6.3	6.0	6.6	25.4	22.7	27.7
Province									
Koshi	18.0	15.7	20.0	5.9	6.1	5.8	23.8	21.7	25.7
Madhesh	19.5	17.0	21.5	6.4	6.0	6.6	25.8	22.9	28.0
Bagmati	11.3	10.4	12.0	4.5	4.6	4.4	15.7	15.0	16.3
Gandaki	11.3	10.7	11.9	4.3	3.3	5.1	15.6	14.0	16.9
Lumbini	19.5	17.3	21.6	6.7	6.5	6.9	26.1	23.7	28.4
Karnali	13.9	12.2	15.3	6.1	5.6	6.6	19.9	17.7	21.8
Sudurpashchim	16.7	14.8	18.4	6.4	5.4	7.3	23.0	20.1	25.6
District									
Taplejung	23.1	21.4	24.3	8.7	9.4	8.0	31.6	30.6	32.1
Sankhuwasabha	21.6	22.5	20.9	7.9	10.2	6.3	29.3	32.5	27.1
Solukhumbu	20.0	16.9	22.2	7.0	6.9	6.8	26.9	23.7	28.8
Okhaldhunga	16.7	14.9	17.8	5.4	5.8	4.8	22.0	20.6	22.5
Khotang	14.1	12.6	14.7	4.1	4.4	3.7	18.1	16.9	18.3
Bhojpur	19.9	18.1	21.9	7.0	7.3	6.8	26.8	25.3	28.6
Dhankuta	22.5	14.0	27.8	8.3	5.1	9.8	30.6	19.0	37.3

Area	Infant Mortality Rate			Child Mortality Rate			Under 5 Mortality Rate		
	Both sexes	Female	Male	Both sexes	Female	Male	Both sexes	Female	Male
Tehrathum	14.4	11.2	17.1	4.6	4.4	4.5	18.9	15.6	21.5
Panchthar	21.3	17.6	24.9	7.9	7.4	8.3	29.0	24.9	33.0
Ilam	15.1	12.1	17.9	4.6	4.2	4.9	19.6	16.2	22.7
Jhapa	15.9	13.1	18.5	4.9	4.7	5.0	20.7	17.7	23.4
Morang	19.1	17.0	21.1	6.5	6.8	6.2	25.5	23.7	27.2
Sunsari	16.8	14.7	18.7	5.2	5.4	5.1	21.9	20.0	23.7
Udayapur	16.2	14.2	18.1	5.0	5.2	4.9	21.1	19.3	22.9
Saptari	21.7	17.4	25.1	7.6	6.3	8.4	29.1	23.6	33.3
Siraha	18.5	16.0	20.4	5.9	5.5	6.2	24.3	21.4	26.5
Dhanusa	18.0	16.7	18.7	5.6	5.9	5.3	23.5	22.5	23.9
Mahottari	20.5	17.2	23.2	6.9	6.1	7.6	27.3	23.2	30.6
Sarlahi	20.7	17.9	23.1	7.0	6.6	7.4	27.6	24.4	30.3
Rautahat	23.0	19.9	25.4	8.1	7.6	8.4	30.9	27.3	33.6
Bara	15.3	13.3	16.9	4.4	4.2	4.5	19.6	17.4	21.3
Parsa	14.1	12.5	15.6	3.8	3.7	3.9	17.8	16.2	19.4
Dolakha	8.9	10.1	7.2	3.4	4.8	2.1	12.3	14.9	9.3
Sindhupalchok	15.2	13.9	16.0	6.9	6.8	6.8	22.0	20.6	22.7
Rasuwa	16.5	22.1	12.2	7.9	12.7	4.5	24.3	34.5	16.6
Dhading	13.8	10.7	16.8	6.2	4.9	7.4	19.9	15.5	24.1
Nuwakot	14.4	12.1	16.5	6.5	5.8	7.0	20.8	17.8	23.4
Kathmandu	7.4	6.6	8.1	2.4	2.3	2.4	9.8	8.9	10.5
Bhaktapur	9.6	8.8	10.1	3.5	3.6	3.3	13.1	12.4	13.4
Lalitpur	8.2	6.8	9.2	2.8	2.5	2.9	11.0	9.3	12.1
Kavrepalanchok	15.4	13.4	17.0	7.2	6.7	7.4	22.5	20.0	24.3
Ramechhap	12.0	11.3	12.7	5.2	5.3	5.1	17.1	16.5	17.7
Sindhuli	17.4	16.1	18.2	8.4	8.6	8.1	25.7	24.6	26.2
Makwanpur	11.7	11.7	11.5	4.9	5.5	4.3	16.5	17.1	15.8
Chitawan	11.1	10.3	12.0	4.5	4.6	4.4	15.6	14.9	16.3
Gorkha	13.3	13.5	13.2	5.4	4.8	5.8	18.6	18.2	18.9
Manang	41.2	22.9	54.6	11.7	6.5	28.5	52.4	29.3	81.5
Mustang	16.6	0.0	22.4	7.3	0.0	11.8	23.8	0.0	33.9
Myagdi	10.3	10.6	11.0	3.7	3.4	4.5	14.0	14.0	15.5
Kaski	9.5	8.7	9.9	3.2	2.4	3.8	12.7	11.1	13.7
Lamjung	12.1	11.4	12.0	4.7	3.9	5.0	16.7	15.3	16.9
Tanahu	11.9	10.7	13.3	4.6	3.4	5.8	16.4	14.1	19.0
Nawalparasi-East	11.7	11.2	12.2	4.4	3.5	5.2	16.0	14.7	17.3
Syangja	9.9	8.9	10.8	3.5	2.5	4.5	13.4	11.4	15.3
Parbat	9.0	8.6	9.8	3.0	2.4	3.8	12.0	11.0	13.6
Baglung	12.3	12.1	10.8	4.9	4.0	4.7	17.1	16.1	15.4
Rukum-East	17.4	16.3	18.3	5.6	5.8	5.3	22.9	22.0	23.5
Rolpa	16.3	12.6	19.4	5.0	3.9	5.8	21.2	16.5	25.1
Pyuthan	16.3	14.8	17.8	5.1	5.1	5.1	21.3	19.8	22.8
Gulmi	15.7	15.2	15.9	4.8	5.3	4.4	20.4	20.4	20.2
Arghakhanchi	16.1	14.4	16.4	5.0	4.8	4.5	21.0	19.1	20.8
Palpa	15.0	12.9	15.2	4.4	4.2	3.9	19.3	17.0	19.0
Nawalparasi-West	17.2	14.8	19.3	5.5	5.1	5.7	22.6	19.8	24.9
Rupandehi	17.0	15.9	17.9	5.3	5.7	5.0	22.2	21.5	22.8

Area	Infant Mortality Rate			Child Mortality Rate			Under 5 Mortality Rate		
	Both sexes	Female	Male	Both sexes	Female	Male	Both sexes	Female	Male
Kapilbastu	25.5	21.3	29.2	9.9	8.9	10.7	35.1	30.0	39.6
Dang	15.7	12.0	18.9	4.8	3.8	5.6	20.4	15.8	24.4
Banke	25.9	23.0	28.8	10.4	10.1	10.9	36.0	32.9	39.4
Bardiya	21.2	19.0	23.2	7.6	7.5	7.7	28.6	26.4	30.7
Dolpa	16.8	11.6	25.5	8.1	5.0	14.2	24.8	16.5	39.3
Mugu	18.2	15.1	20.5	9.3	10.4	10.5	27.3	25.3	30.8
Humla	13.7	9.5	18.0	5.9	3.8	8.2	19.5	13.3	26.1
Jumla	16.1	13.3	22.1	7.3	6.0	10.5	23.3	19.2	32.4
Kalikot	15.5	15.1	18.5	7.2	7.6	8.5	22.6	22.6	26.8
Dailekh	12.3	10.5	13.7	5.1	4.4	5.6	17.3	14.9	19.2
Jajarkot	13.0	13.1	13.6	5.5	6.2	5.5	18.4	19.2	19.0
Rukum-West	11.6	10.6	12.0	4.7	4.5	4.5	16.2	15.1	16.4
Salyan	11.1	11.1	11.1	4.5	4.9	4.2	15.6	15.9	15.3
Surkhet	13.6	12.0	15.1	5.9	5.5	6.4	19.4	17.4	21.4
Bajura	19.9	15.4	22.3	8.1	5.7	9.5	27.8	21.0	31.6
Bajhang	15.8	13.6	16.9	5.9	4.9	6.4	21.6	18.4	23.2
Darchula	11.9	7.6	15.3	3.8	1.9	5.4	15.7	9.5	20.6
Baitadi	13.6	11.1	15.5	4.7	3.5	5.7	18.2	14.6	21.1
Dadeldhura	13.8	10.5	15.8	4.7	3.2	5.7	18.4	13.7	21.4
Doti	16.2	14.9	18.3	6.1	5.4	7.2	22.2	20.2	25.4
Achham	18.3	16.0	21.6	7.4	6.1	9.1	25.6	22.0	30.5
Kailali	18.4	16.7	19.6	7.4	6.6	8.1	25.7	23.2	27.5
Kanchanpur	15.0	13.4	15.5	5.4	4.7	5.5	20.3	18.0	20.9

Table 5.3 shows the bottom and top 10 districts with estimates of IMR, CMR and U5MR for both sexes. Kathmandu has the lowest IMR, CMR and U5MR followed by Lalitpur district. Manang has the highest value of IMR, U5MR and CMR among all the districts. Four of the top ten districts with the highest IMR and U5MR belong to Koshi province.

Table 5.3: Bottom and top 10 districts for infant, child and under-five mortality rates (both sexes) – (Direct Estimates), NPHC 2021

IMR				U5MR				CMR			
Bottom 10		Top 10		Bottom 10		Top 10		Bottom 10		Top 10	
District	IMR	District	IMR	District	U5MR	District	U5MR	District	CMR	District	CMR
Kathmandu	7.4	Manang	41.2	Kathmandu	9.8	Manang	52.4	Kathmandu	2.4	Manang	11.7
Lalitpur	8.2	Banke	25.9	Lalitpur	11.0	Banke	36.0	Lalitpur	2.8	Banke	10.4
Dolakha	8.9	Kapilbastu	25.5	Parbat	12.0	Kapilbastu	35.1	Parbat	3.0	Kapilbastu	9.9
Parbat	9.0	Taplejung	23.1	Dolakha	12.3	Taplejung	31.6	Kaski	3.2	Mugu	9.3
Kaski	9.5	Rautahat	23.0	Kaski	12.7	Rautahat	30.9	Dolakha	3.4	Taplejung	8.7
Bhaktapur	9.6	Dhankuta	22.5	Bhaktapur	13.1	Dhankuta	30.6	Syangja	3.5	Sindhuli	8.4
Syangja	9.9	Saptari	21.7	Syangja	13.4	Sankhuwa-sabha	29.3	Bhaktapur	3.5	Dhankuta	8.3
Myagdi	10.3	Sankhuwa-sabha	21.6	Myagdi	14.0	Saptari	29.1	Myagdi	3.7	Rautahat	8.1
Chitawan	11.1	Panchthar	21.3	Chitawan	15.6	Panchthar	29.0	Parsa	3.8	Bajura	8.1
Salyan	11.1	Bardiya	21.2	Salyan	15.6	Bardiya	28.6	Darchula	3.8	Dolpa	8.1

Early age mortality indicators in the MDG and SDG periods

Table 5.4 presents different early age mortality rates of Nepal for different years in MDG and SDG periods. During the MDG period, between 1990 and 2014, the IMR and U5MR declined from 108 and 162 deaths to 33 and 38 deaths per 1,000 live births (National Planning Commission (NPC), 2016). The neonatal mortality rate (NMR) also declined from 50 deaths per 1,000 live births in 1996 to 23 in 2014 (Central Bureau of Statistics (CBS), 2015).

Table 5.4: Early age mortality indicators in MDG and SDG period, Nepal, 1990-2030

Indicators	MDG Period						SDG Period					
	1990[a]	1996[a]	2001[a]	2006[a]	2011[a]	2014[b]	2015	2016[a]	2019[b]	2022[a]	2021[c]	2030
Neonatal mortality rate (NMR) SDG		50	39	33	33	23		21	16	21		12
Infant mortality rate: (IMR) MDG	108	78	64	48	46	33	33	32	25	28	16.6	
Under 5 mortality rate: (U5MR) MDG/SDG	162	118	91	61	54	38	38	39	28	33	22.4	20

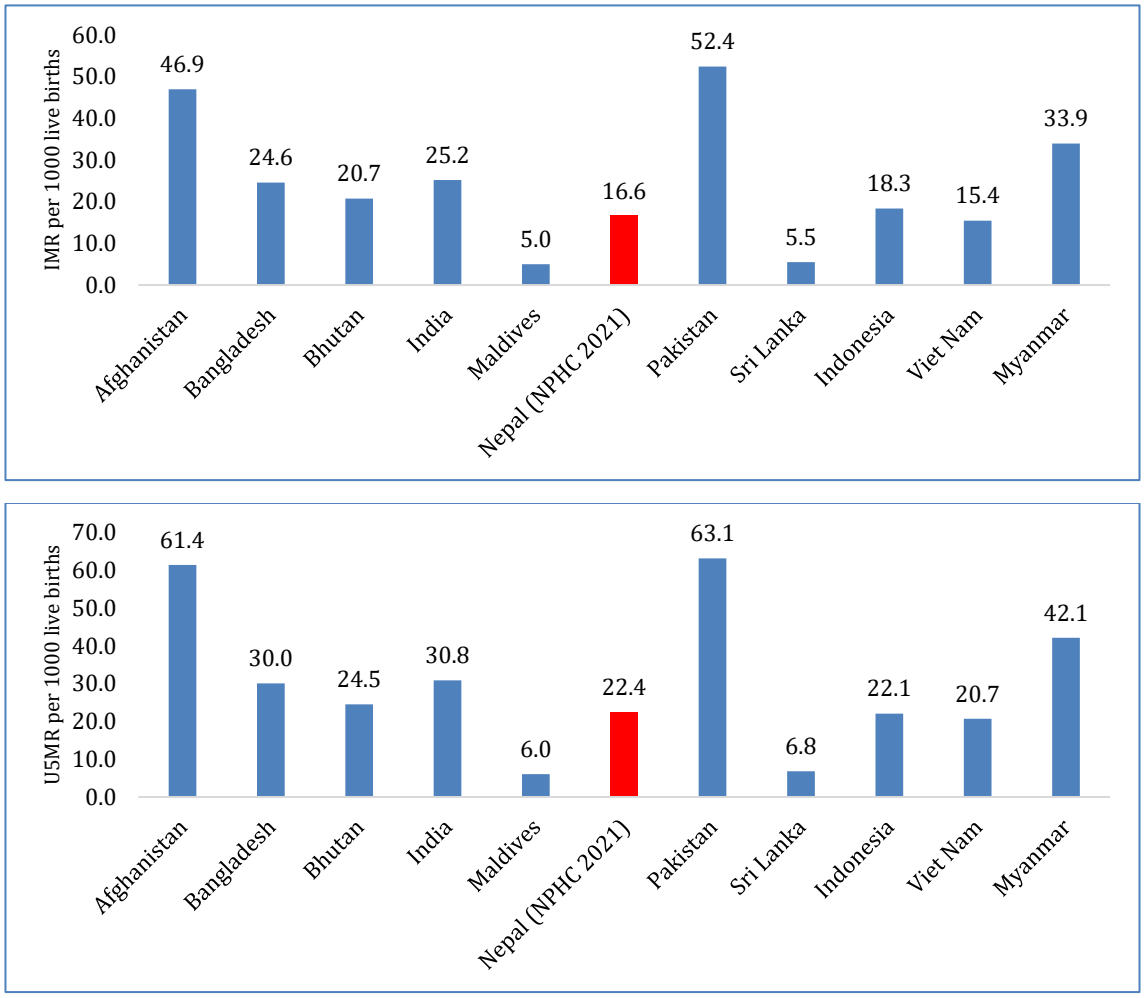
Table source: Various sources. [a] *NDHS reports of the corresponding year* [b] *NMICS* [c] *NPHC 2021*

At the national level, mortality rates for early years of life declined remarkably before 2015, achieving the set MDG targets (IMR- 36 and U5MR – 54 by 2015) in time despite the huge disparities between rural/urban and eco-development regions. A major factor for this rapid decline was attributed mainly to effective immunization campaigns in which immunization of one-year-olds reached a rate of 92.6 percent (National Planning Commission (NPC) & United Nations Development Program (UNDP), 2014).

For the SDG period beyond 2015, the targets of NMR and U5MR for SDG Goal 3 are set at 12 and 20 deaths per 1,000 live births respectively. NDHS 2016 estimated the NMR and U5MR to be 21 and 39 per 1,000 live births, and the MICS 2019 showed a decline with a figure of 16 and 28 respectively. The values from the latest NDHS, conducted in 2022, are reported at 21 and 33 (Ministry of Health and Population [Nepal], New ERA, and ICF, 2023). Progress is seen in the IMR and U5MR in 2022 when compared to that in 2016, but the rates have increased in comparison with MICS 2019. The NDHS values are seen to consistently decline throughout the survey years. Table 5.4 shows that the NMR and U5MR have increased in 2022 from 2019. A study performed by the National Planning Commission posits that the deterioration in the mortality condition may be due to the effect of the COVID-19 pandemic which exacerbated vulnerabilities in the health system, leading to overcrowded hospitals and shortages of essential medical supplies (National Planning Commission (NPC), 2024). Interestingly, the NMR, which is the biggest contributor to IMR and ultimately to the U5MR, is unchanged from 2016. The NPHC 2021 results

shows a huge decline in IMR and U5MR compared to NDHS but the two results are not closely comparable due to many reasons.

Figure 5.2 IMR and U5MR (both sexes) of south Asian and South East Asian countries, 2021



Data source: UN Population Data Portal (Model-based or interpolated); For Nepal: NPHC 2021 (Direct estimates)

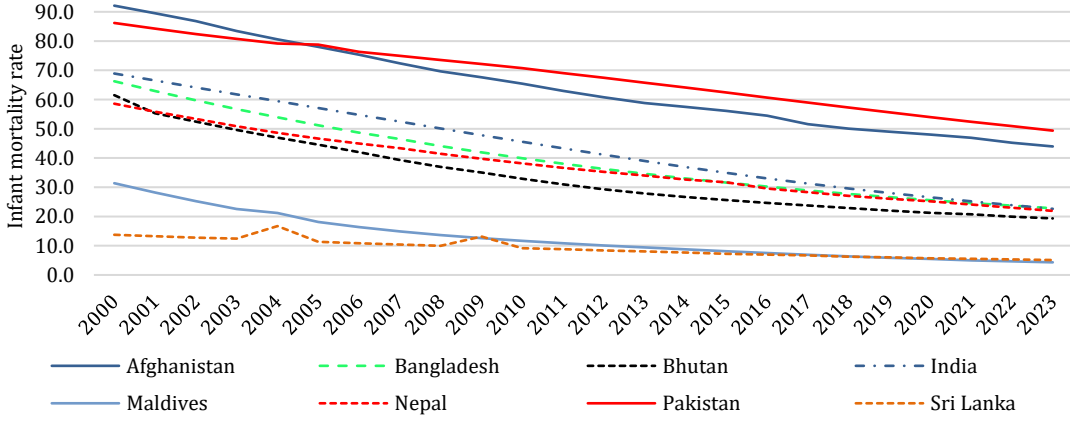
International comparison of child mortality indicators

Figure 5.2 displays the comparative situation of early age mortality indicators in 2021 from the UN data portal (model based values) where Nepal values are direct estimates from NPHC 2021. Nepal's IMR is seen to be higher than that of Maldives and Sri Lanka, and lower than that of Bangladesh, Bhutan and India; where Pakistan and Afghanistan have the highest IMR in south Asia. While compared with the three countries of South-East Asia presented in the figure,

Myanmar's IMR is nearly twice that of Nepal, whereas Indonesia and Vietnam have about the same rate.

The trend/pattern of IMR for the world, region (continent), South Asian countries, and Nepal (1950 to 2023) are made available through UN reporting (United Nations, Department of Economic and Social Affairs, Population Division, 2024). Figure 5.3 displays the trend and pattern of IMR for South Asian countries and Nepal for two decades from 2000 to 2023. The IMR in all South Asian countries has declined by half its level in 2023 from 2000. Pakistan and Afghanistan show higher IMR than other countries, with Pakistan showing greater progress in reduction than Afghanistan in recent years. India and Bangladesh show a faster decline in the IMR and are seen to approach Nepal's values in recent years. Sri Lanka has reduced its IMR by half in 2023, starting from a low base value in 2000. Maldives has reduced its IMR by sevenfold in this period, surpassing Sri Lanka and documenting the most significant achievement in IMR reduction in this period.

Figure 5.3: Infant mortality rates by year for South Asia and Nepal (2000-2023)



CHAPTER 6

MORTALITY DIFFERENTIALS

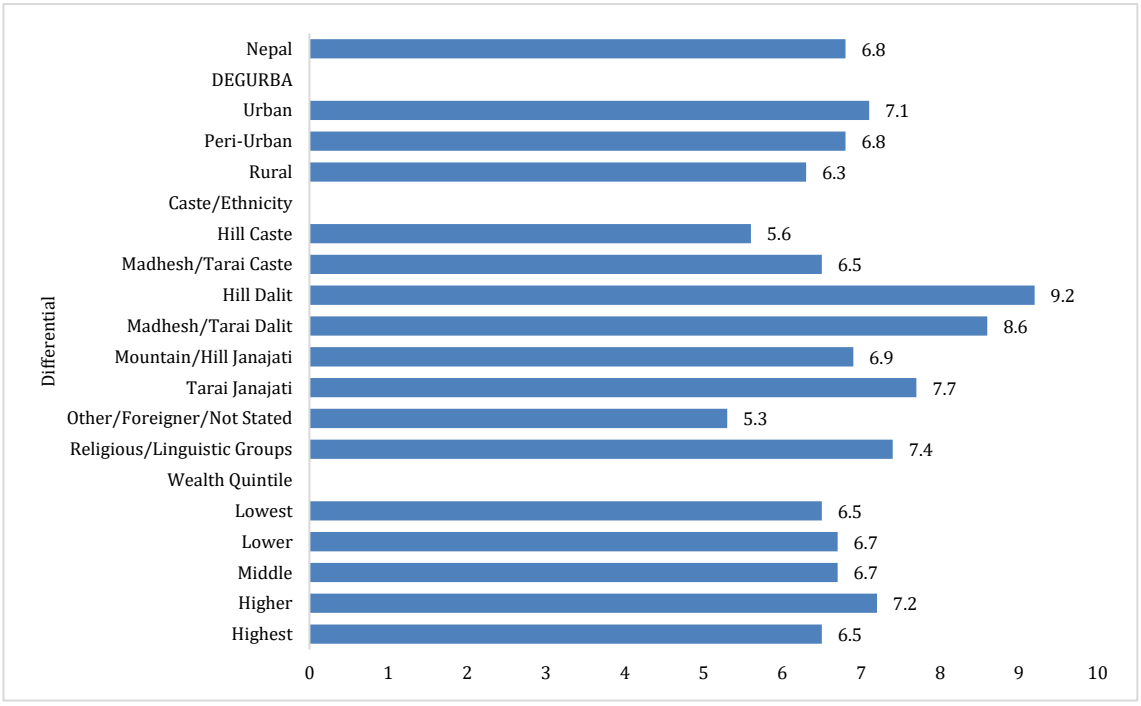
This chapter presents mortality rates analyzed by mainly three differentials – DEGURBA, Caste and ethnicity, and wealth quintile status. Specifically, this section includes standardized crude death rates, life expectancy at birth, the proportion of the population surviving to age 60, life expectancy at age 60, as well as infant, child, and under-five mortality rates. All these indicators are derived as direct estimates.

Mortality rates for the differentials are presented in the three subsections: standardized crude death rate, mortality in early years of life, and adult mortality. The mortality in early years of life subsection includes estimates of IMR, CMR and U5MR, while the adult mortality subsection provides estimates of life expectancy at birth, percentage of the population surviving to retirement age, and life expectancy at age 60 of population by differentials. These values are presented in detail in Table 6.1.

Standardized crude death rate

The standardized crude death rate by differentials is presented below in Figure 6.1. By DEGURBA, the SCDR is highest for urban (7.1) areas and lowest for rural (6.3) areas. The national value for Nepal is 6.8 deaths per 1,000 population. The standardized crude death rates are high for Hill Dalit (9.2), Madhesh/Tarai Dalit (8.6), Tarai Janajati (7.7) and Religious/Linguistic (7.4) groups. Interestingly, by wealth quintile, the SCDR is lowest for the households in the lowest and highest (6.5) quintiles, whereas it is highest for higher (7.2) wealth quintile.

Figure 6.1: Standardized crude death rate by differentials, NPHC 2021



Mortality in early years of life

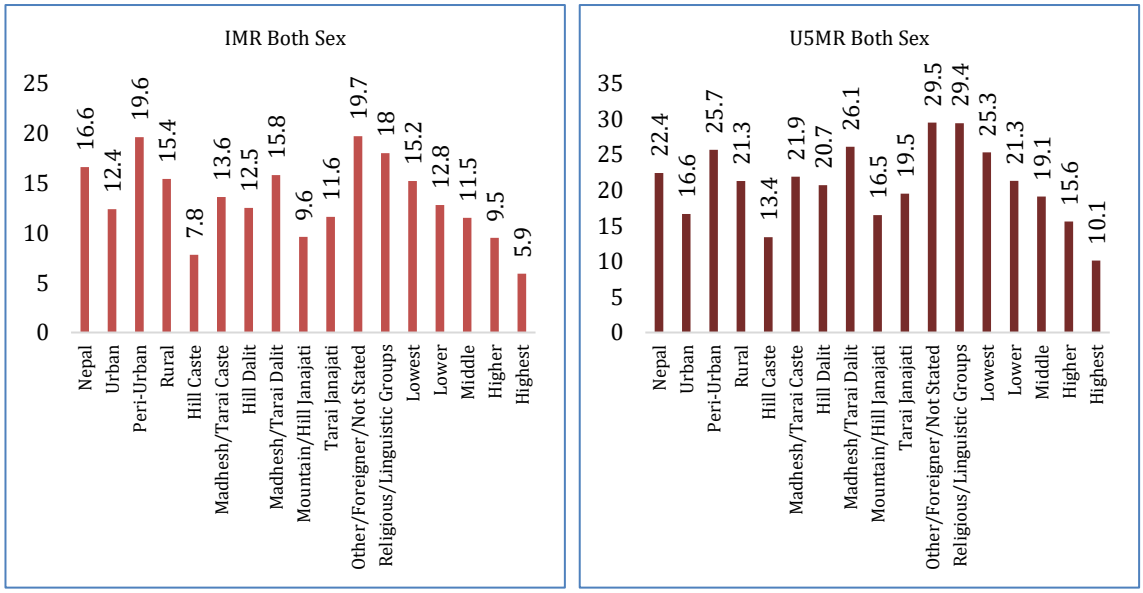
A comparison of IMR, CMR and U5MR by differentials is presented in Table 6.1 and Figure 6.2. It is apparent from the figure and table that the patterns for IMR and U5MR are similar except for Other/Foreigner/Not Stated and Religious/Linguistic Groups. The mortality rates are lower in urban areas compared to rural and Peri-urban areas, the differences between rural and Peri-urban areas seem negligible. The infant and under-five mortality rate decreases drastically as the wealth status improves and the widest difference is seen between the lowest and the highest wealth quintile households, where 15 less under-five deaths per 1,000 live births are seen in the highest quintile group when compared to the lowest. Religious/Linguistic Groups and Other/Foreigner group have the highest IMR and U5MR, followed by Madhesh/Tarai Dalits. Hill caste has the least IMR and U5MR.

The male-female disparity in IMR and U5MR are clearly seen in many groups. Madhesh/Tarai Dalits, Tarai Janajatis and Religious/Linguistic Groups show the largest difference in infant mortality rates for males and females, male rates higher than female rates.

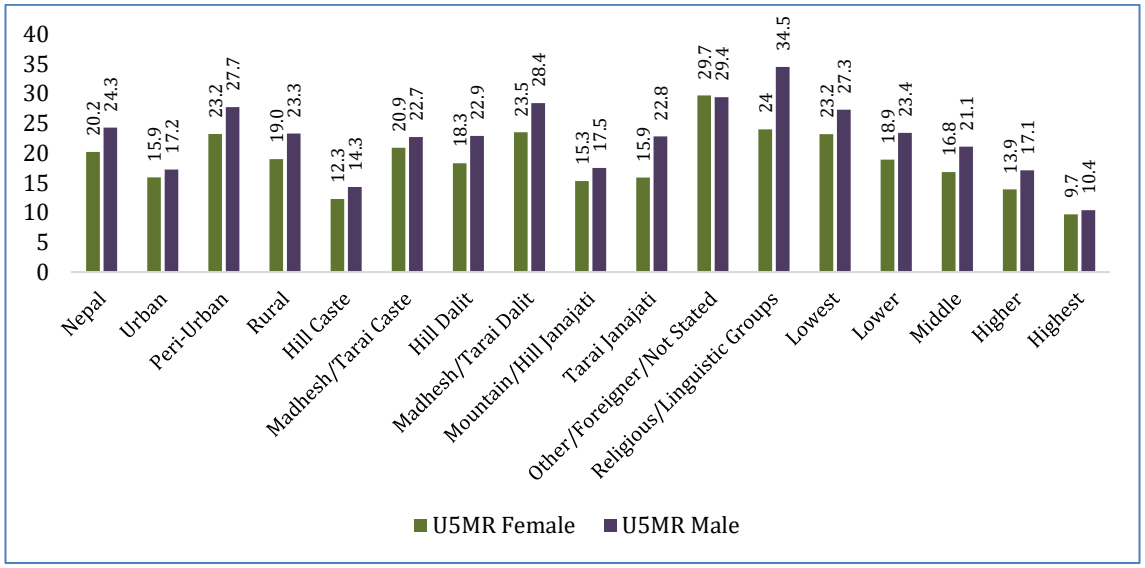
Table 6.1: Infant, child and under 5 mortality rates by differentials (Direct Estimates), NPHC 2021

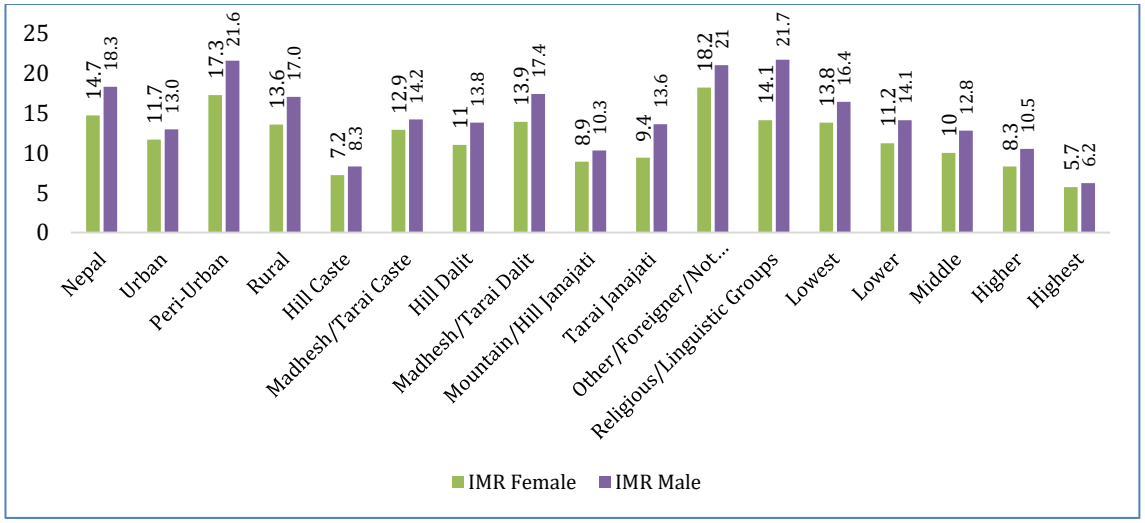
Area	SCDR	IMR			CMR			U5MR		
	Both Sex	Both Sex	Female	Male	Both Sex	Female	Male	Both Sex	Female	Male
Nepal	6.8	16.6	14.7	18.3	5.9	5.6	6.1	22.4	20.2	24.3
DEGURBA										
Urban	7.1	12.4	11.7	13.0	4.3	4.3	4.3	16.6	15.9	17.2
Peri-Urban	6.8	19.6	17.3	21.6	6.2	6.1	6.3	25.7	23.2	27.7
Rural	6.3	15.4	13.6	17.0	6.0	5.5	6.4	21.3	19.0	23.3
Caste/Ethnicity										
Hill Caste	5.6	7.8	7.2	8.3	5.6	5.2	6.0	13.4	12.3	14.3
Madhesh/Tarai Caste	6.5	13.6	12.9	14.2	8.4	8.1	8.7	21.9	20.9	22.7
Hill Dalit	9.2	12.5	11.0	13.8	8.3	7.4	9.2	20.7	18.3	22.9
Madhesh/Tarai Dalit	8.6	15.8	13.9	17.4	10.5	9.7	11.2	26.1	23.5	28.4
Mountain/Hill Janajati	6.9	9.6	8.9	10.3	7.0	6.5	7.4	16.5	15.3	17.5
Tarai Janajati	7.7	11.6	9.4	13.6	8.0	6.6	9.4	19.5	15.9	22.8
Other/Foreigner/Not stated	5.3	19.7	18.2	21.0	10.0	11.7	8.5	29.5	29.7	29.4
Religious/linguistic groups	7.4	18.0	14.1	21.7	11.6	10.0	13.1	29.4	24.0	34.5
Wealth Quintile[18]										
Lowest	6.5	15.2	13.8	16.4	10.3	9.5	11.1	25.3	23.2	27.3
Lower	6.7	12.8	11.2	14.1	8.6	7.7	9.4	21.3	18.9	23.4
Middle	6.7	11.5	10.0	12.8	7.7	6.9	8.4	19.1	16.8	21.1
Higher	7.2	9.5	8.3	10.5	6.2	5.6	6.7	15.6	13.9	17.1
Highest	6.5	5.9	5.7	6.2	4.1	4.0	4.2	10.1	9.7	10.4

Figure 6.2: Infant, Child and Under-five mortality rates by differentials, NPHC 2021



[18] Early age mortality rates for different wealth quintiles may not align with the national estimate as the institutional population is not accounted for while generating wealth quintiles at the household level.





The Figure 6.3 presents the gap between U5MR and IMR across various demographic and socioeconomic differentials in Nepal, as per the NPHC 2021. This gap effectively represents the CMR—the probability of dying between the first and fifth birthday—and offers insight into post-infancy child survival conditions. A smaller gap signifies that most child deaths are occurring during infancy (before age 1), and survival chances improve significantly after the first year. Whereas, a larger gap shows that significant number of children are dying after their first birthday but before age 5, indicating higher mortality risks in the 1–4 year age group.

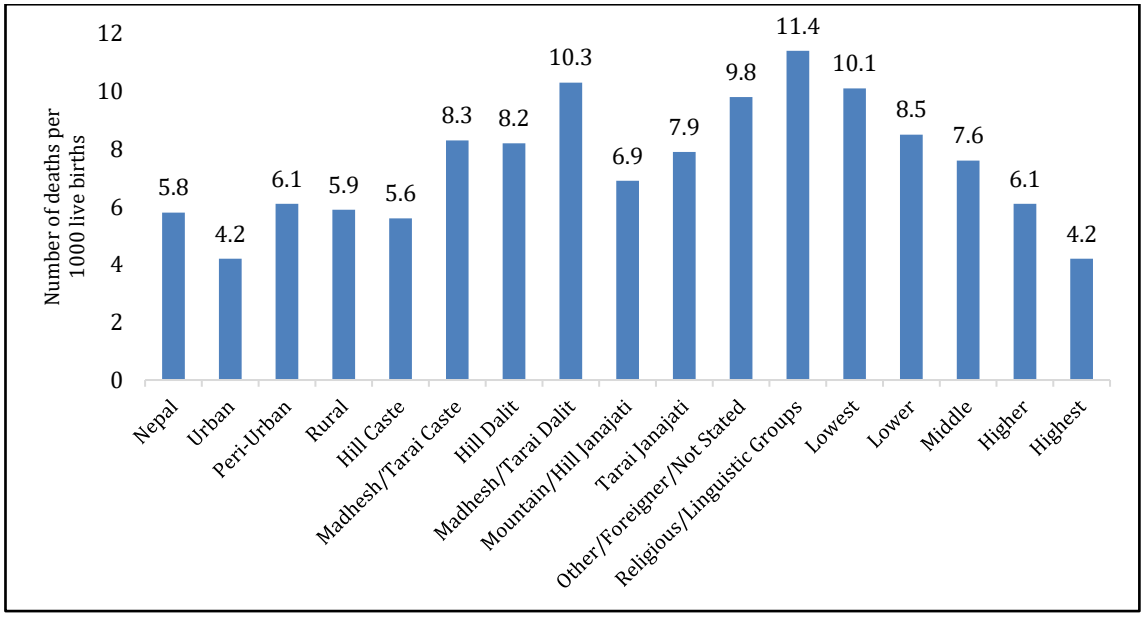
The upper panel of the chart shows that the gap between U5MR and IMR at the national level is 5.8 deaths per 1,000 live births, indicating that a considerable portion of under-five mortality occurs after infancy. The gap is significantly higher among disadvantaged groups. The highest

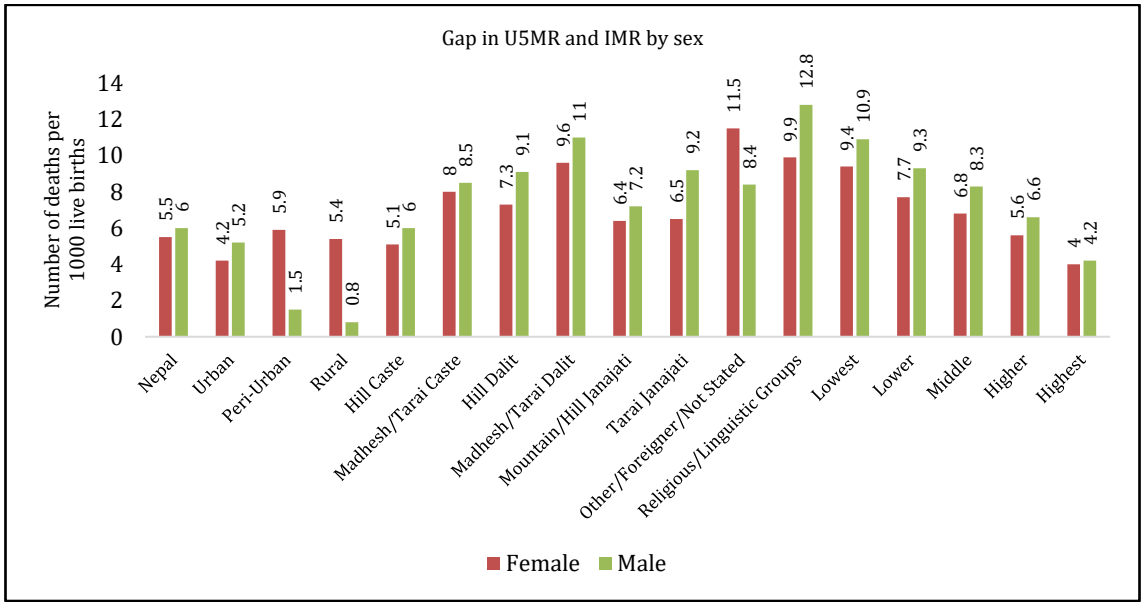
gaps are observed among Religious/Linguistic minorities (11.4), Madhesi/Tarai Dalits (10.3), and Lower caste groups (10.1). Conversely, the highest wealth quintile (4.2) and Hill Caste group (5.6) show the smallest gaps, implying relatively better survival rates after infancy compared to other groups. Geographically, Peri-urban areas (6.1) have highest gap among the area, rural area (5.9) has higher gap than urban (4.2), which may reflect disparities in healthcare access or living conditions among other factors in Peri-urban and rural areas after infancy.

The lower panel breaks down the U5MR–IMR gap by sex, revealing that in most groups, males have a wider gap than females, suggesting a higher vulnerabilities between ages 1–4 for boys. At the national level, the gap is 5.5 for females and 6 for males. The gap becomes smaller as the households move from lowest to the highest quintile group, showing that the children are less vulnerable after infancy in the more affluent households and the mortality in more affluent households is concentrated in the infancy period. There is a noticeable pattern in the gap between U5MR and IMR for male and female children. The gap is consistently wider for males than females, with the exception in Peri-urban and rural areas, and other/foreigner caste ethnicity group where the more female deaths are concentrated after infancy.

A wider gap between U5MR and IMR points to challenges in child health beyond infancy, such as poor nutrition, limited immunization coverage, or lack of early childhood care—especially in marginalized groups. The high gaps in disadvantaged populations may highlight persistent inequities in child survival, emphasizing the need for targeted postnatal and early childhood interventions in these communities.

Figure 6.3: Gap in Under-five and Infant mortality rates by differentials, NPHC 2021





Adult mortality

Table 6.2: Life expectancy at birth, percentage of population surviving to age 60 and life expectancy at age 60 by differentials, NPHC 2021

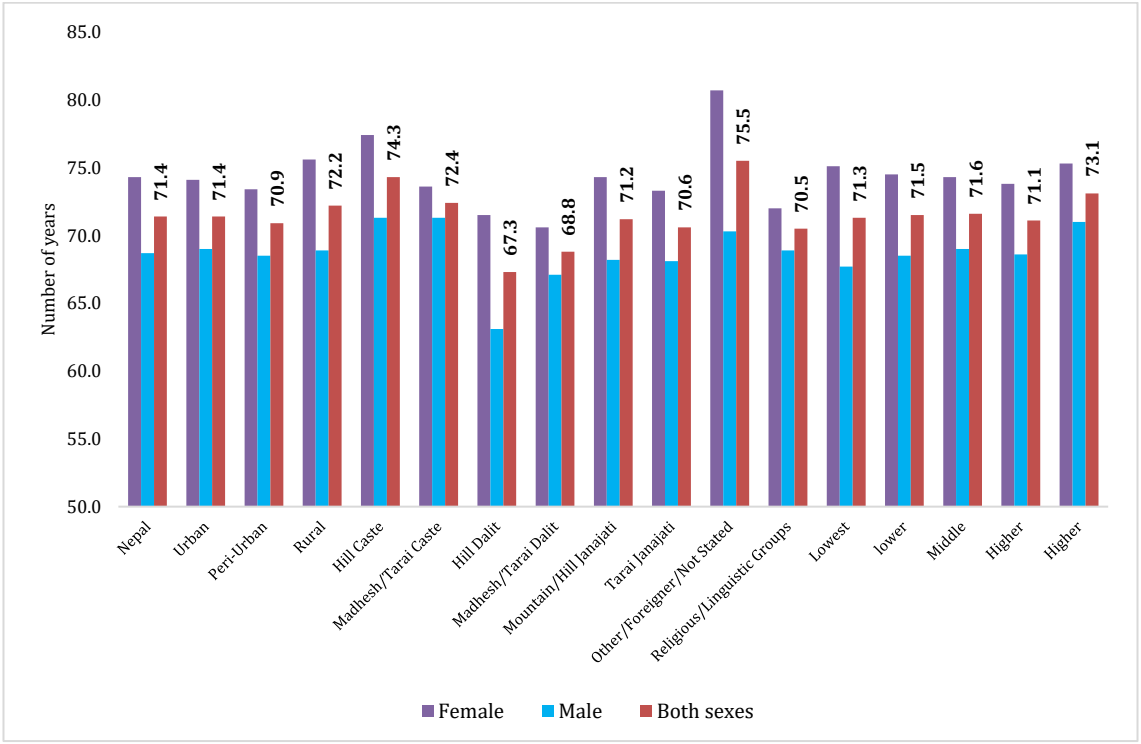
Differential	Life expectancy at birth			Percentage surviving to age 60 years			Life expectancy (age 60 years)		
	Both sexes	Female	Male	Both sexes	Female	Male	Both sexes	Female	Male
Nepal	71.4	74.3	68.7	80.0	84.7	75.1	19.4	20.7	18.2
DEGURBA									
Urban	71.4	74.1	69.0	81.4	85.9	77.1	18.1	19.4	16.9
Peri-Urban	70.9	73.4	68.5	79.0	83.3	74.5	19.3	20.3	18.4
Rural	72.2	75.6	68.9	79.6	85.0	73.8	20.7	22.2	19.4
Caste and ethnicity groups									
Hill Caste	74.3	77.4	71.3	84.4	89.3	79.2	20.5	22.0	19.2
Madhesh/Tarai Caste	72.4	73.6	71.3	82.3	84.3	80.4	19.5	20.0	19.1
Hill Dalit	67.3	71.5	63.1	72.8	81.1	63.8	17.2	18.8	15.6
Madhesh/Tarai Dalit	68.8	70.6	67.1	76.7	80.0	73.5	17.6	18.2	17.0
Mountain/Hill Janajati	71.2	74.3	68.2	78.9	84.1	73.5	19.1	20.6	17.8
Tarai Janajati	70.6	73.3	68.1	80.2	84.9	75.5	18.1	19.1	17.2
Other/Foreigner/Not stated	75.5	80.7	70.3	85.6	89.1	82.4	22.1	26.7	17.0
Religious/Linguistic groups	70.5	72.0	68.9	79.8	82.3	77.1	18.5	18.9	18.1
Wealth quintile									
Lowest	71.3	75.1	67.7	77.7	83.4	71.7	21.0	22.7	19.4
Lower	71.5	74.5	68.5	79.5	84.6	74.0	19.8	21.0	18.7
Middle	71.6	74.3	69.0	80.1	84.9	75.1	19.4	20.5	18.4
Higher	71.1	73.8	68.6	80.2	85.1	75.2	18.2	19.3	17.2
Highest	73.1	75.3	71.0	84.7	88.4	81.0	18.4	19.5	17.3

Life expectancy at birth

The figures for life expectancy by differentials are presented in Table 6.2. Figure 6.4 shows noticeable differences in life expectancy at birth by differentials. By DEGURBA, estimates for rural (72.2 years) areas are greater by nearly one year when compared to Peri-urban (71.4 years) areas. By caste and ethnicity groups, with the exception of 'Other/Foreigner/Not Stated', Hill Caste (74.3) has the highest life expectancy at birth for both sexes followed by Tarai/Madhesh Caste. Hill Dalit (67.3 years) group has the lowest life expectancy at birth, followed by Madhesh/Tarai Dalits (68.8 years).

Female life expectancy at birth is higher for all differential groups, with the most noticeable difference seen for 'Other/Foreigner/Not stated' followed by Hill Caste. The values are lowest for Hill Dalit and Tarai/Madhesh Dalit groups. Females belonging to Hill Caste, Mountain/Hill Janajati, and Other/Foreigner/Not Stated group have crossed the national average life expectancy at birth for females. By wealth quintile, the life expectancy at birth is above seventy years for all the quintiles, with the highest (73.1 years) seen for the higheest quintile group.

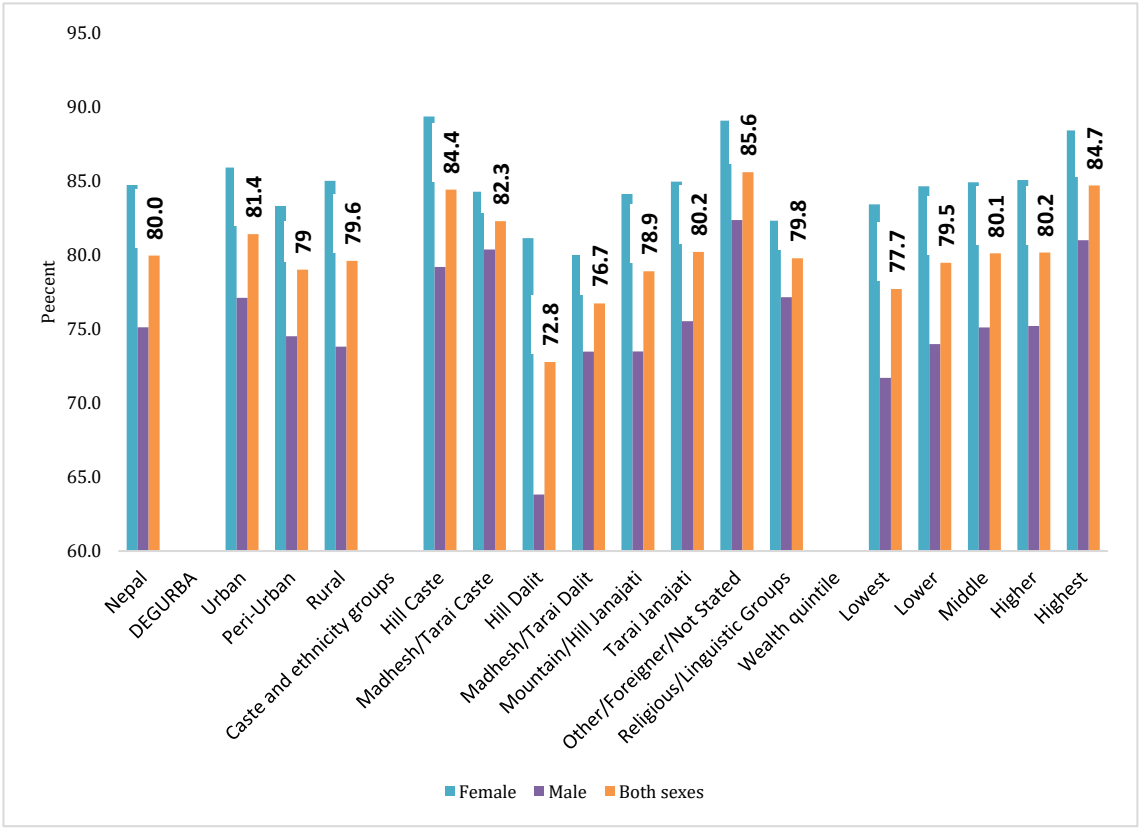
Figure 6.4: Life expectancy at birth by differentials, NPHC 2021



Percentage of population surviving to age 60

The percentage of the population surviving to age 60 by differentials are presented in Table 6.2. Figure 6.5 provides information regarding the percentage of population surviving to age 60. By DEGURBA, the percentage of the population surviving to age 60 in urban areas is highest. By caste and ethnicity groups, Other/Foreigner/Not stated (85.6%) have the highest values, followed by Hill Caste (84.4%), while Hill Dalit (72.8%) have the lowest value. By wealth quintile, highest quintile has the highest value (84.7%) while the lowest quintile (77.7%) has the lowest values.

Figure 6.5: Percentage of population surviving to age 60, NPHC 2021

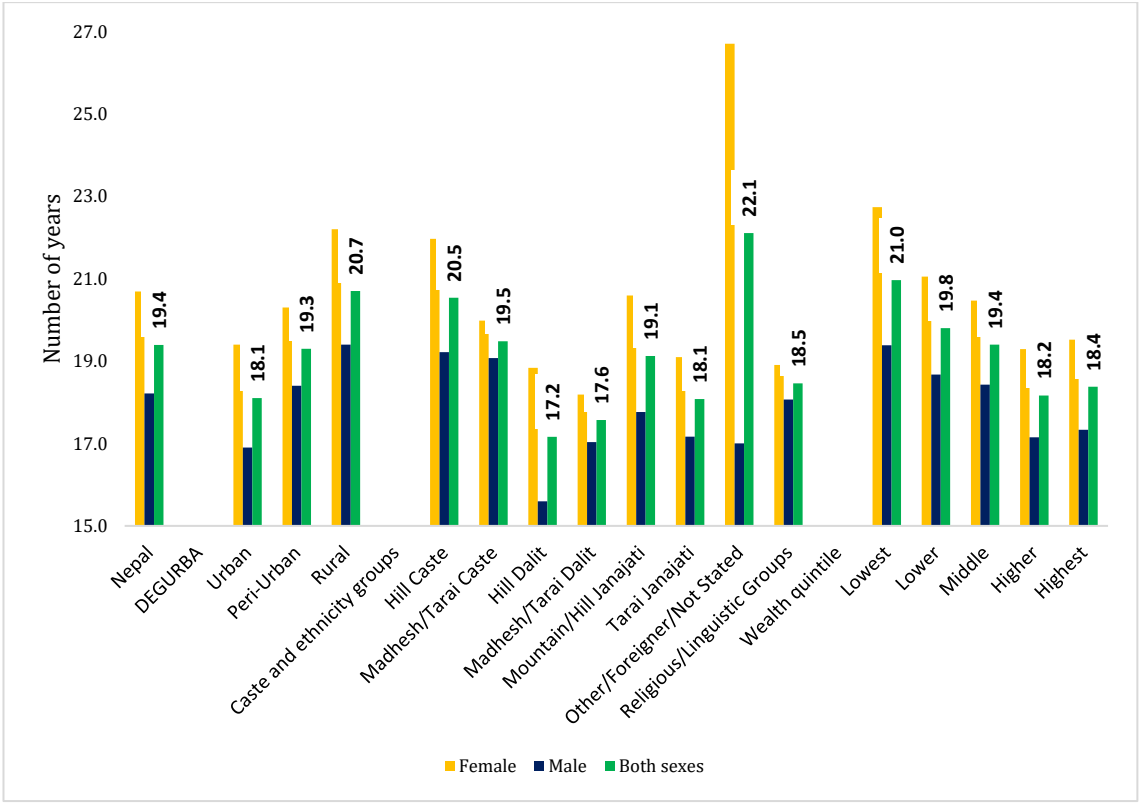


Life expectancy at age 60

The life expectancy at age 60 years by differentials are presented in Table 6.2 and Figure 6.6. Overall, rural individuals survive 1.3 and 2.5 years longer beyond age 60 compared to their Peri-urban and urban counterparts. Among wealth quintiles, the highest group shows the lowest longevity rates. This is to say that, as the wealth is seen to increase, the expected number of surviving years after the age of 60 years decreases by about 2.4 years for the highest compared

to the poorest. Among the caste and ethnicity groups, Hill Caste (20.5 years) and Other/Foreigner/Not Stated (22.1 years) groups survive the greatest number of years – both above the national average – while Hill Dalit and Madhesh/Tarai Dalit groups have the lowest number of survival years after age 60.

Figure 6.6: Life expectancy at age 60 by differentials, NPHC 2021



CHAPTER 7

CAUSE OF DEATH ANALYSIS[19]

A cause of death analysis is important for designing and evaluating public health policies and programmes at the national level. Collecting the reliable cause of death via census enumeration has been a challenging task universally and there is no unanimous agreement on its feasibility (United Nations, 2017).

Nine pre-coded categories regarding the cause-of-death of deceased persons are contained in the NPHC 2021 main questionnaire. The causes cover the deaths arising from communicable (including the COVID-19[20]) and non-communicable diseases/illnesses, injuries due to self-harm/suicide or accidents (motor vehicle or other) or violence/homicide or natural disaster, pregnancy-related and complication in delivery (maternal-related in case of women aged 15-49), and "Other". The "Other" category is somewhat ambiguous as it covers causes that are not elsewhere included in other census categories, such as death due to old age, or death due to time for death, or being called by the God of death, among others (Central Bureau of Statistics, 2021). Death data by COVID-19 is available from the health information management system in Annex 2: Table A2.3 (Ministry of Health and Population, 2077/78 BS). A total of 9,463 deaths were registered between July 2019-June 2021. Of the total reported deaths, 39 were reported for July 2019 - June 2020 and the remaining for July 2020 - June 2021. The NPHC 2021 reported 198,463 deaths from December 2020 - November 2021. The census questionnaire did not report COVID-19 as a cause of death. Instead, deaths from COVID-19 were lumped as non-communicable diseases. Hence, COVID-19 deaths obtained from registration system and census are not directly comparable.

Census enumerators were neither provided any special focused training to probe verbally to identify the actual cause, nor it was compulsory for the respondent to show the death certificate. As a result, identifying the cause of death for a death occurred at home is difficult given the impossibility of certainty – even if the deceased was previously diagnosed, there is no guarantee that the death occurred due to that cause/disease.

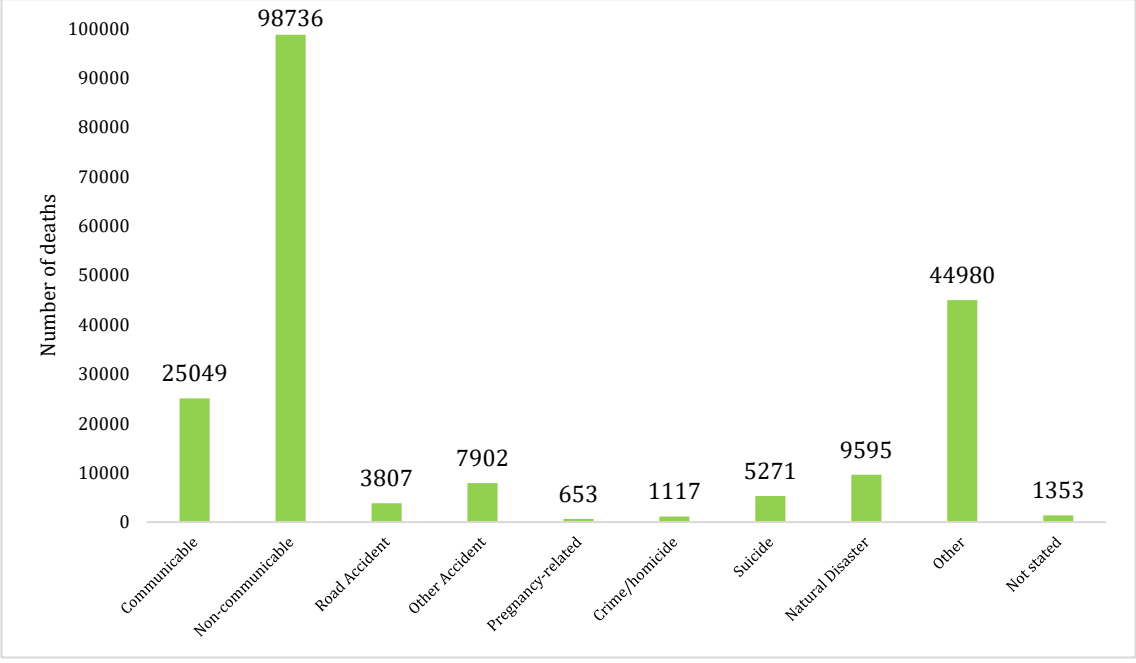
The World Health Organization recommends the latest International Classification of Diseases (ICD-11) for collecting cause of death information with a warning that the reliable cause can be

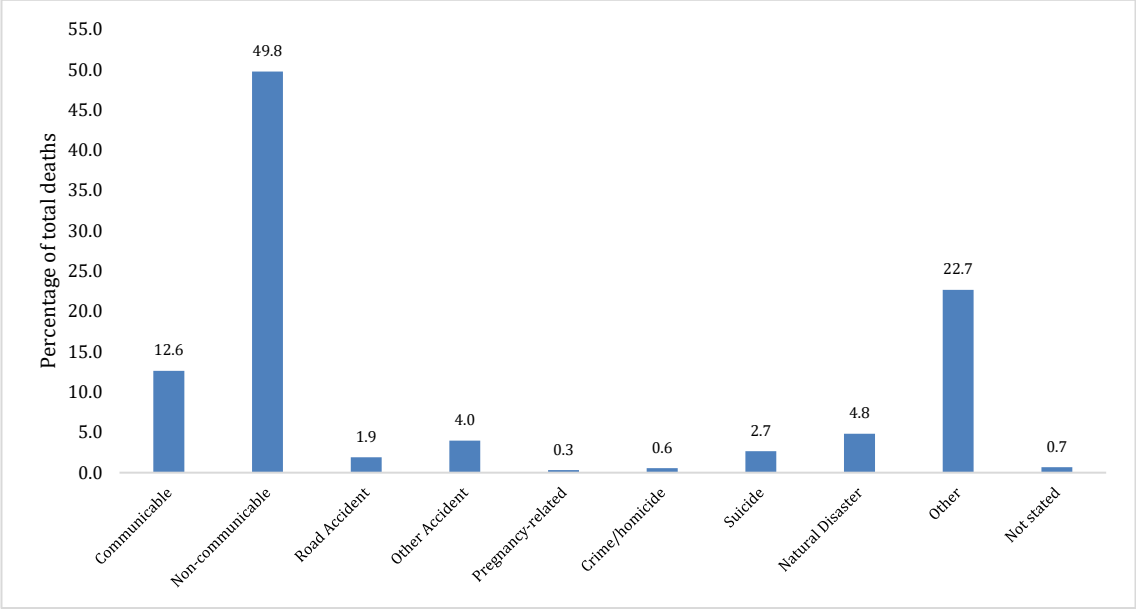
[19] Reported (unadjusted) age data used.

[20] See Table A2.3 (Annex 2) for detail information on COVID-19 death.

identified only by a certified/trained medical person from a carefully designed Verbal Autopsy (VA) questionnaire, which was not feasible in a mass operation such as a census. However, in the case of a maternal mortality study which was conducted by the Ministry of Health and Population in collaboration with the NSO, a separate follow-up study was conducted by trained health personnel to identify any death of women aged 15-49 recorded by the census 2021 enumerator. Under a different setting, the study was executed in the form of a verbal autopsy questionnaire. As the census questionnaire does not collect information on the place of death, it is not possible to examine what percentage of the deaths occurred outside of a health facility, and hence it is not possible to infer the quality or cause of data of such deaths. Since even a significant proportion of pregnancy-related deaths occurred at home (around 27%) or on the way from home to a health facility (9%) (Ministry of Health and Population (MoHP) and Central Bureau of Statistics (CBS), 2022), there may be a substantial proportion of deaths occurring at home due to misperceptions and health-seeking practices in Nepali society toward the end of life, and this degrades the quality of cause of death data.

Figure 7.1 Number and percentage distribution of deaths by cause, both sexes, Nepal, NPHC 2021

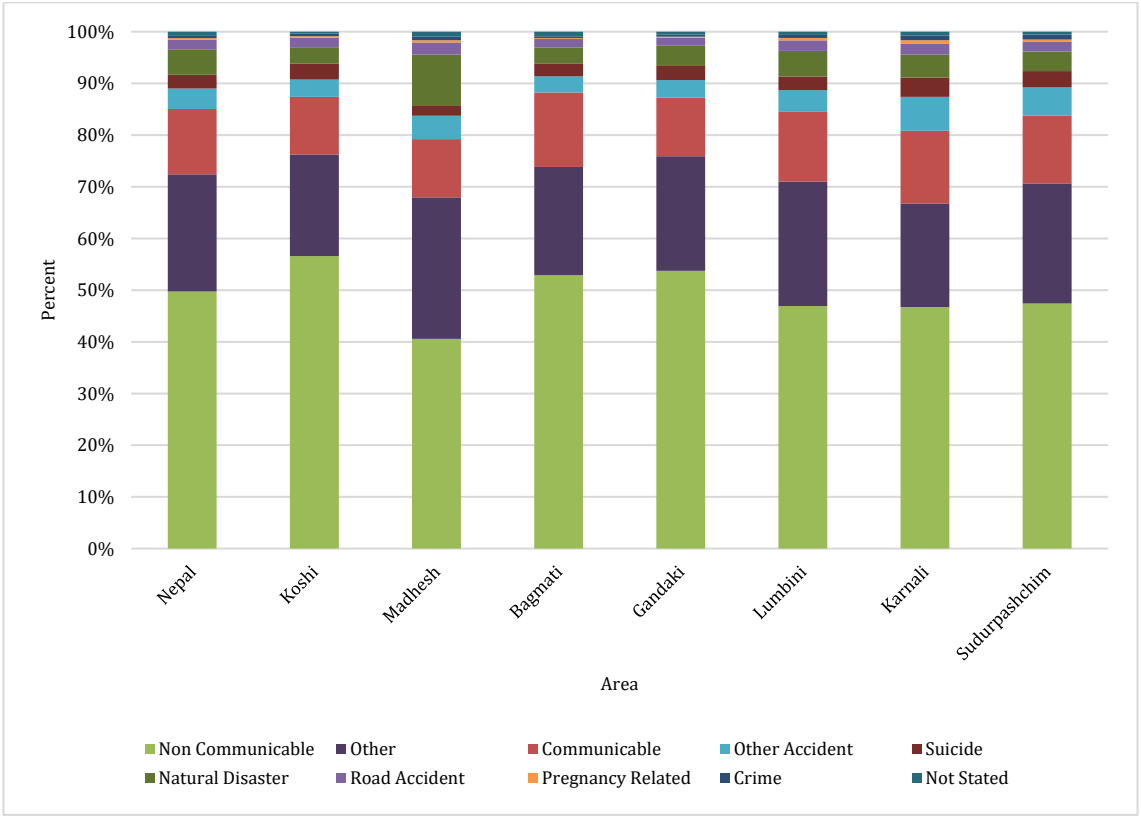




The figure 7.1 and 7.2 stacked diagrams illustrate the number and percentage of deaths by cause of death. The figures clearly show that the major cause of death is from non-communicable diseases. Nearly 50 percent of all deaths are reported as non-communicable diseases. This proportion is far less than that mentioned in Nepal government's administrative source (71% in 2019, outlined in Chapter 1). There is a clear trend of increasing metabolic risk factors for non-communicable diseases (Achyut Raj Pandey et al., 2020), whereby Pandey et. al have estimated that over two-thirds (78.6%) of the country's total deaths could be attributed to NCDs in 2040. This is followed by other causes (22.7 %), communicable diseases (12.6 %), and natural disasters (4.8 %).

NPHC 2021 shows that the share of death by non-communicable diseases ranges from 56.6 percent in Koshi to 40.6 percent in Madhesh provinces. The share of communicable diseases is higher in Bagmati (14.4%) and Karnali (14.1%) provinces. Road accidents account for a larger share in Madhesh (2.4%), Lumbini (2.1%) and Karnali (2.1%) provinces. Suicide accounts for a larger share in Karnali (3.7%), Sudurpashchim (3.2%) and Koshi (3.1%) provinces. A large proportion have reported 'Other' as the cause of death in Madhesh (27.4%), followed by Lumbini (24.1%) and Sudurpashchim (23.2%) provinces. Further details are available in Annex 7: Table A7.2.

Figure 7.2 Percentage of death by cause (both sexes) by province, NPHC 2021



District level variation in the cause of death can be seen more clearly in Map 7.1 which is based on the Annex 7: Table A7.2. Key highlights from the data are presented below:

Communicable diseases

Manang district (33.3%) has the highest, and Panchthar (6.4 %) has the lowest values of communicable diseases. The percentage of death by communicable disease is distinctly higher in districts from Karnali, Sudurpashchim (except Dadeldhura) and Lumbini (Banke, Dang and Rupandehi) provinces.

Non-communicable diseases

Ilam (62.0%) has the highest and Dolpa (22.7%) has the lowest share of non-communicable diseases. A larger share is seen in districts from Koshi (particularly Tehrathum, Panchthar, Ilam, Jhapa and Morang). Nawalparasi (Bardaghat Susta East and West) also show a larger share.

Road accidents

Mugu (7.2%) has the highest and Darchula (0.4%) has the lowest share of road accidents. Manang can also be identified as having a large share of road accidents. Relatively speaking, Tarai districts and districts from Karnali have a higher share of road accidents.

Other accidents

Other accidents are recorded highest in the districts of Karnali and Sudurpashchim. Dolpa (12.9%) and Kathmandu (2.0%) have the lowest values.

Pregnancy related

Humla (2.1%) has the highest and Rasuwa (0.0%) has the lowest share of pregnancy-related deaths.

Crime

Achham (1.8%) has the highest and Manang (0.0%) has the lowest share of crime-related deaths. Hill districts from Karnali and Sudurpashchim provinces have a higher share of crime-related death.

Suicide

Solokhumbu (7.2%) has the largest share and Humla (0.0%) has the lowest share of suicide-related death. Suicides are high in Solukhumbu, Okhaldhunga, Dolakha and Myagdi. Suicide cases in districts from Madhesh seem lower compared to Tarai districts from Sudurpashchim and Lumbini provinces.

Natural disasters

Humla (13.4%) has the highest share, and Manang (1.8%) has the lowest share of natural cause-related deaths. This cause of death seems very high for districts from Madhesh.

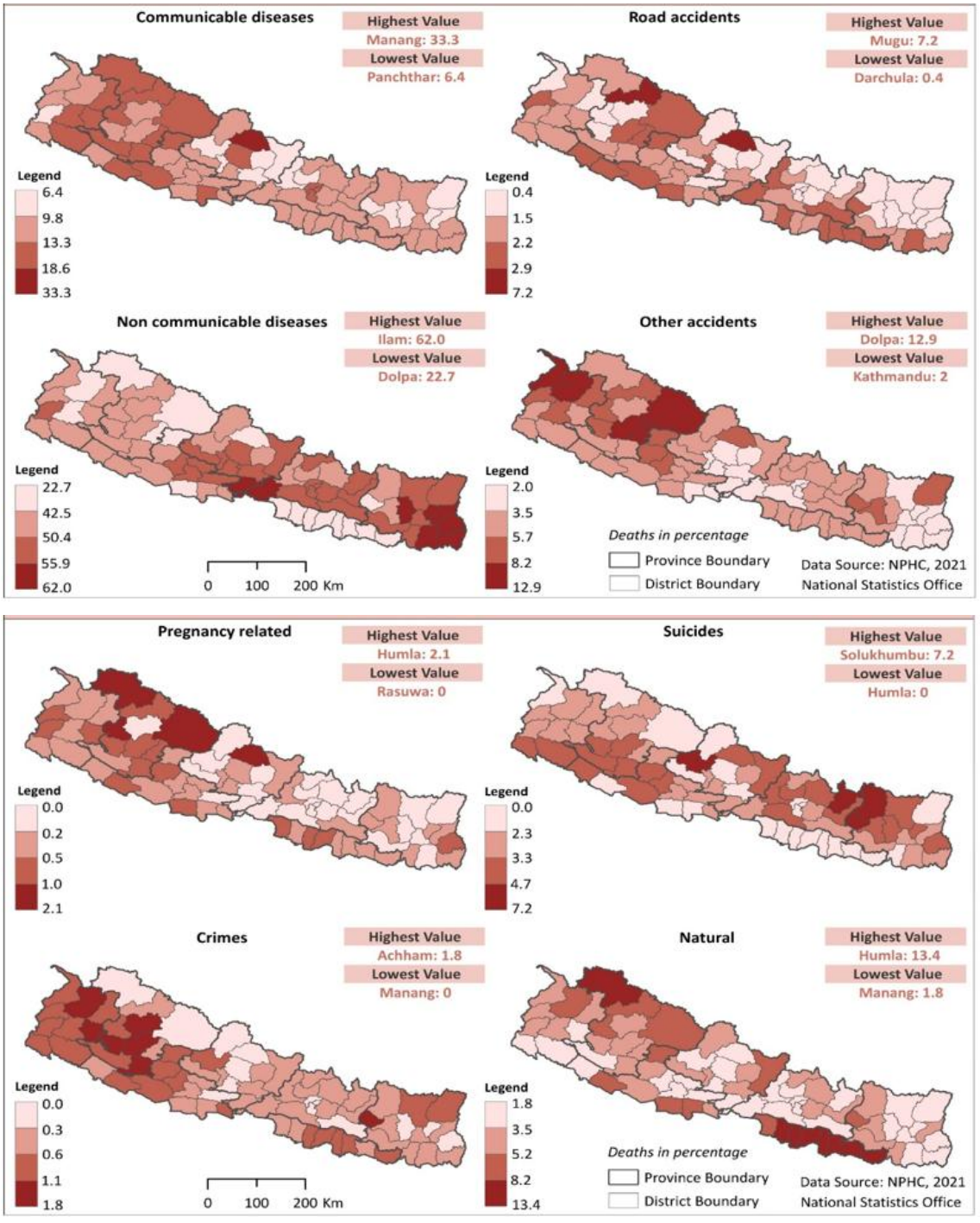
Other

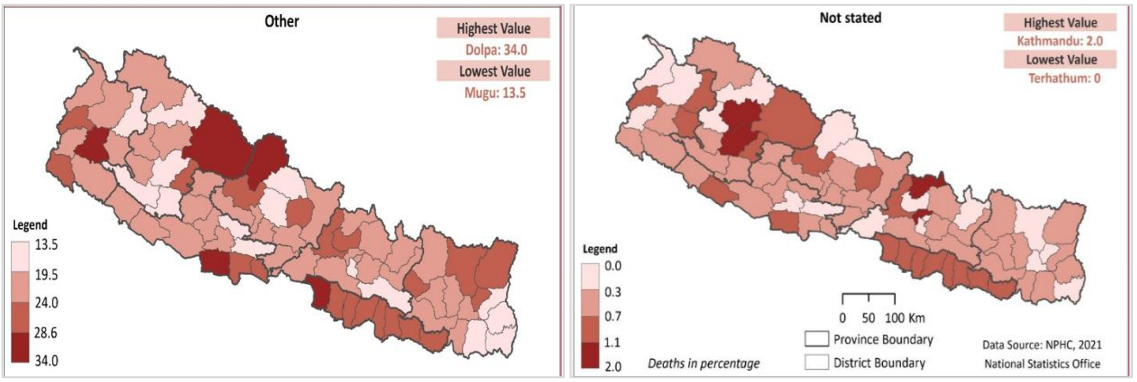
Dolpa (34.0%) has the highest share and Mugu (13.5%) has the lowest share of death reported as 'other'. Mustang, Doti, Kapilbastu and Bara are identified as districts that have a relatively higher share of deaths reported as 'other cause'.

Not stated

Kathmandu (2.0 %) and Tehrathum (0.0 %) have the highest and lowest share of deaths whose cause is reported as not stated.

Map 7.1: Percentage of death by cause (both sexes) , NPHC 2021



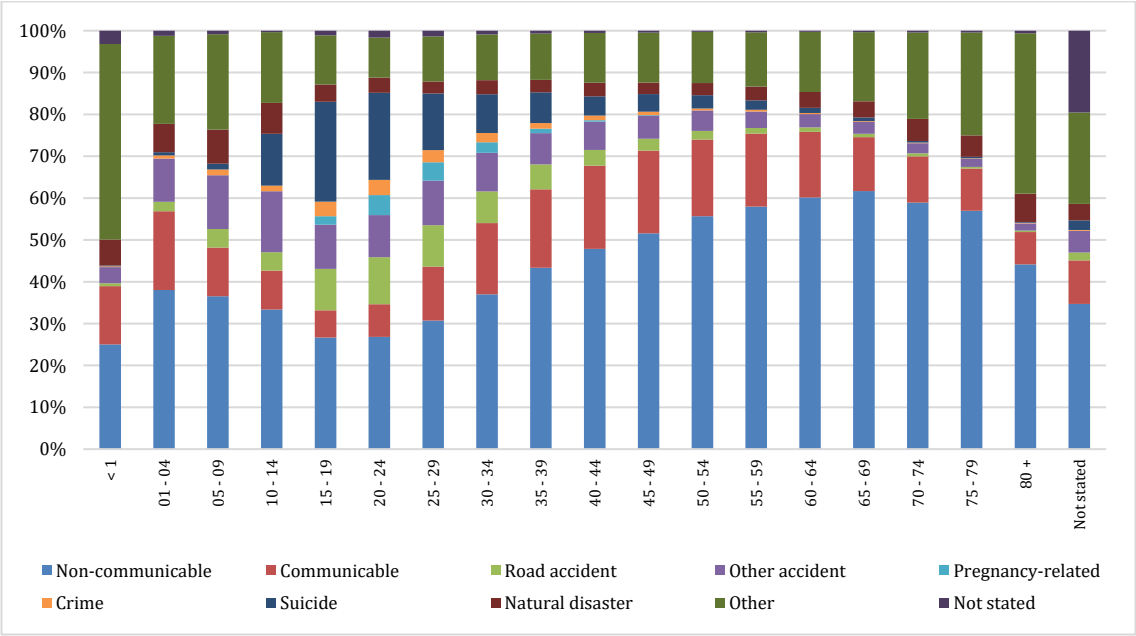


Mortality sex ratio by cause of death

Annex 7: Table A7.2 provides the mortality sex ratio by cause of death and age groups for Nepal. The mortality sex ratio is more than 100 for almost all causes, meaning that men die at a greater rate than women for all causes. The highest mortality sex ratio is seen for road accidents, particularly in age groups 20-29 years. More than one-quarter of all males in road accidents are youths in their 20s. Among females, road accidents are highest for 15-19 years and for women 50 years and above. The mortality sex ratio is high among 25-39 year olds, where crime is seen as a cause of death. For women whose cause of death is crime, the mortality sex ratio is highest for 15-24 year olds and for 80+ years. For suicide, the mortality sex ratio is very low for ages 10-19 years, suggesting that more young females commit suicide than compared to males. For males, the rate is highest in ages 35 years and above. Annex 7: Figure A7.1 presents a population pyramid of deceased persons by the cause of death.

An alarming situation is seen for suicide which is predominant among youths aged 15-24 years. Nearly 40 percent of all suicide deaths among females are among young girls and women aged 15-24 years. For males, the corresponding value is around 35 percent. Where the cause of death is reported as 'other', a large share of deaths concern infants and elderly persons aged 80+ years. Some deaths are recorded with both the age and the cause of death as 'not reported'. The same findings can be seen more clearly in Figure 7.3.

Figure 7.3 Percentage cause of death by five-year age group, Nepal, NPHC 2021



CHAPTER 8

CONCLUSIONS AND RECOMMENDATIONS

Nepal is currently passing through the third stage of epidemiological transition and approaching the late phase of demographic transition. This is marked by low fertility and declining mortality rates which are triggered by socio-economic development and improvements in healthcare. Nepal's CBR and TFR has dropped from 22.4 and 2.5 in 2011 to 14.2 and 1.94 in 2021, signalling a shift towards replacement-level fertility. There is a steadily increasing life expectancy due to a significant decline in infant, child, and under-five mortality since 2011. At the same time, the maternal mortality ratio has also significantly declined from its past levels, and this has had a direct impact on child health and survival. In such a juncture, the interplay between fertility and mortality is of paramount importance, and with declining fertility, mortality patterns become more influential in shaping population structure if omitting the impact of migration.

The sex ratio at death, representing the number of male deaths per female deaths, is found to be unusually high, signalling either a higher incidence of male deaths or a possible under enumeration of female deaths in the census. It is also seen to be affected by the small number variability problem in some of the sparsely populated districts. The mortality gender parity index, which indicates the disparity in deaths for females and males, is consistently less than 1 in all the areas, including the ecological zones, provinces and districts (with the exception of Mustang), which indicates that the crude death rates for females is lower than that of males.

The census is not an appropriate tool to collect the cause of death statistics as it requires inclusion of more specific questions, as well as rigorous training to a knowledgeable group of enumerators. However, even from the limited information, the cause of death analysis is another important aspect of the mortality analysis in the event of increasing non-communicable diseases, replacing infectious diseases as the primary cause of death. The analysis shows that NCDs caused nearly half of all deaths and slightly more than 1 in 10 deaths are caused by communicable diseases, while a significant proportion (more than 1 in 5) of deaths mention 'other' as the cause of death, which may be a result of either a lack of probing during data collection or inappropriately framed cause of death options in the questionnaire. The analysis has also highlighted that road accidents, other accidents, crime and suicide, and natural disasters have also emerged as specific cause of deaths in the population.

The report has adopted all the early age and adult mortality indicators including the life expectancy at birth, infant, child and under-five mortality indicators directly from the life tables

constructed by using the age-specific mortality rates derived from the death information (adjusted and smoothed) in the last 12 months collected from each household. A detailed discussion on using an indirect method of estimation for child mortality utilizing information on children ever born and children surviving collected from the women of reproductive ages is presented in the annex. The indirect estimates obtained from the most representative 20-24 age group of women using the Far East model of the UN Palloni-Heligman version of the model life table do not deviate much from the direct estimates obtained from life tables.

The direct estimates of early age mortality indicators for both sexes for NPHC 2021[21] are 16.6 for IMR, 22.4 for U5MR and 5.9 for CMR. The corresponding values from NDHS 2022 for the 5-year previous period (2017-2021) are 28, 33 and 5 (around 2019 - mid-year). It should be cautiously noted that there are methodological variations in collecting and analysing the data in the census and the NDHS and these differences have significant effects on the quality of data and the indicators derived from them. A thorough examination of this aspect is not within the scope of this thematic report and should be conducted as a separate endeavour.

The highest infant mortality rate exists in Tarai region which is followed by Mountain. Hill region has the lowest IMR. Similar pattern is seen in under-five mortality rates in these regions. The gap in under-five and infant mortality is the least in Hill than in Tarai and Mountain region. This requires concerted effort from policy perspectives to reducing the risk of mortality in the Tarai and Mountain zones. The same holds true at the province level, where Madhesh and Lumbini show the highest infant and under-five mortality rates followed by Koshi where male-female disparity is also higher in comparison to other provinces. Differences in mortality indicators are also seen among the urban and rural areas with Peri-urban area exhibiting the highest IMR and U5MR while the gap between these two indicators remains the same in Peri-urban and rural. The early age mortality indicators significantly improves as the wealth status of households gets better. There is much wider variation in early age mortality indicators among the different castes and ethnic groups with lowest values for Hill Caste (7.8) followed by Mountain/Hill Janajati (9.6). Minorities group such as other/foreigner and religious/linguistic groups have the highest early age mortality. This necessitates strategic policy and programme interventions in uplifting socio-economic conditions of the households supporting addressing any cultural practices that may have positive or negative effect on mortality.

There is an increasing trend of life expectancy at birth despite a widening male-female gap. The increment for female life expectancy is seen to be twice as that of males. Much increase is seen in life expectancy in 2021[22] (both sexes – 71.4, males – 68.7, females – 74.3) when compared to

[21] Indirectly estimated using NPHC 2021 CEBCS data using UN Far East model.
[22] Direct method (life table estimates) using ASDR from smoothed death data in NPHC 2021.

2011[23] (both sexes – 66.6, males – 65.5, females – 67.9), displaying roughly 3 year and 6 year improvements for males and females respectively. The rise in life expectancy is a significant indicator of improved population longevity which may be the consequences of advancements in healthcare, living standards, and overall human development. As life expectancy increases, governments and societies must adapt to the evolving needs of an ageing population, ensuring equitable resource distribution and sustainable development.

Not much variation in life expectancy is seen between the provinces, with the highest life expectancy seen in Bagmati (72.8) in and the lowest (69.7) seen in Lumbini, with all other provinces recording an expectancy of above 70 years. Lumbini shows the lowest value for both males and females. To address disparities in life expectancy, it is essential to prioritize the reallocation of health resources to underserved regions. To ensure sustained improvements in public health and well-being, targeted investments in reducing infant mortality and improving survival rates up to the age of one year is necessary and can further enhance life expectancy at birth.

An individual at age 60 is expected to live around two more decades (19.4 years) (l_{60} for males – 18.2 years, females – 20.7 years) which is an improvement of 2 and 3 years respectively from the expected years in 2011 (l_{60} for males – 16.1 years, females – 17.7 years). The percent of population surviving to age a 60 has also improved in 2021 since 2011. In 2021, 75.1 percent males and 84.7 percent females are projected to survive up to age 60, which has also improved since last census. The population of 60 years and above has also grown from 8.13 percent in 2011 to 10.21 percent in 2021 (National Statistics Office (NSO), 2024).

This demographic shift, characterized by a growing older population and growing expected life, demands a re-evaluation of existing population policies and the formulation of new strategies for effective population management and human resource planning. The growing older population resulting from increased life expectancy also amplifies the government's social security responsibilities. This includes providing old-age pensions, allowances, and subsidies for essential public services. To meet these obligations, the government must allocate additional resources annually. Such measures are crucial to ensuring that the elderly population receives adequate financial and social support so that they can maintain a dignified quality of life.

Based on the main results and conclusions of this thematic report's analysis, the following recommendations are made:

[23] Using DHS 2011 data using CEBCS (Coale-Demeny West models) (Central Bureau of Statistics (CBS), 2014).

(i) Strengthen alternative data collection systems

Improve the vital registration system (VRS)

Reliable and periodic estimates of vital rates including mortality are only possible with complete registration in the vital registration system (VRS). Until the VRS is fully functional (universal and timely registration), annual reliable estimates of mortality rates at the national, provincial, district and municipality are not possible. In such cases, surveys are often conducted for mortality estimates. At this stage, surveys such as the NDHS and NMICS only provide provincial estimates of mortality and upscaling of these surveys to retrieve lower-level estimates are not affordable or sustainable for Nepal. In this context, census data is the primary source for mortality estimates below the province level. Census data is collected every 10 years and only includes information pertaining to the 12 month period preceding the census date.

The Local Level is responsible for registering vital events and currently 6,714 wards (of the total 6,743) provide online registration. This report argues that, until and unless VRS is strengthened and there is complete and timely registration, reliable estimates of vital events from surveys and census recording will continue to raise questions. In this context, there is no other option than to improve the VRS. Although initiated in 1977, reliable estimates from vital registration are still doubtful. Department of National ID and Civil Registration (DoNIDCR) manages civil/vital registration, social security, and national identifications. The initial entry for vital registration is operated through the local registrars at a ward of each Local Level. Timely analysis of received registration data to generate vital statistics at each level of governance is urgently required, not only for generating indicators but also for improving the system in its totality. It is therefore recommended that the government consider establishing a collaborative platform for the production of vital statistics in consultation with the National Statistics Office. It is further recommended that trained professionals be appointed at each municipality to strengthen the process.

Initiate periodic production of vital statistics

In order to use the vital registration data for timely and reliable production of vital statistics, the data collection forms and the computer application/programme which is the main tool at each registration center (i.e., ward) must be examined and evaluated firstly to minimize inconsistent entries and to update information required to generate the statistics. It is further necessary to make the census questionnaire and the vital registration data collection forms interoperable so that the information from the two sources may be cross verified and data quality enhanced. Moreover, other ways to improve the collection and production should be prioritized, such as

through the digital integration of the census and the VRS, providing permanent household identification numbers to every household, among others.

Strengthen the overall census operation

In nearly half a century, the VRS is still in the process of reaching full and complete operationalization – free from under registration, late and delayed registration – and until then census data is relied upon as the source to compute mortality estimates for spatial regions at a more granular level than province and by differentials.[24] The census provides a cost-effective way to validate fertility, mortality, and other related indicators derived from a VRS, and therefore strengthening the overall census operation is vital for improved data. This may be actioned in the areas of questionnaire development, training, field work, monitoring and supervision, data capture technology, analysis and dissemination, and most importantly through evaluation of the whole census process, and further research and development in this regard.

Improve the census questionnaire and data quality

Addressing the census questionnaire is the initial and foremost starting point to enhancing the quality of data. The census questionnaire follows much of the guidance provided in the UN Principles and Recommendations for Population and Housing Censuses and it therefore matches the basic requirements of international standard questionnaires. However, the NPHC questionnaire length is too long to be handled efficiently at the field level. To optimize the number of questions it covers and to make it more effective, a wider consultation with stakeholders is suggested in order to fulfill their demands with other successive surveys after the census. Such are the usual practices in other countries as well from which the areas of inquiry can be minimized in the main census and other required information can be estimated through surveys with the use of small area estimation technique. A number of approaches can be suggested to improve the data quality of the census, not only in the areas of mortality data, but also for other thematic areas. With regards to the mortality data, the questionnaire would be greater improved by covering all the recommendations suggested by the UN.

The following approaches are suggested for the next census:

i. A 'smart census' approach is recommended, featuring a short main questionnaire complemented by a series of follow-up surveys focused on mortality, fertility, migration, and other key topics. To generate estimates at the local level, the small area estimation

[24] One could also think about small area estimation techniques, based on surveys and background enumeration from censuses. Mortality estimates at the local level based on censuses also contain flaws, mainly due to small sample variability, and due to the small size of some municipalities.

(SAE) technique could be applied. This approach is particularly important for enhancing census data quality and improving the reliability of indicators in small areas.

ii. Including a question on the mother's age at the birth of her first live-born child (either as a date or time since birth) would be beneficial. This can provide timely child mortality estimates compared to those derived from data on live births classified by the mother's age.

iii. Including a question on the date of birth of the last live-born child is recommended, as it can provide valuable demographic insights. This helps to estimate the number of live births during the 12 months immediately preceding the census date. Pair this question with another follow-up question regarding whether the child is still alive. This helps to derive the number of deaths of children born in the last 12 months. As this question was not posed in the census, the analysis could only be made for the previous 12 months, whereas, for municipalities and districts, it would be much more useful to obtain information for a period of 2 or 3 years.

iv. The inclusion of questions on maternal or paternal orphanhood, such as the survival status of the natural mother or father of the person enumerated in the household at the time of the census, is considered important. These questions help to improve the indirect estimation of adult mortality by sex and further help improve the estimates obtained from the death information of last 12 months.

v. The inclusion of questions to record the exact date of birth and date of death, rather than only the completed age at death, is recommended. An alternative option would be to ask completed age in years and months at death. This is likely to diminish instances of age heaping of death data to some extent.

vi. A provision for specifying exact dates within the reference period, rather than relying solely on the 'last 12 months,' is suggested. This will clear the misunderstanding or confusion regarding the last 12 months' reference period and lessen any under/over coverage of deaths from within/outside the intended reference period.

vii. The cause of death included in the census should address the diseases recommended by ICD11 (International Classification of Diseases – version 11) as much as possible. The fact that nearly 50 percent of all death is accumulated as due to non-communicable disease provides an insight on revisions needed on cause of death.

viii. Initiatives should be undertaken to reduce 'not stated' cases, particularly in age at death. Heaping of age at death is also observed in the data, especially in Madhesh and

Sudurpashchim, and this should also be minimized. This can be minimized by asking date of death rather than completed age.

ix. Improved enumerators' training (focusing on appropriate probing strategies to enumerate the exact cause of death, age at death, age of mother, etc.) and timely monitoring of field work is suggested to enhance the quality of data in the next census.

x. It is advised to extend the reference period for mortality information in the census to three to five years. Extending the reference period allows, on one hand, for comparisons with past censuses by using data from a single year, and on the other hand, helps reduce the impact of small number variability by incorporating data over a longer timeframe.

Address the causes that have differential effects on early-age mortality

There is a great deal of variation with regard to infant and under-five mortality rates between the urban and rural areas, most disadvantaged and most well-off households, castes and ethnicity groups, and ecological zones. Appropriate policy decisions are needed to enhance health and reduce risks for mortality of children. Below are the recommendations based on the observed level of mortality indicators from the census data:

- Madhesh, Lumbini and Koshi provinces show higher than national rates for early-age mortality. It is advised to initiate targeted interventions in reducing the overall child mortality in these provinces.
- The early-age mortality rates decline drastically as the level of wealth increases. This implies that the higher the wealth status of the household, the lower the risk for child mortality. As such, the households in the lower wealth status group can be provided with child subsidies, maternal health insurance, and economic empowerment programmes to support them and to minimize the risks for child mortality.
- Madhesh/Tarai Dalits and Hill Dalits show higher rates of early-age mortality. The males and females of these two castes and ethnicity groups have the lowest expected life at birth. Such disadvantaged communities, which experience high rates of both early-age and adult mortality, could benefit from targeted intervention programmes focused on health, education, and skills-based training for income generation.
- The Tarai region compared to Mountain and Hill, and the Peri-urban area compared to rural area have relatively better access to health and other infrastructure such as transport. In spite of better access to services, these areas show the highest rates of early age mortality. So, it is recommended to investigate further to find the determinants of child mortality in these areas.

REFERENCES

Achyut Raj Pandey et al., B. C. (2020). Mortality and risk factors of disease in Nepal: Trend and projections from 1990 to 2040. *PLOS ONE*. doi:https://doi.org/10.1371/journal.pone.0243055

Barclay, G. W. (1958). *Techniques of Population Analysis.* New York: John Wiley & Sons, Inc.

Benitez, B. C. (2024). Better Early: Critical Window in Brain and Cognitive Development. *Nestle Nutr Inst*, 81-89. doi:doi: 10.1159/000540134

Bennett, L., & Dahal, D. R. (2006). *Caste, Ethnic and Regional Identity in Nepal: Further Analysis of the 2006 Nepal Demographic and Health Survey.* Kathmandu: MoHP, Macro International Inc.

Bennett, L., & Parajuli, D. (2008). *Nepal Inclusion Index.* Kathmandu: NPC/UNDP.

Central Bureau of Statistics (CBS). (2014). *National Population and Housing Census 2011 - Household Tables (Housing Characteristics, Dead and Absentee Population).* Kathmandu: CBS (GoN). Retrieved from https://docs.censusnepal.cbs.gov.np/Documents/69c4c840-4b14-4596-888d-23967c31b041__Household%20Tables.pdf

Central Bureau of Statistics (CBS). (2014). *Population Monograph of Nepal Volume I.* Kathmandu: CBS.

Central Bureau of Statistics (CBS). (2015). *Nepal Multiple Indicator Cluster Survey (MICS) 2014: Key Findings.* Kathmandu: CBS and UNICEF.

Central Bureau of Statistics (CBS). (2022). *Questionnaires of Censuses and Surveys of Nepal.* Kathmandu: CBS.

Central Bureau of Statistics. (2014). *National Population and Housing Census 2011, Tables from form II.* Kathmandu: Central Bureau of Statistics.

Central Bureau of Statistics. (2021). *Census Enumeration Manual, NPHC 2021.* Katmandu: Central Bureau of Statistics.

Coale, A. J., & Demeny, P. (1966). *Regional Model Life Tables and Stable Populations.* Princeton, New Jersey.

Department of National ID and Civil Registration (DoNIDCR). (2081 BS). *Analytical report of vital events registration 2076-2079.* Kathmandu: DoNIDCR.

Dyson, T. (2011). Population and Development: The Demographic Transition. (J. B. Casterline, Ed.) *Population and Development Review, 37*(2), 395-397. Retrieved from https://www.jstor.org/stable/23043289

Garenne, M. (1981). Problems in applying the Brass method in tropical Africa, a case study in rural Senegal.

General Directorate of Statistics. (2018). *Timor-leste Population and Housing census 2025, Mortality Thematic Report.*

Klein, S. L., & Flanagan, K. L. (2016). Sex differences in immjune responses. *Nature Reviews Immunology, 16*, 626-638. doi:https://doi.org/10.1038/nri.2016.90

Ministry of Health and Population (MoHP). (2015). *Nepal Health Sector Strategy 2015-2020.* Kathmandu: MoHP.

Ministry of Health and Population (MoHP). (2067 BS). *Population Perspective Plan (2010-2030).* Kathmandu: MoHP (GoN).

Ministry of Health and Population (MoHP) and Central Bureau of Statistics (CBS). (2022). *Nepal Population and Housing Census 2021: Nepal Maternal Mortality Study 2021.* Kathmandu: MoHP & NSO. Retrieved from https://censusnepal.cbs.gov.np/results/downloads/national?type=report

Ministry of Health and Population [Nepal], New ERA, and ICF. (2023). *Nepal Demographic and Health Survey 2022.* Kathmandu, Nepal: Ministry of Health and Population [Nepal].

Ministry of Health and Population. (2002). *Nepal Demographic and Health Survey 2001.* Kathmandu: MOHP, New Era.

Ministry of Health and Population. (2077/78 BS). *Annual Report 2077/78.* Kathmandu: Department of Health Services.

Ministry of Health and Population, Nepal. (2004). *National Neonatal Health Strategy.* Kathmandu: Department of Health Services.

Moultrie, T. A. (2013). *Tools for demographic estimation. .* International Union for the Scientific Study of Population.

Myers, J. R. (1940). Errors and Bias in the Reporting of Ages in Census Data. *Transactions of the Actuarial Society of America*, 411-415.

National Planning Commission (NPC) & United Nations Development Program (UNDP). (2014). *Nepal Human Development Report 2014.* Kathmandu: NPC & UNDP.

National Planning Commission (NPC). (2016). *Nepal and the MDG: Final Status Report 2000-2015.* Kathmandu: NPC.

National Planning Commission (NPC). (2017). *Demographic Changes of Nepal: Trends and Policy Implications.* Kathmandu: NPC (GoN). Retrieved from https://www.npc.gov.np/images/category/Demographic_Dividend_Report_May_2017_final_for_circulation1.pdf

National Planning Commission (NPC). (2024). *The Sixteenth Plan (FY 2024/25-2028/29).* Kathmandu: NPC (GoN).

National Planning Commission (NPC). (2024). *Vountary National Report of Sustainable Development Goals.* Kathmandu: NPC.

National Statistics Office (NSO). (2022). *Report on Post Enumeration Survery.* Kathmandu: NSO.

National Statistics Office (NSO). (2023). *National Report on Caste/Ethnicity, Language and Religion.* Kathmandu: NSO.

National Statistics Office (NSO). (2024). *Degree of Urbanization (DEGURBA) in Nepal.* Kathmandu: NSO.

National Statistics Office (NSO). (2024). *Population Composition of Nepal.* Kathmandu: NSO.

National Statistics Office (NSO). (2081 BS). *National Population Census 2078: Demographic Indicators* . Kathmandu: NSO (GoN).

National Statistics Office. (2025a). *Fertility in Nepal.* Kathmandu: National Statistics Office.

National Statistics Office. (2025b). *Population Projections for Nepal 2021 - 2051.* Kathmandu: National Statistics Office.

National Statistics Offie. (2025c). *Internal Migration in Nepal.* Kathmandu: National Statistics Offie.

Newell, C. (1988). *Methods and Models in Demography.* Chichester, West Sussex, England: John Wiley & Sons Ltd.

Omran, A. R. (1969, March/April IV (1)). The Epidemiological Transition. *Epidemiological Aspects of Health and Population Dynamics*, pp. 6-59.

Omran, A. R. (1971). The Epidemiological Transition: A Theory of the Epidemiology of Population Change. *Milbank Memorial Fund Quarterly 49*, pp. 509-538.

Omran, A. R. (1998). The Epidemiological Transition Revisited Thirty Years Later. *World Health Statistics Quarterly 51*, pp. 99-191.

Palloni, A., & Heligman, L. (1986). Re-estimation of structural pameters to obtain estimates of mortality in developing countries. *Population Bulletin of the United Nations*, p. 18.

Palloni, A., & Heligman, L. (n.d.). Re-estimation of structural parameters to obtain estimates of mortality in developing countries. *Population Bulletin of the United Nations, XIII*(6), p. 17. Retrieved from https://digitallibrary.un.org/record/129922/files/un_1990_stepguide_childmort.pdf

Pandey, A. R., Chalise, B., Shrestha, N., Ojha, B., Maskey, J., Sharma, D., . . . Aryal, K. K. (2020). Mortality and risk factors of disease in Nepal: Trend and Projections from 1990 to 2040. *PLOS One, 15*(12). doi:https://doi.org/10.1371/journal.pone.0243055

Pandey, S. P., & Adair, T. (2022). Assessment of the national and subnational completeness of death registration in Nepal. *BMC Public Health, 22*(429). doi:https://doi.org/10.1186/s12889-022-12767-z

Paudyal, P., Kulasabanathan, K., Cassell, J. A., Memon, A., Simkhada, P., & Wasti, S. P. (2020). Health and well-being issues of Nepalese migrant workers in the Gulf Cooperation Council countries and Malaysia: a systematic review. *BMJ Open, 10*(10). doi:https://doi.org/10.1136/bmjopen-2020-038439

Pokhrel, K. N., Khatri, K., Pradhan, G., Thapa, T. R., Pullum, T., & Greenwell, F. (2024). *Trends in and Determinants of Neonatal Mortality and Availability and Service Readiness for Newborn Care, 2016–2022 Nepal DHS Surveys and 2015–2021 Nepal HFS Surveys.*

Population Census Office. (2015). *Mortality Thematic Report, Zimbabwe Population Census 2012* . Harare: Population Census Office.

Population Reference Bureau (PRB). (2011). *Population Handbook* (VI ed.). Washington DC: PRB. Retrieved June 23, 2024, from https://www.prb.org/wp-content/uploads/2011/09/prb-population-handbook-2011.pdf

Population Reference Bureau (PRB). (2011). *Population Handbook (Sixth Edition).* Washington DC: PRB.

Preston, S. H., Heuveline, P., & Guillot, M. (Massachusetts). *Demography: Measuring and Modelling Populatiion Processes.* 2001: Blackwell Publishing. Retrieved June 23, 2024, from https://gwern.net/doc/statistics/2001-preston-demography.pdf

Shryock, H. S., & Siegel, J. S. (1976). *The Methods and Materials of Demography.* San Diego, California: Academic Press Inc.

Suwal, J. V. (2012). *Demographic and Epidemiological Transitions in Nepal: Developmental Challenges.* New Delhi: Adroit Publishers.

UNFPA Nepal. (2017). *Population Situation Analysis of Nepal (With Respect to Sustainable Development).* Kathmandu: UNFPA Nepal.

United Nations (UN). (1990). *World Declaration on the Survival, Protection and Development of Children and Plan of Action (PoA).* UN.

United Nations. (1983). *Indirect Techniques for Demographic Estimation.* New York: UN.

United Nations. (1983). *Manual X: Indirect Techniques for Demographic Estimation.* New York: United Nations.

United Nations. (1990). *Step-by-Step Guide to the Estimation of Child Mortality.* New York: UN: Department of International Economic and Social Affairs. Retrieved June 25, 2024, from https://www.un.org/en/development/desa/population/publications/pdf/mortality/stepguide_childmort.pdf

United Nations Population Division. (2013). *MORTPAK for Windows, Version 4.3.* New York: United Nations.

United Nations Population Fund (UNFPA). (1994). Program of Action. *International Conference on Population and Development* (pp. 1-166). Cairo: UNFPA.

United Nations, D. o. (2017). *Principles and Recommendations for Population and Housing Censuses, Revision 3.* New York: UN.

United Nations, Department of Economic and Social Affairs, Population Division. (2024, August 05). *World Population Prospects 2024.* Online Edition. Retrieved August 05, 2024, from https://population.un.org/: https://population.un.org/wpp/Download/Standard/Mortality/

ANNEX 1: GLOSSARY[25]

Percentage of households with death

Percentage of households with death is defined as the total number of deaths (at least one) per 100 households in a given year. It is computed as:

$$Percentage\ of\ households\ with\ death = \frac{Total\ number\ of\ households\ with\ death}{Total\ number\ of\ households} \times 100$$

Mortality sex ratio

The mortality sex ratio (MSR) is defined as the total number of male deaths per 100 female deaths. It is computed as:

$$Mortality\ sex\ ratio = \frac{Total\ number\ of\ male\ deaths}{Total\ number\ of\ female\ deaths} \times 100$$

Mortality gender parity index

The mortality gender parity index (MGPI) is defined as the ratio of the female crude death rate (CDR) to the male CDR. A MGPI greater than 1 suggests that the female CDR is greater than male CDR, while a value less than 1 suggests that the female CDR is less than the male CDR. It is computed as:

$$Mortality\ gender\ parity\ index = \frac{Female\ CDR}{Male\ CDR}$$

Population pyramid of deceased persons

A population pyramid of deceased persons displays a population's death composition by age and sex. The pyramids can be drawn using either absolute numbers or percentages. The pyramid graphically displays the number (or percentage) of deaths with males on the left and females on the right, and by age group as horizontal bars, depicting the structure of a pyramid.

Crude death rate

The crude death rate (CDR) is defined as the total number of deaths per 1,000 mid-year population in a given year.

Mathematically, the CDR is computed as:

[25] In the order of text

$$\text{CDR} = \frac{Total\ number\ of\ deaths}{Total\ mid-year\ population} \times K\ (1000)$$

Age-specific death rate

Age specific death rate (ASDR) is defined as the number of deaths per 1,000 population for a specific age (a) or age group (interval 'i') during a given year. Mathematically, the ASDR is computed as:

$$ASDR_{a/i} = \frac{Total\ number\ of\ deaths\ to\ a\ certain\ age\ (a)\ or\ age\ group/interval\ (i)}{Total\ population\ of\ the\ same\ age\ (a)\ or\ age\ group/interval\ (i)} \times K\ (1000)$$

Summary Index of terminal digit preference

The summary index of terminal digit preference is a summary index that ranges between 0 and 90 to express the effects of heaping when using Myers' blended index method.

Standardized crude death rate

The standardized crude death rate (SCDR) is the death rate of a population adjusted to a standard age distribution. The SCDR accounts for age distribution by standardizing the CDR of a comparing population with that of the standard population.

Neonatal mortality rate

The neonatal mortality rate is the probability of dying before 28 days of birth.

Post neonatal mortality rate

The post-neonatal mortality rate is the probability of dying between 28 days and 59 months of birth.

Infant mortality rate

The infant mortality rate (IMR) is the probability of dying before a child's first year birthday.

Child mortality rate

The child mortality rate (CMR) is the probability of dying between exact ages 1 and 4 in a specific year or period.

Under five mortality rate

The under five mortality rate (U5MR) is the probability of dying before a child's fifth birthday.

Mean age at childbearing

Mean years of childbearing (MACB) is defined as the mean age of mothers at the birth of their children if women were subjected throughout their lives to the age-specific fertility rates observed in a given year. The MACB values are obtained from *Fertility Thematic Report NPHC 2021*.

Sex ratio at birth

The sex ratio at birth is defined as the total number of male births per 100 female births. It is computed as:

$$Sex\ ratio\ at\ birth = \frac{Total\ number\ of\ male\ births}{Total\ number\ of\ female\ births} \times 100$$

Life table

A life table is used to simulate a population's lifetime mortality experience by applying the population's ASDR to a hypothetical population of 100,000 people born at the same time.

Life expectancy

Life expectancy is an estimate of the average number of additional years a person could expect to live if the ASDRs for a given year prevailed for the rest of their life. It is a hypothetical measure as it is based on current death rates and actual death rates change (usually improved) over the course of a person's lifetime. Life expectancy at age 0, more commonly known as life expectancy at birth (e_0), is an important measure of mortality. Life expectancy at birth (age 0 years) and for the population at age 60 years are obtained from constructed life tables mentioned above.

Maternal mortality ratio

The maternal mortality ratio (MMR) is the number of women who die as a result of complications from pregnancy or childbearing in a given year per 100,000 live births in that year. Deaths due to complications from spontaneous or induced abortions are included. Mathematically, the ratio is calculated as:

$$MMR = \frac{Total\ number\ of\ maternal\ deaths}{Total\ live\ births} \times K\ (100{,}000)$$

This report does not compute MMR for Nepal and its subregions as these figures have been previously computed and are made available by MoHP and CBS (Ministry of Health and Population (MoHP) and Central Bureau of Statistics (CBS), 2022).

DEGURBA

DEGURBA is an acronym for degree of urbanization, a new classification designed by UN-Habitat to classify territorial and administrative units into seven (four urban and three rural) classes of varying degree of urbanization. To make the classification more applicable, the NSO reclassified the 7 classes as urban, Peri-urban and rural. Peri-urban areas are considered more rural with a low degree of urbanization. This classification was made to the smallest administrative unit, i.e. ward within an urban or rural municipality, as every ward in a municipality may not truly have the same nature as reflected by its name. According to this classification, out of 6,743 wards of 753 municipalities, 962 are urban, 2,096 are Peri-urban and 3,685 are rural and they respectively represent 27.1 percent, 39.7 percent and 33.2 percent of the population in Nepal's 2021 census (National Statistics Office (NSO), 2024).

Caste and ethnicity groups

National Population and Housing Census 2021 enumerated 142 caste and ethnicity groups compared to the 125 groups in the 2011 census. As per the NSO's categorization (National Statistics Office (NSO), 2023), Nepal's caste and ethnic groups are grouped into eight broad categories, these being: Hill Caste (30.1%), Madhesh/Tarai Caste (16.1%), Hill Dalit (8.6%), Madhesh/Tarai Dalit (4.9%), Mountain/Hill Janajati (26.0%), Tarai Janajati (8.9%), Religious/Linguistic Group (4.9%) and Foreigners/Others/Not Stated (0.5%) (National Statistics Office (NSO), 2024). The new classification makes it impossible to compare mortality rates by caste and ethnicity groups over censuses as it does not align with the conventionally used 11 groups[26] (Bennett & Dahal, Caste, Ethnic and Regional Identity in Nepal: Further Analysis of the 2006 Nepal Demographic and Health Survey, 2006); (Bennett & Parajuli, Nepal Inclusion Index, 2008)

Wealth quintile

The wealth quintile is constructed by using a Principal Component Analysis (PCA) of 17 indicators, out of which eight are based on household characteristics of non-institutional households – foundation of house, material used in the outer walls, type of roof, type of floor, source of drinking water, cooking fuel, lighting and type of toilet – and nine include household assets. A composite score is obtained, and these scores are categorized into quintiles: lowest, lower, middle, higher and highest (National Statistics Office (NSO), 2024).

[26] Eleven caste and ethnic groups: Hill Brahmin, Hill Chhetri, Tarai/Madhesi Brahmin Chhetri, Tarai/Madhesi Other Caste, Hill Dalit, Tarai/Madhesi Dalit, Newar, Hill Janajati (excluding Newar), Tarai Janajati (excluding Newar), Muslim and Other.

ANNEX 2: DATA QUALITY EVALUATION

Table A2.1: Summary index of digit preference for number of death and population – Nepal, ecological zone and province, NPHC 2021

Area	Summary index of terminal digit preference			
	Adjusted death	Smoothed death	Reported population	Smoothed population
Nepal	37.11	2.28	19.73	1.26
Ecological zone				
Mountain	30.95	2.54	16.79	0.89
Hill	23.29	1.76	10.52	1.00
Tarai	50.51	3.77	27.37	1.62
Province				
Koshi	27.43	1.95	12.39	0.79
Madhesh	78.52	7.43	43.78	2.64
Bagmati	24.98	2.80	10.82	1.28
Gandaki	19.82	1.78	7.86	1.02
Lumbini	37.24	2.86	18.07	1.20
Karnali	34.00	4.00	16.23	0.79
Sudurpashchim	46.13	3.84	21.29	0.94

Table A2.2: Myers' index scores (% Deviation from 10) for reported/adjusted death and reported population, NPHC 2021

Digit	% Deviation from 10-female				% Deviation from 10 - male				% Deviation from 10 - Both sexes			
	Death		Population		Death		Population		Death		Population	
	R	S	R	S	R	S	R	S	R	S	R	S
0	10.4	0.1	5.1	0.3	9.3	0.3	4.8	0.3	9.8	0.2	4.9	0.3
1	-4.8	0.0	-2.7	0.1	-4.0	0.2	-2.4	0.1	-4.4	0.1	-2.5	0.1
2	0.6	-0.3	0.3	-0.2	0.6	-0.2	0.4	-0.2	0.6	-0.2	0.4	-0.2
3	-3.1	-0.3	-0.9	-0.2	-2.8	-0.4	-1.3	-0.3	-2.9	-0.3	-1.1	-0.2
4	-2.4	0.0	-1.4	-0.1	-2.2	-0.2	-1.4	-0.2	-2.3	-0.1	-1.4	-0.1
5	8.8	0.2	3.2	0.0	6.8	-0.1	3.1	0.0	7.6	0.0	3.2	0.0
6	-2.6	-0.1	-0.6	0.0	-2.4	-0.2	-0.5	0.0	-2.5	-0.1	-0.6	0.0
7	-3.5	-0.3	-2.2	-0.1	-3.2	-0.3	-1.9	0.0	-3.3	-0.3	-2.1	-0.1
8	0.2	-0.1	1.5	0.0	0.8	0.1	1.3	0.1	0.5	0.0	1.4	0.0
9	-3.7	0.7	-2.3	0.2	-2.9	0.8	-2.1	0.3	-3.2	0.8	-2.2	0.3
Blended Index	20.0	1.0	10.1	0.6	17.5	1.4	9.6	0.7	18.6	1.1	9.9	0.6

R – Reported, S - Smoothed

Figure A2.1: Terminal digit percent deviation from 10 for Nepal (both sexes, males and females)

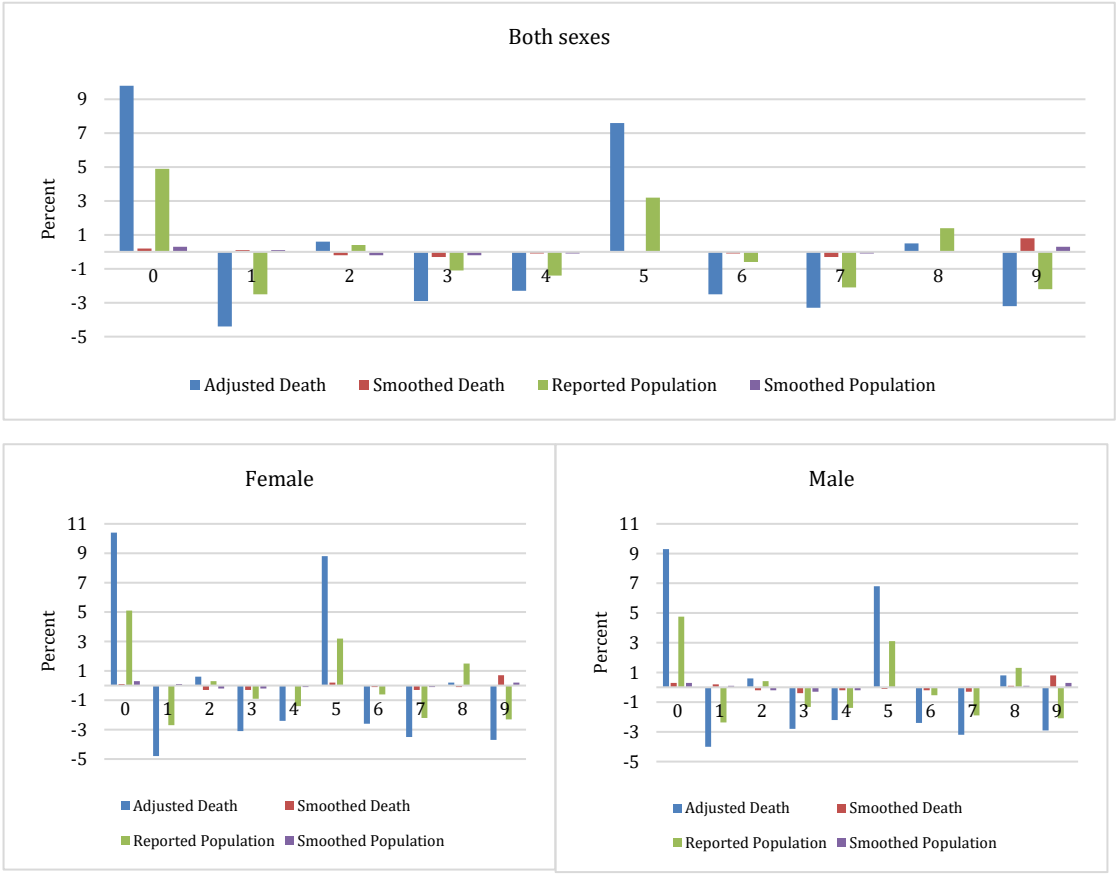


Figure source: NPHC 2021.

Table A2.3: Death due to COVID-19 and overall deaths, by ecological zone, province and district

Area	COVID19		NPHC 2021	COVID19
	Death	Percentage	Deaths	(% of NPHC 2021)
Nepal	9463	100.00	198463	4.77
Province				
Koshi	1276	13.48	38275	3.33
Madhesh	737	7.79	34319	2.15
Bagmati	4039	42.68	43872	9.21
Gandaki	992	10.48	20406	4.86
Lumbini	1568	16.57	36207	4.33
Karnali	410	4.33	8396	4.88
Sudurpashchim	441	4.66	16988	2.60
District				
Taplejung	9	0.10	867	1.04
Sankhuwasabha	16	0.17	1227	1.30
Solukhumbu	24	0.25	736	3.26
Okhaldhunga	24	0.25	897	2.68
Khotang	22	0.23	1145	1.92
Bhojpur	24	0.25	1267	1.89
Dhankuta	41	0.43	1345	3.05
Tehrathum	20	0.21	794	2.52
Panchthar	25	0.26	1669	1.50
Ilam	44	0.46	2154	2.04
Jhapa	327	3.46	7841	4.17
Morang	319	3.37	9302	3.43
Sunsari	331	3.50	6870	4.82
Udayapur	50	0.53	2161	2.31
Saptari	97	1.03	4452	2.18
Siraha	82	0.87	4400	1.86
Dhanusa	85	0.90	5625	1.51
Mahottari	53	0.56	4173	1.27
Sarlahi	103	1.09	4984	2.07
Rautahat	71	0.75	4111	1.73
Bara	108	1.14	3585	3.01
Parsa	138	1.46	2989	4.62
Dolakha	73	0.77	1395	5.23
Sindhupalchok	93	0.98	2146	4.33
Rasuwa	10	0.11	311	3.22
Dhading	94	0.99	2408	3.90
Nuwakot	93	0.98	2249	4.14
Kathmandu	1921	20.30	13633	14.09
Bhaktapur	372	3.93	3003	12.39
Lalitpur	563	5.95	4173	13.49
Kavrepalanchok	243	2.57	3111	7.81
Ramechhap	81	0.86	1248	6.49
Sindhuli	73	0.77	1878	3.89
Makwanpur	193	2.04	3389	5.69
Chitawan	230	2.43	4928	4.67

Area	COVID19		NPHC 2021	COVID19
	Death	Percentage	Deaths	(% of NPHC 2021)
Gorkha	72	0.76	1957	3.68
Manang	3	0.03	57	5.26
Mustang	15	0.16	101	14.85
Myagdi	27	0.29	886	3.05
Kaski	379	4.01	4874	7.78
Lamjung	56	0.59	1315	4.26
Tanahu	122	1.29	2778	4.39
Nawalparasi-East	99	1.05	2889	3.43
Syangja	110	1.16	2439	4.51
Parbat	39	0.41	1070	3.64
Baglung	70	0.74	2040	3.43
Rukum-East	14	0.15	285	4.91
Rolpa	28	0.30	1382	2.03
Pyuthan	63	0.67	1566	4.02
Gulmi	64	0.68	2124	3.01
Arghakhanchi	55	0.58	1533	3.59
Palpa	87	0.92	1999	4.35
Nawalparasi-West	98	1.04	2829	3.46
Rupandehi	498	5.26	8174	6.09
Kapilbastu	73	0.77	4871	1.50
Dang	267	2.82	4354	6.13
Banke	206	2.18	4201	4.90
Bardiya	115	1.22	2889	3.98
Dolpa	8	0.08	194	4.12
Mugu	6	0.06	349	1.72
Humla	5	0.05	239	2.09
Jumla	11	0.12	627	1.75
Kalikot	17	0.18	649	2.62
Dailekh	54	0.57	1184	4.56
Jajarkot	11	0.12	793	1.39
Rukum-West	41	0.43	679	6.04
Salyan	80	0.85	1300	6.15
Surkhet	177	1.87	2382	7.43
Bajura	10	0.11	777	1.29
Bajhang	9	0.10	1048	0.86
Darchula	16	0.17	705	2.27
Baitadi	16	0.17	1339	1.19
Dadeldhura	11	0.12	765	1.44
Doti	14	0.15	1100	1.27
Achham	15	0.16	1504	1.00
Kailali	218	2.30	6254	3.49
Kanchanpur	132	1.39	3496	3.78

Table Source: (Ministry of Health and Population, 2077/78 BS) & NPHC (2021)

Total death 2076/77 (July 2019 - June 2020) = 39
Total death 2077/78 (July 2020 - June 2021) = 9424
Total death 2076-78 (July 2019 - June 2021) = 9463
Census reference period (December 2020 - November 2021)

A2.3.1: Top and bottom 10 districts with COVID19 deaths

Bottom 10			Top 10		
District	COVID death	Percentage	District	COVID death	Percentage
Manang	3	0.03	Kathmandu	1921	20.30
Humla	5	0.05	Lalitpur	563	5.95
Mugu	6	0.06	Rupandehi	498	5.26
Dolpa	8	0.08	Kaski	379	4.01
Taplejung	9	0.10	Bhaktapur	372	3.93
Bajhang	9	0.10	Sunsari	331	3.50
Rasuwa	10	0.11	Jhapa	327	3.46
Bajura	10	0.11	Morang	319	3.37
Jumla	11	0.12	Dang	267	2.82
Jajarkot	11	0.12	Kavrepalanchok	243	2.57

A2.3.2 Top and bottom 10 districts with death reported in NPHC 2021

Bottom 10				Top 10			
District	COVID19	NPHC 2021	Percentage		COVID19	NPHC 2021	Percentage
Bajhang	9	1048	0.9	Mustang	15	101	14.9
Achham	15	1504	1.0	Kathmandu	1921	13633	14.1
Taplejung	9	867	1.0	Lalitpur	563	4173	13.5
Baitadi	16	1339	1.2	Bhaktapur	372	3003	12.4
Mahottari	53	4173	1.3	Kavrepalanchok	243	3111	7.8
Doti	14	1100	1.3	Kaski	379	4874	7.8
Bajura	10	777	1.3	Surkhet	177	2382	7.4
Sankhuwasabha	16	1227	1.3	Ramechhap	81	1248	6.5
Jajarkot	11	793	1.4	Salyan	80	1300	6.2
Dadeldhura	11	765	1.4	Dang	267	4354	6.1

Annex 3: Mortality Overview

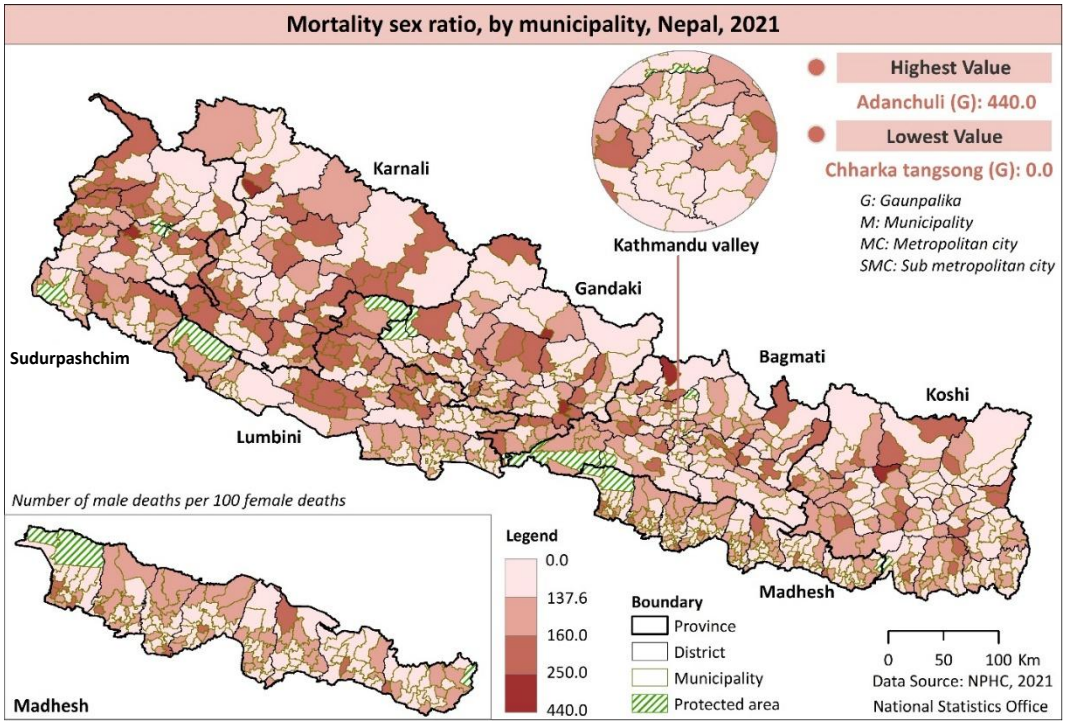
Table A3.1: Mortality indicators, NPHC 2021

Area	% of households with death	Mortality sex ratio	MGPI	CDR	SCDR
Nepal	2.89	137.6	0.69	6.8	6.8
Ecological Zone					
Mountain	2.7	135.5	0.72	6.5	6.1
Hill	2.8	138.3	0.68	7.2	6.4
Tarai	3.0	137.3	0.70	6.6	7.1
Province					
Koshi	3.11	135.4	0.70	7.7	7.0
Madhesh	2.87	132.4	0.76	5.6	6.5
Bagmati	2.70	135.1	0.74	7.2	6.4
Gandaki	3.00	139.9	0.65	8.3	6.4
Lumbini	3.07	142.1	0.65	7.1	7.5
Karnali	2.24	146.3	0.65	5.0	6.3
Sudurpashchim	2.86	144.3	0.62	6.3	6.8
District					
Taplejung	3.01	110.9	0.92	7.2	7.0
Sankhuwasabha	3.03	118.7	0.85	7.8	6.9
Solukhumbu	2.72	132.9	0.76	7.1	6.2
Okhaldhunga	2.55	139.8	0.68	6.4	5.1
Khotang	2.67	125.0	0.78	6.6	5.4
Bhojpur	3.22	146.0	0.67	8.1	6.6
Dhankuta	3.45	141.0	0.68	8.9	7.5
Tehrathum	3.50	125.6	0.77	9.0	7.6
Panchthar	3.80	135.7	0.73	9.7	8.7
Ilam	2.95	129.9	0.77	7.7	6.6
Jhapa	3.10	131.0	0.70	7.9	7.1
Morang	3.31	146.1	0.65	8.1	7.9
Sunsari	3.13	131.1	0.72	7.4	8.0
Udayapur	2.59	147.8	0.63	6.4	6.2
Saptari	2.93	132.6	0.75	6.3	6.8
Siraha	2.88	129.9	0.74	6.0	7.0
Dhanusa	3.09	134.4	0.73	6.5	7.7
Mahottari	2.93	132.0	0.74	5.9	7.2
Sarlahi	2.93	131.4	0.77	5.8	6.8
Rautahat	2.90	134.4	0.75	5.1	6.2

Area	% of households with death	Mortality sex ratio	MGPI	CDR	SCDR
Bara	2.64	132.6	0.79	4.7	6.0
Parsa	2.55	131.0	0.82	4.6	5.8
Dolakha	2.77	131.3	0.72	8.1	5.7
Sindhupalchok	2.89	141.9	0.68	8.2	6.2
Rasuwa	2.69	146.8	0.72	6.7	5.7
Dhading	2.78	140.6	0.68	7.4	5.8
Nuwakot	3.17	127.4	0.75	8.6	6.6
Kathmandu	2.41	132.2	0.78	6.7	7.2
Bhaktapur	2.68	125.5	0.81	7.0	7.2
Lalitpur	2.87	129.5	0.78	7.6	7.0
Kavrepalanchok	3.30	143.8	0.67	8.6	7.1
Ramechhap	2.59	140.5	0.64	7.3	5.2
Sindhuli	2.63	130.4	0.74	6.3	6.1
Makwanpur	3.12	143.1	0.70	7.3	7.3
Chitawan	2.68	142.8	0.67	6.9	6.3
Gorkha	2.65	141.3	0.63	7.8	5.4
Manang	3.56	159.1	0.82	10.4	7.8
Mustang	2.75	114.9	1.06	7.0	5.6
Myagdi	3.00	138.8	0.69	8.3	6.2
Kaski	2.93	142.9	0.67	8.1	7.3
Lamjung	2.90	125.6	0.72	8.4	5.8
Tanahu	3.05	146.1	0.60	8.7	7.1
Nawalparasi-East	2.99	146.9	0.60	7.7	7.2
Syangja	3.47	137.3	0.62	9.6	6.7
Parbat	2.89	153.0	0.58	8.2	6.1
Baglung	3.07	123.0	0.71	8.2	6.8
Rukum-East	2.15	174.0	0.54	5.1	5.5
Rolpa	2.57	152.2	0.58	5.9	6.8
Pyuthan	2.68	132.0	0.62	6.8	7.2
Gulmi	3.11	147.6	0.56	8.6	6.9
Arghakhanchi	3.08	163.0	0.51	8.7	7.1
Palpa	2.99	136.0	0.63	8.2	7.0
Nawalparasi-West	3.31	134.4	0.70	7.3	7.7
Rupandehi	3.31	136.0	0.71	7.3	8.2
Kapilbastu	3.82	141.5	0.68	7.2	8.3
Dang	2.61	161.2	0.56	6.5	7.6
Banke	3.13	133.3	0.73	7.0	8.5
Bardiya	2.64	143.2	0.62	6.3	6.9
Dolpa	1.91	158.7	0.63	4.6	6.3

Area	% of households with death	Mortality sex ratio	MGPI	CDR	SCDR
Mugu	2.77	156.6	0.64	5.4	7.0
Humla	2.03	151.6	0.67	4.3	5.1
Jumla	2.50	144.0	0.70	5.3	7.8
Kalikot	2.35	132.6	0.75	4.5	5.8
Dailekh	2.11	157.4	0.58	4.7	5.6
Jajarkot	2.09	135.3	0.73	4.2	5.8
Rukum-West	1.77	161.2	0.59	4.1	5.3
Salyan	2.32	161.0	0.58	5.5	6.8
Surkhet	2.38	135.4	0.68	5.8	7.0
Bajura	2.71	136.2	0.69	5.7	6.4
Bajhang	2.68	138.7	0.63	5.6	6.2
Darchula	2.43	161.1	0.58	5.3	5.2
Baitadi	2.64	164.6	0.54	5.6	5.7
Dadeldhura	2.41	131.1	0.68	5.5	5.7
Doti	2.35	149.4	0.56	5.4	6.3
Achham	2.96	147.4	0.58	6.6	7.0
Kailali	3.09	142.9	0.64	6.9	7.8
Kanchanpur	3.05	140.4	0.63	6.8	7.4

Map A3.1: Mortality sex ratio and percentage of households with death by municipality, NPHC 2021



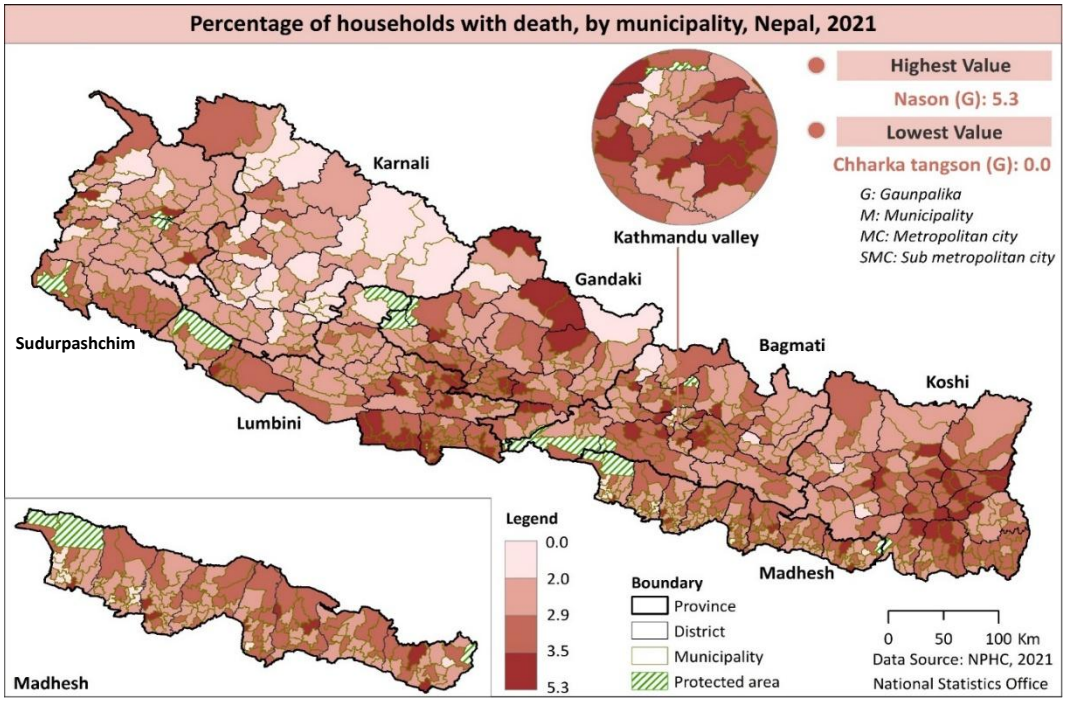


Table A3.2: Number of deaths by age group – Nepal, ecological zone and province, NPHC 2021

Area	Age group	Male		Female		Male (%)	Female (%)
		Adjusted death	Smoothed death	Adjusted death	Smoothed death		
Nepal	<1	4218	2961	2951	2101	2.6	2.5
	1-4	1639	3251	1348	2441	2.8	2.9
	5-9	1124	753	882	647	0.7	0.8
	10-14	1053	1058	1055	1035	0.9	1.2
	15-19	1827	1836	1459	1511	1.6	1.8
	20-24	2474	2514	1592	1625	2.2	1.9
	25-29	2712	2810	1531	1551	2.4	1.9
	30-34	2938	3101	1497	1609	2.7	1.9
	35-39	4017	4185	2016	2057	3.6	2.5
	40-44	4954	5025	2224	2266	4.4	2.7
	45-49	5536	5583	2682	2875	4.9	3.4
	50-54	6804	6701	4320	4218	5.8	5.1
	55-59	6888	7453	4487	4896	6.5	5.9
	60-64	9232	9066	6559	6603	7.9	7.9
	65-69	9975	10427	7624	7957	9.1	9.5
	70-74	13138	12630	10257	9896	11.0	11.8
	75-79	11078	10982	8829	8752	9.6	10.5
	80-84	12631	11496	10566	9403	10.0	11.3
	85-89	6328	6107	5237	5022	5.3	6.0
	90-94	2598	4459	2233	4265	3.9	5.1
	95+	3781	2548	4169	2787	2.2	3.3
Ecological zone							
Mountain	<1	269	194	203	149	2.9	3.1
	1-4	138	234	109	181	3.6	3.7
	5-9	86	61	68	48	0.9	1.0
	10-14	80	81	67	71	1.2	1.5
	15-19	125	124	111	113	1.9	2.3
	20-24	162	163	107	107	2.5	2.2
	25-29	172	186	92	94	2.8	1.9
	30-34	180	179	93	96	2.7	2.0
	35-39	186	194	111	114	2.9	2.3
	40-44	230	233	119	128	3.5	2.6
	45-49	285	290	183	181	4.4	3.7
	50-54	369	349	242	238	5.3	4.9
	55-59	357	409	280	300	6.2	6.2
	60-64	582	559	377	374	8.5	7.7
	65-69	535	569	386	407	8.7	8.4
	70-74	713	678	537	525	-0.3	10.8
	75-79	645	640	477	474	9.7	9.8
	80-84	759	715	624	564	10.9	11.6
	85-89	359	355	356	343	5.4	7.1

Area	Age group	Male		Female		Male (%)	Female (%)
		Adjusted death	Smoothed death	Adjusted death	Smoothed death		
	90-94	171	242	125	222	3.7	4.6
	95+	173	121	183	122	1.8	2.5
Hill	<1	1157	813	869	621	1.7	1.8
	1-4	477	924	405	719	1.9	2.0
	5-9	405	295	277	206	0.6	0.6
	10-14	386	384	360	355	0.8	1.0
	15-19	698	697	483	491	1.4	1.4
	20-24	949	966	569	578	2.0	1.6
	25-29	1122	1133	556	567	2.3	1.6
	30-34	1201	1249	585	621	2.6	1.8
	35-39	1651	1695	783	797	3.5	2.3
	40-44	2029	2072	908	923	4.3	2.6
	45-49	2357	2343	1085	1135	4.8	3.2
	50-54	2933	2890	1761	1695	5.9	4.8
	55-59	2917	3106	1765	1893	6.4	5.4
	60-64	3838	3753	2604	2607	7.7	7.4
	65-69	3993	4137	3079	3164	8.5	9.0
	70-74	5318	5131	4047	3950	10.5	11.2
	75-79	5104	5032	4094	4061	10.3	11.5
	80-84	5949	5780	5179	4887	11.9	13.9
	85-89	3326	3226	2821	2753	6.6	7.8
	90-94	1444	2053	1325	2030	4.2	5.8
	95+	1389	964	1622	1122	2.0	3.2
Tarai	<1	2792	1955	1879	1330	3.3	3.1
	1-4	1024	2093	834	1540	3.5	3.5
	5-9	633	397	537	393	0.7	0.9
	10-14	587	593	628	609	1.0	1.4
	15-19	1004	1015	864	907	1.7	2.1
	20-24	1364	1386	915	940	2.3	2.2
	25-29	1418	1491	882	890	2.5	2.0
	30-34	1557	1673	818	892	2.8	2.1
	35-39	2180	2296	1122	1147	3.8	2.6
	40-44	2696	2720	1197	1215	4.6	2.8
	45-49	2894	2950	1413	1559	4.9	3.6
	50-54	3502	3462	2317	2284	5.8	5.3
	55-59	3614	3938	2442	2702	6.6	6.2
	60-64	4812	4755	3578	3622	8.0	8.3
	65-69	5447	5721	4159	4386	9.6	10.1
	70-74	7108	6821	5673	5421	11.4	12.5
	75-79	5329	5310	4259	4217	8.9	9.7
	80-84	5923	5001	4764	3953	8.4	9.1
	85-89	2643	2525	2060	1926	4.2	4.4

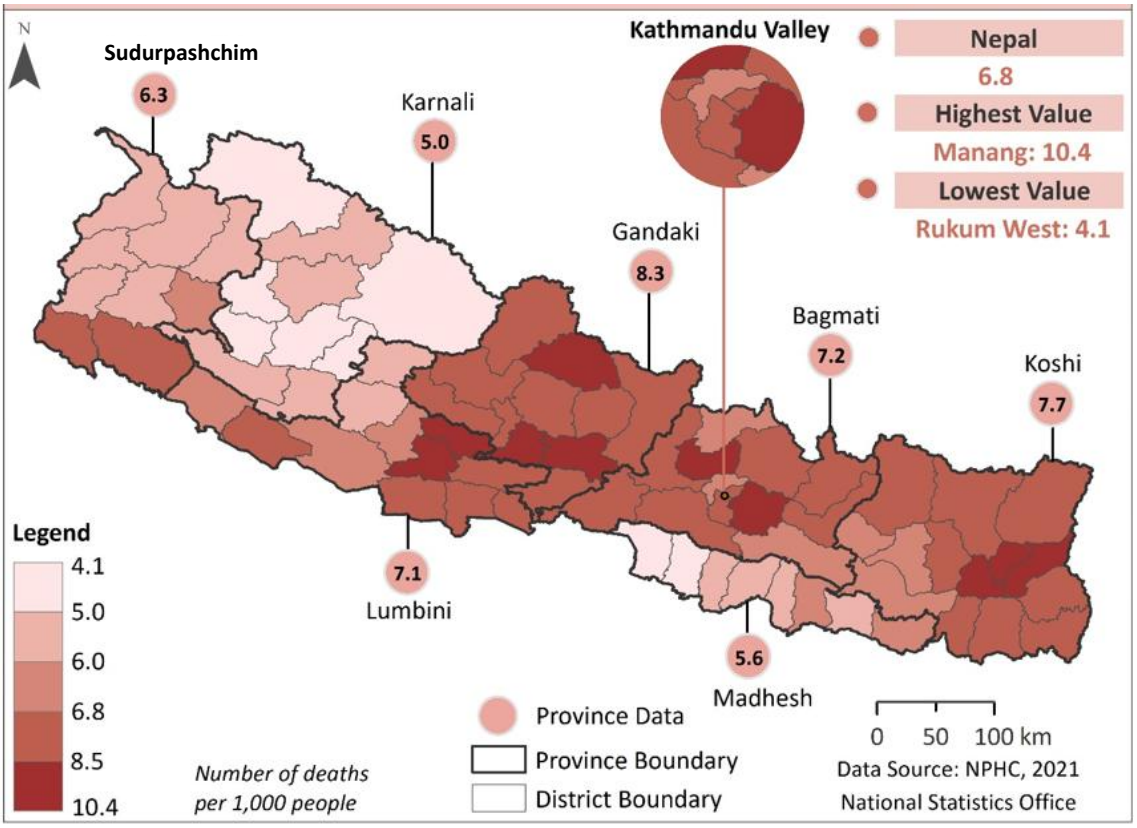
Area	Age group	Male		Female		Male (%)	Female (%)
		Adjusted death	Smoothed death	Adjusted death	Smoothed death		
	90-94	983	2164	783	2014	3.6	4.6
	95+	2219	1462	2364	1542	2.4	3.5
Province							
Koshi	<1	707	707	508	508	3.2	3.1
	1-4	238	238	231	234	1.1	1.4
	5-9	202	202	169	170	0.9	1.0
	10-14	191	188	176	173	0.9	1.1
	15-19	339	338	258	254	1.5	1.6
	20-24	490	490	271	276	2.2	1.7
	25-29	489	526	281	293	2.4	1.8
	30-34	558	580	334	352	2.6	2.2
	35-39	780	798	427	441	3.6	2.7
	40-44	1007	1009	488	486	4.6	3.0
	45-49	1009	1043	562	604	4.7	3.7
	50-54	1334	1313	926	897	6.0	5.5
	55-59	1366	1446	900	973	6.6	6.0
	60-64	1789	1742	1366	1357	7.9	8.3
	65-69	1958	1995	1551	1564	9.1	9.6
	70-74	2419	2348	1829	1776	10.7	10.9
	75-79	2057	2066	1584	1597	9.4	9.8
	80-84	2471	2319	1949	1799	10.5	11.1
	85-89	1367	1324	1152	1111	6.0	6.8
	90-94	585	875	517	850	4.0	5.2
	95+	659	468	781	548	2.1	3.4
Madhesh	<1	1242	1242	804	804	6.4	5.4
	1-4	481	479	386	383	2.5	2.6
	5-9	256	269	237	251	1.4	1.7
	10-14	251	242	271	257	1.2	1.7
	15-19	369	387	335	358	2.0	2.4
	20-24	468	476	326	337	2.4	2.3
	25-29	438	466	298	302	2.4	2.0
	30-34	447	485	239	260	2.5	1.8
	35-39	615	667	329	355	3.4	2.4
	40-44	752	753	381	383	3.9	2.6
	45-49	757	801	460	524	4.1	3.5
	50-54	988	984	744	734	5.0	5.0
	55-59	1079	1235	796	944	6.3	6.4
	60-64	1613	1588	1322	1323	8.1	9.0
	65-69	1832	1956	1420	1516	10.0	10.3
	70-74	2506	2418	1951	1859	12.4	12.6
	75-79	1747	1735	1353	1358	8.9	9.2
	80-84	1925	1428	1531	1118	7.3	7.6

Area	Age group	Male		Female		Male (%)	Female (%)
		Adjusted death	Smoothed death	Adjusted death	Smoothed death		
	85-89	646	613	499	443	3.1	3.0
	90-94	154	685	103	620	3.5	4.2
	95+	983	640	987	641	3.3	4.3
Bagmati	<1	456	456	351	351	1.8	1.9
	1-4	190	192	182	179	0.8	1.0
	5-9	158	154	112	116	0.6	0.6
	10-14	143	144	120	121	0.6	0.6
	15-19	277	276	178	185	1.1	1.0
	20-24	399	402	236	231	1.6	1.2
	25-29	496	501	279	289	2.0	1.5
	30-34	551	575	309	332	2.3	1.8
	35-39	806	837	403	405	3.3	2.2
	40-44	1017	1032	450	457	4.1	2.4
	45-49	1220	1223	561	584	4.9	3.1
	50-54	1562	1528	912	883	6.1	4.7
	55-59	1541	1644	912	984	6.5	5.3
	60-64	1964	1939	1297	1299	7.7	7.0
	65-69	2125	2146	1553	1592	8.5	8.5
	70-74	2710	2644	2148	2104	10.5	11.3
	75-79	2706	2674	2245	2230	10.6	11.9
	80-84	3243	3142	2981	2795	12.5	15.0
	85-89	1931	1878	1713	1686	7.5	9.0
	90-94	862	1218	762	1168	4.8	6.3
	95+	854	604	956	672	2.4	3.6
Gandaki	<1	186	186	146	146	1.6	1.7
	1-4	94	95	55	55	0.8	0.6
	5-9	84	84	50	49	0.7	0.6
	10-14	73	70	79	77	0.6	0.9
	15-19	154	156	109	110	1.3	1.3
	20-24	228	226	123	127	1.9	1.5
	25-29	254	258	116	119	2.2	1.4
	30-34	291	297	121	130	2.5	1.5
	35-39	378	395	169	171	3.3	2.0
	40-44	486	496	205	207	4.2	2.4
	45-49	566	559	243	249	4.7	2.9
	50-54	715	700	379	369	5.9	4.3
	55-59	664	725	383	401	6.1	4.7
	60-64	933	890	568	587	7.5	6.9
	65-69	907	955	754	771	8.0	9.1
	70-74	1249	1211	1010	995	10.2	11.7
	75-79	1287	1277	1087	1071	10.7	12.6
	80-84	1663	1611	1365	1309	13.5	15.4

Area	Age group	Male		Female		Male (%)	Female (%)
		Adjusted death	Smoothed death	Adjusted death	Smoothed death		
	85-89	879	861	751	720	7.2	8.5
	90-94	431	578	374	549	4.9	6.5
	95+	375	268	415	292	2.3	3.4
Lumbini	<1	913	913	651	651	4.3	4.4
	1-4	329	328	279	282	1.5	1.9
	5-9	224	223	171	173	1.0	1.2
	10-14	184	184	201	194	0.9	1.3
	15-19	373	370	296	309	1.7	2.1
	20-24	507	517	332	346	2.4	2.3
	25-29	577	595	333	325	2.8	2.2
	30-34	621	661	284	314	3.1	2.1
	35-39	873	904	428	419	4.3	2.8
	40-44	1055	1082	421	437	5.1	2.9
	45-49	1222	1183	522	559	5.6	3.7
	50-54	1312	1311	869	871	6.2	5.8
	55-59	1331	1425	909	960	6.7	6.4
	60-64	1687	1669	1216	1229	7.9	8.2
	65-69	1876	1972	1436	1498	9.3	10.0
	70-74	2419	2326	1921	1860	10.9	12.4
	75-79	1957	1913	1571	1528	9.0	10.2
	80-84	1939	1746	1541	1368	8.2	9.1
	85-89	892	861	690	649	4.1	4.3
	90-94	358	656	280	581	3.1	3.9
	95+	603	410	604	406	1.9	2.7
Karnali	<1	256	256	182	182	5.1	5.3
	1-4	117	118	91	91	2.4	2.7
	5-9	81	81	55	54	1.6	1.6
	10-14	77	75	73	74	1.5	2.2
	15-19	118	117	119	123	2.3	3.6
	20-24	143	147	112	112	3.0	3.3
	25-29	162	163	69	66	3.3	1.9
	30-34	164	173	64	70	3.5	2.1
	35-39	175	180	91	91	3.6	2.7
	40-44	196	200	89	96	4.0	2.8
	45-49	248	249	113	118	5.0	3.5
	50-54	282	277	168	169	5.6	5.0
	55-59	312	345	230	241	6.9	7.1
	60-64	466	454	321	317	9.1	9.3
	65-69	432	473	308	338	9.5	9.9
	70-74	648	584	461	435	11.7	12.8
	75-79	418	427	323	304	8.6	8.9
	80-84	401	373	306	284	7.5	8.3

Area	Age group	Male		Female		Male (%)	Female (%)
		Adjusted death	Smoothed death	Adjusted death	Smoothed death		
	85-89	180	175	105	111	3.5	3.3
	90-94	44	79	49	78	1.6	2.3
	95+	66	43	77	53	0.9	1.5
Sudurpashchim	<1	459	459	310	310	4.6	4.5
	1-4	189	189	123	123	1.9	1.8
	5-9	118	119	87	91	1.2	1.3
	10-14	133	132	134	124	1.3	1.8
	15-19	198	195	162	175	1.9	2.5
	20-24	240	253	190	193	2.5	2.8
	25-29	297	306	153	161	3.1	2.3
	30-34	306	324	144	148	3.2	2.1
	35-39	391	405	169	177	4.0	2.5
	40-44	441	453	191	200	4.5	2.9
	45-49	514	520	221	231	5.2	3.3
	50-54	610	599	321	307	6.0	4.4
	55-59	595	633	357	391	6.3	5.6
	60-64	779	766	470	474	7.6	6.8
	65-69	844	903	602	659	9.0	9.5
	70-74	1187	1130	937	893	11.3	12.8
	75-79	906	913	666	681	9.1	9.8
	80-84	989	871	894	729	8.7	10.5
	85-89	434	416	326	327	4.1	4.7
	90-94	163	282	147	325	2.8	4.7
	95+	242	168	349	234	1.7	3.4

Map A3.2: Crude Death Rate, both sexes, by province and district, NPHC 2021



ANNEX 4: LIFE TABLES

Table A4.1 Life tables for province, NPHC 2021

Age Group	x	n	$_nm_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	$_nS_x$	T_x	e_x	a_x
Koshi											
Both Sexes											
<1	0	1	0.0183	0.0180	100000	1798	98405	0.9796	7071013	70.7	0.1128
1-4	1	4	0.0015	0.0059	98202	581	391411	0.9945	6972609	71.0	1.5995
5-9	5	5	0.0008	0.0041	97620	400	487101	0.9960	6581197	67.4	2.5000
10-14	10	5	0.0008	0.0040	97220	384	485139	0.9952	6094096	62.7	2.5000
15-19	15	5	0.0012	0.0061	96836	590	482795	0.9927	5608957	57.9	2.6547
20-24	20	5	0.0017	0.0084	96246	808	479288	0.9909	5126162	53.3	2.5965
25-29	25	5	0.0020	0.0098	95438	938	474919	0.9890	4646874	48.7	2.5781
30-34	30	5	0.0025	0.0124	94500	1175	469696	0.9854	4171955	44.1	2.6123
35-39	35	5	0.0035	0.0172	93326	1607	462818	0.9796	3702259	39.7	2.6292
40-44	40	5	0.0048	0.0238	91718	2182	453380	0.9730	3239442	35.3	2.6114
45-49	45	5	0.0062	0.0306	89536	2743	441119	0.9640	2786062	31.1	2.6073
50-54	50	5	0.0086	0.0420	86793	3646	425245	0.9519	2344943	27.0	2.6078
55-59	55	5	0.0114	0.0553	83147	4600	404792	0.9323	1919698	23.1	2.6207
60-64	60	5	0.0171	0.0824	78547	6470	377374	0.9019	1514906	19.3	2.6257
65-69	65	5	0.0247	0.1165	72077	8396	340363	0.8567	1137532	15.8	2.6153
70-74	70	5	0.0382	0.1748	63681	11129	291600	0.7941	797169	12.5	2.5914
75-79	75	5	0.0560	0.2469	52552	12973	231558	0.6759	505569.4	9.6	2.5948
80-84	80	5	0.1053	0.4166	39579	16488	156514	0.5263	274011	6.9	2.4901
85-89	85	5	0.1532	0.5464	23092	12618	82375	0.3575	117496.7	5.1	2.3781
90-94	90	5	0.2714	0.7631	10474	7992	29445	0.1616	35121.54	3.4	2.1317
95+	95	5	0.4372	1.0000	2482	2482	5676	0.0000	5676.361	2.3	2.2873
Females											
<1	0	1	0.0160	0.0157	100000	1573	98612	0.9818	7347992	73.5	0.1175
1-4	1	4	0.0015	0.0061	98427	599	392273	0.9945	7249381	73.7	1.6061
5-9	5	5	0.0008	0.0039	97828	378	488194	0.9961	6857108	70.1	2.5000
10-14	10	5	0.0008	0.0039	97450	376	486311	0.9955	6368913	65.4	2.5000
15-19	15	5	0.0011	0.0052	97074	509	484138	0.9945	5882603	60.6	2.5792
20-24	20	5	0.0011	0.0057	96565	550	481471	0.9940	5398465	55.9	2.5410
25-29	25	5	0.0013	0.0065	96015	620	478575	0.9925	4916994	51.2	2.5851
30-34	30	5	0.0017	0.0087	95394	827	475001	0.9900	4438419	46.5	2.6165
35-39	35	5	0.0023	0.0115	94567	1085	470242	0.9870	3963418	41.9	2.6084
40-44	40	5	0.0030	0.0149	93483	1392	464113	0.9820	3493175	37.4	2.6292
45-49	45	5	0.0044	0.0219	92091	2014	455747	0.9725	3029062	32.9	2.6626
50-54	50	5	0.0068	0.0337	90077	3032	443217	0.9614	2573315	28.6	2.6357
55-59	55	5	0.0091	0.0444	87045	3867	426106	0.9433	2130097	24.5	2.6415
60-64	60	5	0.0148	0.0714	83178	5937	401926	0.9144	1703991	20.5	2.6476

Age Group	x	n	$_nm_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	$_nS_x$	T_x	e_x	a_x
65-69	65	5	0.0214	0.1016	77242	7851	367512	0.8761	1302065	16.9	2.6187
70-74	70	5	0.0323	0.1500	69390	10411	321977	0.8221	934553.6	13.5	2.6011
75-79	75	5	0.0480	0.2153	58979	12696	264708	0.7090	612577	10.4	2.6221
80-84	80	5	0.0939	0.3807	46284	17620	187688	0.5673	347869.1	7.5	2.5182
85-89	85	5	0.1339	0.4972	28663	14252	106476	0.4058	160181	5.6	2.4151
90-94	90	5	0.2382	0.7142	14411	10293	43213	0.1954	53705.36	3.7	2.1977
95+	95	5	0.3925	1.0000	4118	4118	10492	0.0000	10492.43	2.5	2.5476
Males											
<1	0	1	0.0204	0.0200	100000	2004	98213	0.9777	6809011	68.1	0.1086
1-4	1	4	0.0014	0.0058	97996	564	390625	0.9944	6710798	68.5	1.5935
5-9	5	5	0.0009	0.0043	97431	422	486101	0.9958	6320173	64.9	2.5000
10-14	10	5	0.0008	0.0040	97009	392	484065	0.9948	5834072	60.1	2.5000
15-19	15	5	0.0014	0.0069	96617	670	481553	0.9908	5350006	55.4	2.7143
20-24	20	5	0.0023	0.0114	95947	1098	477145	0.9873	4868453	50.7	2.6401
25-29	25	5	0.0028	0.0139	94849	1314	471062	0.9848	4391308	46.3	2.5755
30-34	30	5	0.0034	0.0169	93536	1576	463906	0.9800	3920246	41.9	2.6067
35-39	35	5	0.0048	0.0238	91959	2189	454617	0.9714	3456340	37.6	2.6342
40-44	40	5	0.0068	0.0334	89770	2999	441637	0.9633	3001724	33.4	2.5951
45-49	45	5	0.0081	0.0399	86771	3462	425446	0.9552	2560087	29.5	2.5712
50-54	50	5	0.0104	0.0506	83309	4213	406377	0.9423	2134641	25.6	2.5868
55-59	55	5	0.0137	0.0663	79096	5241	382921	0.9212	1728264	21.9	2.6042
60-64	60	5	0.0196	0.0936	73854	6914	352739	0.8892	1345343	18.2	2.6088
65-69	65	5	0.0281	0.1315	66940	8804	313666	0.8372	992604.5	14.8	2.6109
70-74	70	5	0.0442	0.1996	58136	11605	262605	0.7660	678938.4	11.7	2.5809
75-79	75	5	0.0644	0.2783	46531	12951	201148	0.6447	416333.5	8.9	2.5674
80-84	80	5	0.1163	0.4490	33579	15078	129672	0.4878	215185.6	6.4	2.4650
85-89	85	5	0.1741	0.5952	18501	11011	63252	0.3082	85513.98	4.6	2.3434
90-94	90	5	0.3126	0.8138	7490	6095	19497	0.1242	22261.87	3.0	2.0547
95+	95	5	0.5045	1.0000	1395	1395	2764	0.0000	2764.491	2.0	1.9822
Madhesh											
Both Sexes											
<1	0	1	0.0198	0.0195	100000	1947	98267	0.9780	7187469	71.9	0.1098
1-4	1	4	0.0016	0.0064	98053	623	390715	0.9945	7089202	72.3	1.5952
5-9	5	5	0.0007	0.0036	97430	349	486280	0.9963	6698486	68.8	2.5000
10-14	10	5	0.0008	0.0037	97082	364	484500	0.9954	6212206	64.0	2.5000
15-19	15	5	0.0011	0.0057	96718	553	482279	0.9935	5727706	59.2	2.6302
20-24	20	5	0.0014	0.0071	96165	680	479165	0.9926	5245427	54.5	2.5604
25-29	25	5	0.0016	0.0077	95485	740	475610	0.9918	4766262	49.9	2.5463
30-34	30	5	0.0018	0.0090	94745	849	471688	0.9894	4290651	45.3	2.5980
35-39	35	5	0.0025	0.0126	93897	1183	466688	0.9850	3818963	40.7	2.6371
40-44	40	5	0.0036	0.0177	92714	1638	459686	0.9793	3352275	36.2	2.6303
45-49	45	5	0.0049	0.0243	91075	2210	450149	0.9708	2892589	31.8	2.6346
50-54	50	5	0.0071	0.0351	88865	3121	437011	0.9561	2442439	27.5	2.6562
55-59	55	5	0.0112	0.0544	85744	4662	417818	0.9318	2005428	23.4	2.6613

Age Group	x	n	$_nm_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	$_nS_x$	T_x	e_x	a_x
60-64	60	5	0.0173	0.0832	81082	6744	389310	0.9052	1587610	19.6	2.6124
65-69	65	5	0.0228	0.1079	74338	8018	352403	0.8699	1198300	16.1	2.5943
70-74	70	5	0.0342	0.1581	66320	10482	306542	0.8075	845897.6	12.8	2.6093
75-79	75	5	0.0541	0.2400	55838	13400	247532	0.6653	539356.1	9.7	2.6375
80-84	80	5	0.1137	0.4411	42438	18721	164672	0.5261	291824.1	6.9	2.4618
85-89	85	5	0.1405	0.5131	23717	12170	86639	0.3858	127152.3	5.4	2.3750
90-94	90	5	0.2542	0.7357	11547	8496	33422	0.1750	40512.95	3.5	2.1381
95+	95	5	0.4304	1.0000	3052	3052	7091	0.0000	7090.629	2.3	2.3236
Females											
<1	0	1	0.0173	0.0170	100000	1701	98494	0.9805	7366483	73.7	0.1148
1-4	1	4	0.0015	0.0060	98299	594	391769	0.9946	7267989	73.9	1.6024
5-9	5	5	0.0007	0.0036	97704	354	487636	0.9962	6876220	70.4	2.5000
10-14	10	5	0.0008	0.0040	97350	387	485783	0.9953	6388584	65.6	2.5000
15-19	15	5	0.0011	0.0056	96963	547	483485	0.9943	5902801	60.9	2.5703
20-24	20	5	0.0011	0.0056	96416	543	480719	0.9944	5419315	56.2	2.4984
25-29	25	5	0.0011	0.0057	95872	543	478006	0.9944	4938596	51.5	2.5026
30-34	30	5	0.0012	0.0058	95329	550	475312	0.9932	4460590	46.8	2.5743
35-39	35	5	0.0016	0.0082	94779	775	472072	0.9901	3985278	42.0	2.6479
40-44	40	5	0.0024	0.0119	94004	1118	467415	0.9849	3513206	37.4	2.6713
45-49	45	5	0.0038	0.0190	92886	1763	460364	0.9754	3045791	32.8	2.6944
50-54	50	5	0.0063	0.0311	91123	2837	449060	0.9604	2585427	28.4	2.6895
55-59	55	5	0.0101	0.0495	88286	4367	431261	0.9373	2136367	24.2	2.6717
60-64	60	5	0.0159	0.0768	83919	6443	404219	0.9133	1705106	20.3	2.6139
65-69	65	5	0.0205	0.0977	77475	7573	369157	0.8824	1300887	16.8	2.5942
70-74	70	5	0.0308	0.1433	69902	10017	325737	0.8206	931729.9	13.3	2.6265
75-79	75	5	0.0512	0.2285	59886	13685	267296	0.6803	605993.4	10.1	2.6520
80-84	80	5	0.1064	0.4189	46201	19355	181853	0.5595	338697	7.3	2.4606
85-89	85	5	0.1228	0.4655	26846	12497	101748	0.4309	156844	5.8	2.4011
90-94	90	5	0.2261	0.6909	14348	9913	43847	0.2042	55096	3.8	2.1860
95+	95	5	0.3943	1.0000	4436	4436	11249	0.0000	11249.3	2.5	2.5361
Males											
<1	0	1	0.0219	0.0215	100000	2147	98080	0.9759	7021809	70.2	0.1056
1-4	1	4	0.0017	0.0066	97853	648	389850	0.9943	6923729	70.8	1.5894
5-9	5	5	0.0007	0.0035	97205	344	485166	0.9965	6533879	67.2	2.5000
10-14	10	5	0.0007	0.0035	96861	342	483453	0.9956	6048712	62.4	2.5000
15-19	15	5	0.0012	0.0058	96520	559	481303	0.9928	5565260	57.7	2.6842
20-24	20	5	0.0017	0.0086	95960	827	477828	0.9906	5083957	53.0	2.6140
25-29	25	5	0.0020	0.0102	95133	967	473322	0.9887	4606129	48.4	2.5772
30-34	30	5	0.0026	0.0127	94166	1198	467968	0.9850	4132807	43.9	2.6106
35-39	35	5	0.0036	0.0177	92968	1643	460933	0.9795	3664839	39.4	2.6213
40-44	40	5	0.0047	0.0235	91325	2144	451481	0.9736	3203905	35.1	2.5993
45-49	45	5	0.0060	0.0297	89182	2647	439541	0.9663	2752425	30.9	2.5939
50-54	50	5	0.0079	0.0388	86535	3361	424707	0.9522	2312884	26.7	2.6289
55-59	55	5	0.0121	0.0588	83175	4893	404392	0.9266	1888177	22.7	2.6537

Age Group	x	n	$_nm_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	$_nS_x$	T_x	e_x	a_x
60-64	60	5	0.0187	0.0894	78281	6996	374694	0.8976	1483785	19.0	2.6111
65-69	65	5	0.0249	0.1173	71285	8359	336308	0.8583	1109091	15.6	2.5930
70-74	70	5	0.0374	0.1716	62927	10800	288646	0.7958	772783.6	12.3	2.5938
75-79	75	5	0.0567	0.2498	52126	13021	229707	0.6523	484137.8	9.3	2.6249
80-84	80	5	0.1201	0.4603	39106	18002	149840	0.4975	254430.3	6.5	2.4619
85-89	85	5	0.1570	0.5546	21104	11703	74543	0.3443	104590.8	5.0	2.3531
90-94	90	5	0.2854	0.7790	9401	7323	25663	0.1459	30047.97	3.2	2.0857
95+	95	5	0.4738	1.0000	2078	2078	4385	0.0000	4385.37	2.1	2.1106
Bagmati											
Both Sexes											
<1	0	1	0.0114	0.0113	100000	1125	99017	0.9869	7275268	72.8	0.1266
1-4	1	4	0.0011	0.0045	98875	445	394438	0.9959	7176251	72.6	1.6190
5-9	5	5	0.0006	0.0029	98429	289	491426	0.9972	6781813	68.9	2.5000
10-14	10	5	0.0005	0.0027	98141	261	490052	0.9968	6290387	64.1	2.5000
15-19	15	5	0.0008	0.0039	97880	383	488493	0.9955	5800335	59.3	2.6372
20-24	20	5	0.0010	0.0052	97496	504	486278	0.9940	5311842	54.5	2.6141
25-29	25	5	0.0014	0.0068	96992	663	483372	0.9923	4825564	49.8	2.6060
30-34	30	5	0.0017	0.0087	96329	839	479653	0.9894	4342191	45.1	2.6264
35-39	35	5	0.0026	0.0127	95490	1215	474584	0.9850	3862538	40.4	2.6426
40-44	40	5	0.0036	0.0176	94274	1664	467443	0.9787	3387955	35.9	2.6384
45-49	45	5	0.0052	0.0255	92611	2359	457492	0.9693	2920512	31.5	2.6421
50-54	50	5	0.0074	0.0364	90252	3288	443467	0.9571	2463020	27.3	2.6297
55-59	55	5	0.0103	0.0505	86964	4392	424426	0.9382	2019553	23.2	2.6333
60-64	60	5	0.0156	0.0752	82572	6208	398180	0.9093	1595127	19.3	2.6352
65-69	65	5	0.0231	0.1097	76364	8378	362073	0.8589	1196947	15.7	2.6429
70-74	70	5	0.0390	0.1785	67986	12134	310966	0.7869	834874.3	12.3	2.6131
75-79	75	5	0.0588	0.2578	55852	14397	244713	0.6574	523908.2	9.4	2.6006
80-84	80	5	0.1139	0.4420	41454	18322	160869	0.5071	279195.2	6.7	2.4674
85-89	85	5	0.1571	0.5542	23132	12819	81582	0.3646	118326.1	5.1	2.3415
90-94	90	5	0.2561	0.7386	10313	7618	29744	0.1905	36743.89	3.6	2.1353
95+	95	5	0.3851	1.0000	2696	2696	6999	0.0000	6999.49	2.6	2.5965
Females											
<1	0	1	0.0105	0.0104	100000	1043	99091	0.9877	7548534	75.5	0.1283
1-4	1	4	0.0012	0.0046	98957	458	394740	0.9960	7449442	75.3	1.6214
5-9	5	5	0.0005	0.0027	98499	263	491839	0.9974	7054702	71.6	2.5000
10-14	10	5	0.0005	0.0025	98236	250	490557	0.9972	6562864	66.8	2.5000
15-19	15	5	0.0006	0.0032	97987	318	489164	0.9965	6072307	62.0	2.5803
20-24	20	5	0.0008	0.0038	97669	367	487456	0.9957	5583143	57.2	2.5811
25-29	25	5	0.0010	0.0048	97302	469	485384	0.9946	5095687	52.4	2.5999
30-34	30	5	0.0012	0.0061	96833	593	482745	0.9930	4610303	47.6	2.6042
35-39	35	5	0.0016	0.0080	96240	773	479355	0.9908	4127558	42.9	2.6109
40-44	40	5	0.0021	0.0106	95467	1009	474959	0.9869	3648203	38.2	2.6430
45-49	45	5	0.0033	0.0162	94459	1534	468748	0.9788	3173243	33.6	2.6893
50-54	50	5	0.0054	0.0269	92925	2499	458799	0.9678	2704495	29.1	2.6694

Age Group	x	n	$_nm_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	$_nS_x$	T_x	e_x	a_x
55-59	55	5	0.0078	0.0383	90426	3460	444013	0.9518	2245695	24.8	2.6547
60-64	60	5	0.0124	0.0601	86966	5229	422609	0.9253	1801682	20.7	2.6631
65-69	65	5	0.0193	0.0923	81737	7544	391050	0.8804	1379073	16.9	2.6624
70-74	70	5	0.0327	0.1518	74193	11263	344268	0.8174	988022.1	13.3	2.6296
75-79	75	5	0.0498	0.2229	62931	14024	281419	0.6942	643753.7	10.2	2.6303
80-84	80	5	0.1006	0.4021	48906	19664	195374	0.5510	362334.6	7.4	2.5002
85-89	85	5	0.1365	0.5025	29242	14693	107656	0.4205	166960.9	5.7	2.3760
90-94	90	5	0.2173	0.6762	14549	9839	45272	0.2366	59305.07	4.1	2.2076
95+	95	5	0.3357	1.0000	4710	4710	14033	0.0000	14032.81	3.0	2.9791
Males											
<1	0	1	0.0121	0.0120	100000	1199	98951	0.9862	7024461	70.2	0.1251
1-4	1	4	0.0011	0.0044	98801	434	394171	0.9958	6925510	70.1	1.6169
5-9	5	5	0.0006	0.0032	98367	311	491059	0.9970	6531339	66.4	2.5000
10-14	10	5	0.0006	0.0028	98056	272	489603	0.9965	6040280	61.6	2.5000
15-19	15	5	0.0009	0.0046	97785	445	487892	0.9944	5550677	56.8	2.6796
20-24	20	5	0.0013	0.0066	97340	643	485182	0.9922	5062785	52.0	2.6401
25-29	25	5	0.0018	0.0090	96697	872	481403	0.9898	4577603	47.3	2.6126
30-34	30	5	0.0023	0.0115	95825	1104	476516	0.9856	4096200	42.7	2.6372
35-39	35	5	0.0036	0.0178	94721	1682	469661	0.9787	3619684	38.2	2.6559
40-44	40	5	0.0051	0.0251	93039	2334	459669	0.9702	3150023	33.9	2.6323
45-49	45	5	0.0071	0.0349	90705	3170	445958	0.9599	2690354	29.7	2.6128
50-54	50	5	0.0094	0.0458	87535	4010	428069	0.9466	2244396	25.6	2.6042
55-59	55	5	0.0129	0.0625	83525	5217	405204	0.9247	1816327	21.7	2.6192
60-64	60	5	0.0189	0.0903	78308	7074	374677	0.8931	1411123	18.0	2.6162
65-69	65	5	0.0272	0.1276	71234	9088	334626	0.8361	1036446	14.5	2.6294
70-74	70	5	0.0461	0.2075	62146	12895	279769	0.7534	701820.4	11.3	2.5990
75-79	75	5	0.0693	0.2964	49251	14599	210776	0.6178	422051.8	8.6	2.5698
80-84	80	5	0.1288	0.4840	34652	16771	130214	0.4602	211275.7	6.1	2.4334
85-89	85	5	0.1824	0.6111	17881	10927	59918	0.3038	81061.69	4.5	2.3015
90-94	90	5	0.3076	0.8051	6954	5599	18201	0.1392	21143.57	3.0	2.0405
95+	95	5	0.4606	1.0000	1355	1355	2943	0.0000	2942.552	2.2	2.1712
Gandaki											
Both Sexes											
<1	0	1	0.0115	0.0113	100000	1135	99009	0.9869	7231537	72.3	0.1264
1-4	1	4	0.0011	0.0043	98865	421	394457	0.9958	7132529	72.1	1.6187
5-9	5	5	0.0007	0.0033	98444	324	491409	0.9967	6738071	68.4	2.5000
10-14	10	5	0.0007	0.0034	98120	331	489770	0.9957	6246663	63.7	2.5000
15-19	15	5	0.0011	0.0056	97788	547	487669	0.9933	5756893	58.9	2.6730
20-24	20	5	0.0016	0.0078	97241	760	484382	0.9915	5269224	54.2	2.5990
25-29	25	5	0.0018	0.0091	96482	880	480275	0.9898	4784841	49.6	2.5769
30-34	30	5	0.0023	0.0115	95601	1098	475388	0.9863	4304566	45.0	2.6165
35-39	35	5	0.0033	0.0163	94503	1539	468879	0.9805	3829179	40.5	2.6381
40-44	40	5	0.0046	0.0229	92964	2131	459745	0.9737	3360300	36.1	2.6185
45-49	45	5	0.0061	0.0299	90833	2718	447657	0.9652	2900555	31.9	2.6048

Age Group	x	n	$_nm_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	$_nS_x$	T_x	e_x	a_x
50-54	50	5	0.0081	0.0399	88116	3518	432082	0.9562	2452898	27.8	2.5854
55-59	55	5	0.0099	0.0485	84597	4099	413154	0.9414	2020816	23.9	2.6016
60-64	60	5	0.0146	0.0708	80498	5696	388956	0.9164	1607662	20.0	2.6240
65-69	65	5	0.0208	0.0993	74802	7424	356452	0.8738	1218706	16.3	2.6350
70-74	70	5	0.0345	0.1594	67378	10740	311464	0.8030	862253.3	12.8	2.6326
75-79	75	5	0.0556	0.2454	56638	13900	250114	0.6732	550788.8	9.7	2.6203
80-84	80	5	0.1071	0.4218	42739	18027	168377	0.5237	300674.8	7.0	2.4861
85-89	85	5	0.1517	0.5411	24712	13373	88171	0.3817	132297.9	5.4	2.3536
90-94	90	5	0.2416	0.7171	11339	8132	33653	0.2373	44126.49	3.9	2.1662
95+	95	5	0.3063	1.0000	3208	3208	10473	0.0000	10473.29	3.3	3.2651
Females											
<1	0	1	0.0108	0.0107	100000	1068	99068	0.9880	7594093	75.9	0.1278
1-4	1	4	0.0008	0.0033	98932	330	394941	0.9967	7495025	75.8	1.6206
5-9	5	5	0.0005	0.0026	98602	256	492368	0.9969	7100083	72.0	2.5000
10-14	10	5	0.0007	0.0037	98346	359	490829	0.9959	6607715	67.2	2.5000
15-19	15	5	0.0009	0.0047	97986	459	488817	0.9950	6116886	62.4	2.5737
20-24	20	5	0.0011	0.0052	97527	512	486363	0.9949	5628069	57.7	2.5148
25-29	25	5	0.0010	0.0051	97015	493	483859	0.9945	5141706	53.0	2.5321
30-34	30	5	0.0012	0.0062	96522	597	481186	0.9926	4657846	48.3	2.6117
35-39	35	5	0.0018	0.0088	95925	842	477637	0.9896	4176660	43.5	2.6372
40-44	40	5	0.0024	0.0121	95083	1153	472687	0.9857	3699023	38.9	2.6326
45-49	45	5	0.0034	0.0169	93931	1591	465919	0.9787	3226336	34.3	2.6535
50-54	50	5	0.0053	0.0260	92339	2403	455997	0.9708	2760417	29.9	2.6288
55-59	55	5	0.0067	0.0329	89936	2957	442697	0.9580	2304420	25.6	2.6388
60-64	60	5	0.0110	0.0535	86979	4652	424090	0.9326	1861723	21.4	2.6774
65-69	65	5	0.0175	0.0839	82327	6907	395506	0.8930	1437633	17.5	2.6646
70-74	70	5	0.0288	0.1348	75420	10164	353204	0.8309	1042127	13.8	2.6487
75-79	75	5	0.0475	0.2138	65256	13955	293487	0.7069	688923.4	10.6	2.6499
80-84	80	5	0.0951	0.3845	51302	19727	207465	0.5666	395436.1	7.7	2.5139
85-89	85	5	0.1316	0.4897	31575	15463	117542	0.4326	187971.1	6.0	2.3917
90-94	90	5	0.2107	0.6649	16112	10713	50852	0.2780	70429.55	4.4	2.2268
95+	95	5	0.2758	1.0000	5399	5399	19578	0.0000	19578.03	3.6	3.6261
Males											
<1	0	1	0.0121	0.0119	100000	1194	98956	0.9860	6864488	68.6	0.1252
1-4	1	4	0.0013	0.0051	98806	500	394033	0.9951	6765532	68.5	1.6170
5-9	5	5	0.0008	0.0039	98306	385	490568	0.9965	6371499	64.8	2.5000
10-14	10	5	0.0006	0.0031	97921	305	488844	0.9955	5880931	60.1	2.5000
15-19	15	5	0.0013	0.0065	97616	633	486661	0.9914	5392087	55.2	2.7563
20-24	20	5	0.0022	0.0108	96983	1043	482477	0.9874	4905426	50.6	2.6625
25-29	25	5	0.0029	0.0144	95940	1382	476392	0.9837	4422948	46.1	2.6065
30-34	30	5	0.0037	0.0184	94558	1738	468644	0.9782	3946556	41.7	2.6153
35-39	35	5	0.0052	0.0259	92820	2401	458417	0.9690	3477911	37.5	2.6337
40-44	40	5	0.0074	0.0365	90419	3299	444190	0.9590	3019495	33.4	2.6040
45-49	45	5	0.0093	0.0454	87120	3959	425980	0.9496	2575305	29.6	2.5704

Age Group	x	n	$_nm_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	$_nS_x$	T_x	e_x	a_x
50-54	50	5	0.0114	0.0556	83161	4621	404504	0.9399	2149325	25.8	2.5550
55-59	55	5	0.0136	0.0657	78539	5158	380191	0.9232	1744820	22.2	2.5755
60-64	60	5	0.0188	0.0899	73381	6597	350978	0.8985	1364629	18.6	2.5854
65-69	65	5	0.0247	0.1165	66785	7779	315348	0.8519	1013651	15.2	2.6121
70-74	70	5	0.0412	0.1875	59006	11065	268642	0.7717	698302.5	11.8	2.6152
75-79	75	5	0.0647	0.2800	47941	13422	207313	0.6388	429660.1	9.0	2.5867
80-84	80	5	0.1193	0.4576	34519	15797	132422	0.4823	222347	6.4	2.4569
85-89	85	5	0.1735	0.5920	18722	11083	63867	0.3297	89925.12	4.8	2.3163
90-94	90	5	0.2801	0.7721	7639	5898	21058	0.1919	26058.26	3.4	2.0943
95+	95	5	0.3482	1.0000	1741	1741	5000	0.0000	5000.493	2.9	2.8720
Lumbini											
Both Sexes											
<1	0	1	0.0199	0.0195	100000	1955	98259	0.9777	6971273	69.7	0.1096
1-4	1	4	0.0017	0.0067	98045	656	390603	0.9941	6873013	70.1	1.5950
5-9	5	5	0.0008	0.0039	97389	384	485986	0.9962	6482411	66.6	2.5000
10-14	10	5	0.0007	0.0036	97005	352	484146	0.9953	5996424	61.8	2.5000
15-19	15	5	0.0012	0.0062	96653	599	481875	0.9925	5512278	57.0	2.6782
20-24	20	5	0.0017	0.0086	96054	829	478285	0.9905	5030403	52.4	2.6024
25-29	25	5	0.0021	0.0103	95226	979	473753	0.9887	4552118	47.8	2.5744
30-34	30	5	0.0025	0.0126	94247	1184	468410	0.9848	4078365	43.3	2.6155
35-39	35	5	0.0037	0.0183	93063	1702	461293	0.9784	3609955	38.8	2.6391
40-44	40	5	0.0051	0.0253	91360	2308	451324	0.9700	3148662	34.5	2.6276
45-49	45	5	0.0072	0.0352	89052	3137	437778	0.9593	2697337	30.3	2.6148
50-54	50	5	0.0095	0.0466	85915	4003	419981	0.9460	2259559	26.3	2.6028
55-59	55	5	0.0129	0.0626	81912	5129	397316	0.9251	1839578	22.5	2.6126
60-64	60	5	0.0186	0.0891	76783	6845	367555	0.8950	1442263	18.8	2.6100
65-69	65	5	0.0264	0.1241	69938	8676	328951	0.8473	1074707	15.4	2.6097
70-74	70	5	0.0410	0.1867	61262	11440	278720	0.7792	745756.1	12.2	2.5884
75-79	75	5	0.0608	0.2649	49822	13199	217166	0.6587	467035.6	9.4	2.5798
80-84	80	5	0.1105	0.4318	36623	15812	143056	0.5143	249869.7	6.8	2.4665
85-89	85	5	0.1563	0.5527	20811	11502	73574	0.3648	106813.2	5.1	2.3499
90-94	90	5	0.2568	0.7404	9309	6892	26838	0.1926	33239.03	3.6	2.1406
95+	95	5	0.3775	1.0000	2417	2417	6401	0.0000	6401.357	2.6	2.6487
Females											
<1	0	1	0.0175	0.0173	100000	1727	98470	0.9801	7293723	72.9	0.1143
1-4	1	4	0.0016	0.0065	98273	638	391561	0.9944	7195252	73.2	1.6016
5-9	5	5	0.0007	0.0036	97635	352	487292	0.9963	6803692	69.7	2.5000
10-14	10	5	0.0008	0.0038	97282	373	485479	0.9954	6316400	64.9	2.5000
15-19	15	5	0.0011	0.0055	96909	536	483262	0.9940	5830921	60.2	2.6016
20-24	20	5	0.0013	0.0063	96373	607	480367	0.9936	5347659	55.5	2.5286
25-29	25	5	0.0013	0.0064	95766	615	477310	0.9933	4867293	50.8	2.5260
30-34	30	5	0.0015	0.0072	95151	688	474106	0.9912	4389983	46.1	2.6005
35-39	35	5	0.0021	0.0105	94464	995	469957	0.9881	3915876	41.5	2.6278
40-44	40	5	0.0027	0.0136	93468	1270	464348	0.9830	3445919	36.9	2.6431

Age Group	x	n	$_nm_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	$_nS_x$	T_x	e_x	a_x
45-49	45	5	0.0043	0.0214	92198	1975	456438	0.9719	2981571	32.3	2.6944
50-54	50	5	0.0073	0.0357	90224	3221	443590	0.9576	2525133	28.0	2.6633
55-59	55	5	0.0102	0.0497	87002	4327	424770	0.9392	2081543	23.9	2.6332
60-64	60	5	0.0152	0.0735	82675	6080	398964	0.9122	1656773	20.0	2.6294
65-69	65	5	0.0221	0.1049	76596	8035	363945	0.8679	1257809	16.4	2.6313
70-74	70	5	0.0357	0.1644	68561	11271	315878	0.8033	893863.7	13.0	2.6111
75-79	75	5	0.0538	0.2381	57290	13641	253731	0.6881	577986	10.1	2.6016
80-84	80	5	0.0995	0.3979	43649	17368	174597	0.5544	324254.7	7.4	2.4870
85-89	85	5	0.1366	0.5030	26281	13220	96798	0.4166	149657.5	5.7	2.3823
90-94	90	5	0.2216	0.6842	13061	8936	40328	0.2371	52859.81	4.0	2.2052
95+	95	5	0.3291	1.0000	4124	4124	12532	0.0000	12531.51	3.0	3.0384
Males											
<1	0	1	0.0220	0.0216	100000	2158	98069	0.9756	6655796	66.6	0.1054
1-4	1	4	0.0017	0.0069	97842	672	389748	0.9939	6557726	67.0	1.5890
5-9	5	5	0.0009	0.0042	97170	412	484820	0.9962	6167978	63.5	2.5000
10-14	10	5	0.0007	0.0034	96758	333	482957	0.9952	5683158	58.7	2.5000
15-19	15	5	0.0014	0.0069	96425	664	480629	0.9909	5200201	53.9	2.7485
20-24	20	5	0.0023	0.0115	95761	1097	476239	0.9866	4719571	49.3	2.6624
25-29	25	5	0.0031	0.0153	94664	1448	469847	0.9828	4243332	44.8	2.6036
30-34	30	5	0.0039	0.0194	93215	1805	461776	0.9768	3773485	40.5	2.6173
35-39	35	5	0.0056	0.0278	91411	2539	451045	0.9670	3311709	36.2	2.6343
40-44	40	5	0.0079	0.0387	88871	3436	436148	0.9553	2860664	32.2	2.6112
45-49	45	5	0.0104	0.0507	85435	4328	416645	0.9456	2424516	28.4	2.5665
50-54	50	5	0.0120	0.0584	81108	4738	393985	0.9338	2007871	24.8	2.5616
55-59	55	5	0.0157	0.0759	76370	5794	367917	0.9104	1613886	21.1	2.5955
60-64	60	5	0.0223	0.1057	70576	7457	334941	0.8768	1245969	17.7	2.5944
65-69	65	5	0.0310	0.1440	63119	9090	293685	0.8261	911028.9	14.4	2.5896
70-74	70	5	0.0466	0.2095	54029	11317	242603	0.7551	617344.4	11.4	2.5663
75-79	75	5	0.0679	0.2910	42712	12430	183197	0.6313	374741.7	8.8	2.5573
80-84	80	5	0.1211	0.4623	30282	14000	115654	0.4786	191544.8	6.3	2.4461
85-89	85	5	0.1758	0.5975	16281	9728	55347	0.3161	75890.81	4.7	2.3212
90-94	90	5	0.2976	0.7946	6553	5207	17496	0.1483	20543.36	3.1	2.0674
95+	95	5	0.4419	1.0000	1346	1346	3047	0.0000	3046.923	2.3	2.2631
Karnali											
Both Sexes											
<1	0	1	0.0140	0.0139	100000	1385	98783	0.9836	7242009	72.4	0.1213
1-4	1	4	0.0015	0.0061	98615	601	393023	0.9946	7143226	72.4	1.6115
5-9	5	5	0.0007	0.0037	98013	359	489170	0.9964	6750203	68.9	2.5000
10-14	10	5	0.0007	0.0036	97654	350	487397	0.9954	6261034	64.1	2.5000
15-19	15	5	0.0012	0.0060	97304	581	485158	0.9931	5773637	59.3	2.6547
20-24	20	5	0.0015	0.0076	96723	736	481825	0.9920	5288479	54.7	2.5690
25-29	25	5	0.0017	0.0084	95987	810	477966	0.9904	4806654	50.1	2.5705
30-34	30	5	0.0022	0.0108	95177	1032	473398	0.9880	4328688	45.5	2.5893
35-39	35	5	0.0027	0.0132	94145	1243	467731	0.9850	3855290	41.0	2.5914

Age Group	x	n	$_nm_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	$_nS_x$	T_x	e_x	a_x
40-44	40	5	0.0035	0.0172	92902	1599	460706	0.9795	3387559	36.5	2.6211
45-49	45	5	0.0049	0.0243	91303	2221	451241	0.9719	2926854	32.1	2.6255
50-54	50	5	0.0067	0.0328	89082	2921	438539	0.9585	2475613	27.8	2.6474
55-59	55	5	0.0107	0.0521	86161	4486	420340	0.9349	2037074	23.6	2.6666
60-64	60	5	0.0165	0.0793	81676	6477	392982	0.9077	1616735	19.8	2.6229
65-69	65	5	0.0227	0.1077	75199	8099	356709	0.8642	1223753	16.3	2.6191
70-74	70	5	0.0366	0.1683	67099	11292	308280	0.8082	867043.7	12.9	2.5897
75-79	75	5	0.0504	0.2249	55807	12551	249152	0.6855	558763.7	10.0	2.6190
80-84	80	5	0.1073	0.4236	43256	18324	170787	0.5090	309612	7.2	2.5173
85-89	85	5	0.1601	0.5581	24932	13914	86933	0.4126	138825.1	5.6	2.2887
90-94	90	5	0.1928	0.6277	11018	6915	35866	0.3088	51892.53	4.7	2.2204
95+	95	5	0.2560	1.0000	4102	4102	16027	0.0000	16026.8	3.9	3.9070
Females											
<1	0	1	0.0124	0.0122	100000	1223	98929	0.9854	7562222	75.6	0.1246
1-4	1	4	0.0014	0.0056	98777	552	393790	0.9952	7463293	75.6	1.6162
5-9	5	5	0.0006	0.0030	98224	299	490376	0.9967	7069503	72.0	2.5000
10-14	10	5	0.0007	0.0036	97926	354	488745	0.9954	6579127	67.2	2.5000
15-19	15	5	0.0012	0.0059	97572	579	486474	0.9938	6090383	62.4	2.6074
20-24	20	5	0.0012	0.0061	96993	593	483448	0.9947	5603909	57.8	2.4452
25-29	25	5	0.0009	0.0046	96400	446	480880	0.9949	5120460	53.1	2.4913
30-34	30	5	0.0012	0.0059	95954	568	478417	0.9929	4639581	48.4	2.6196
35-39	35	5	0.0017	0.0083	95386	791	475042	0.9907	4161164	43.6	2.6162
40-44	40	5	0.0021	0.0105	94594	992	470609	0.9875	3686122	39.0	2.6200
45-49	45	5	0.0030	0.0150	93602	1407	464733	0.9808	3215513	34.4	2.6718
50-54	50	5	0.0050	0.0245	92195	2260	455804	0.9668	2750780	29.8	2.7123
55-59	55	5	0.0088	0.0432	89935	3885	440694	0.9463	2294976	25.5	2.6885
60-64	60	5	0.0134	0.0648	86050	5580	417010	0.9241	1854282	21.5	2.6274
65-69	65	5	0.0186	0.0889	80470	7158	385354	0.8884	1437272	17.9	2.6256
70-74	70	5	0.0294	0.1375	73312	10079	342354	0.8444	1051918	14.3	2.5983
75-79	75	5	0.0400	0.1827	63233	11553	289092	0.7281	709563.2	11.2	2.6566
80-84	80	5	0.0931	0.3792	51680	19595	210483	0.5636	420470.8	8.1	2.5547
85-89	85	5	0.1318	0.4873	32085	15635	118627	0.4914	209988.3	6.5	2.3268
90-94	90	5	0.1514	0.5366	16449	8827	58290	0.3620	91361.36	5.6	2.2859
95+	95	5	0.2305	1.0000	7623	7623	33071	0.0000	33071.04	4.3	4.3385
Males											
<1	0	1	0.0155	0.0153	100000	1528	98653	0.9820	6950192	69.5	0.1184
1-4	1	4	0.0016	0.0066	98472	646	392341	0.9941	6851539	69.6	1.6074
5-9	5	5	0.0009	0.0042	97826	416	488089	0.9961	6459198	66.0	2.5000
10-14	10	5	0.0007	0.0036	97410	347	486182	0.9955	5971109	61.3	2.5000
15-19	15	5	0.0012	0.0060	97063	584	483972	0.9924	5484927	56.5	2.6993
20-24	20	5	0.0019	0.0094	96479	903	480278	0.9890	5000955	51.8	2.6528
25-29	25	5	0.0026	0.0127	95577	1215	474983	0.9854	4520677	47.3	2.6122
30-34	30	5	0.0033	0.0164	94362	1546	468060	0.9824	4045694	42.9	2.5758
35-39	35	5	0.0038	0.0188	92815	1749	459844	0.9784	3577634	38.5	2.5802

Age Group	x	n	$_nm_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	$_nS_x$	T_x	e_x	a_x
40-44	40	5	0.0050	0.0249	91066	2270	449921	0.9704	3117790	34.2	2.6165
45-49	45	5	0.0070	0.0344	88796	3056	436625	0.9624	2667868	30.0	2.5923
50-54	50	5	0.0084	0.0413	85741	3540	420219	0.9501	2231243	26.0	2.6035
55-59	55	5	0.0125	0.0608	82200	4997	399261	0.9236	1811025	22.0	2.6505
60-64	60	5	0.0197	0.0939	77203	7252	368749	0.8911	1411764	18.3	2.6192
65-69	65	5	0.0270	0.1268	69951	8872	328596	0.8385	1043015	14.9	2.6152
70-74	70	5	0.0448	0.2020	61079	12338	275527	0.7693	714418.5	11.7	2.5793
75-79	75	5	0.0618	0.2688	48741	13103	211970	0.6443	438891.2	9.0	2.5783
80-84	80	5	0.1210	0.4636	35637	16521	136564	0.4612	226921.3	6.4	2.4807
85-89	85	5	0.1889	0.6225	19116	11899	62983	0.3315	90357.39	4.7	2.2605
90-94	90	5	0.2535	0.7332	7217	5292	20878	0.2373	27374.4	3.8	2.1260
95+	95	5	0.2964	1.0000	1926	1926	6496	0.0000	6496.49	3.4	3.3739
Sudurpashchim											
Both Sexes											
<1	0	1	0.0170	0.0167	100000	1675	98519	0.9806	7127552	71.3	0.1154
1-4	1	4	0.0016	0.0064	98325	629	391794	0.9944	7029033	71.5	1.6031
5-9	5	5	0.0008	0.0038	97697	370	487557	0.9961	6637239	67.9	2.5000
10-14	10	5	0.0008	0.0040	97326	388	485660	0.9952	6149682	63.2	2.5000
15-19	15	5	0.0012	0.0060	96938	586	483316	0.9927	5664022	58.4	2.6588
20-24	20	5	0.0017	0.0086	96351	832	479772	0.9903	5180706	53.8	2.6148
25-29	25	5	0.0021	0.0107	95519	1018	475128	0.9885	4700934	49.2	2.5742
30-34	30	5	0.0025	0.0126	94501	1188	469642	0.9856	4225806	44.7	2.5876
35-39	35	5	0.0033	0.0166	93314	1549	462872	0.9807	3756164	40.3	2.6132
40-44	40	5	0.0045	0.0223	91765	2044	453952	0.9740	3293292	35.9	2.6156
45-49	45	5	0.0061	0.0300	89721	2695	442148	0.9660	2839340	31.6	2.6034
50-54	50	5	0.0079	0.0386	87026	3357	427111	0.9541	2397192	27.5	2.6106
55-59	55	5	0.0112	0.0546	83670	4569	407523	0.9340	1970081	23.5	2.6306
60-64	60	5	0.0165	0.0792	79101	6263	380633	0.9046	1562557	19.8	2.6255
65-69	65	5	0.0241	0.1141	72838	8310	344335	0.8624	1181925	16.2	2.6108
70-74	70	5	0.0356	0.1641	64528	10587	296964	0.8129	837589.6	13.0	2.5747
75-79	75	5	0.0493	0.2207	53941	11907	241393	0.6906	540626	10.0	2.6222
80-84	80	5	0.1049	0.4162	42034	17495	166697	0.5247	299232.5	7.1	2.5151
85-89	85	5	0.1514	0.5398	24539	13247	87469	0.3976	132535.2	5.4	2.3407
90-94	90	5	0.2222	0.6842	11292	7726	34778	0.2283	45065.99	4.0	2.1934
95+	95	5	0.3467	1.0000	3566	3566	10288	0.0000	10287.89	2.9	2.8847
Females											
<1	0	1	0.0150	0.0148	100000	1479	98697	0.9830	7541315	75.4	0.1194
1-4	1	4	0.0014	0.0054	98521	533	392807	0.9951	7442618	75.5	1.6088
5-9	5	5	0.0007	0.0034	97987	336	489096	0.9963	7049811	71.9	2.5000
10-14	10	5	0.0008	0.0039	97651	386	487291	0.9954	6560715	67.2	2.5000
15-19	15	5	0.0011	0.0054	97266	526	485066	0.9940	6073423	62.4	2.6032
20-24	20	5	0.0013	0.0065	96739	633	482136	0.9934	5588358	57.8	2.5357
25-29	25	5	0.0013	0.0065	96106	625	478977	0.9933	5106222	53.1	2.5134
30-34	30	5	0.0014	0.0071	95481	675	475764	0.9920	4627245	48.5	2.5686

Age Group	x	n	$_nm_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	$_nS_x$	T_x	e_x	a_x
35-39	35	5	0.0018	0.0092	94806	869	471961	0.9892	4151481	43.8	2.6173
40-44	40	5	0.0025	0.0126	93938	1184	466875	0.9853	3679519	39.2	2.6245
45-49	45	5	0.0034	0.0170	92753	1578	460031	0.9796	3212645	34.6	2.6336
50-54	50	5	0.0050	0.0246	91175	2247	450642	0.9681	2752614	30.2	2.6716
55-59	55	5	0.0082	0.0403	88928	3585	436263	0.9515	2301971	25.9	2.6637
60-64	60	5	0.0119	0.0578	85343	4932	415124	0.9269	1865708	21.9	2.6500
65-69	65	5	0.0190	0.0910	80411	7316	384780	0.8897	1450585	18.0	2.6387
70-74	70	5	0.0280	0.1310	73095	9573	342356	0.8522	1065804	14.6	2.5850
75-79	75	5	0.0378	0.1737	63522	11032	291751	0.7430	723448.2	11.4	2.6561
80-84	80	5	0.0864	0.3566	52490	18718	216768	0.5947	431697.1	8.2	2.5596
85-89	85	5	0.1194	0.4557	33771	15391	128908	0.4783	214929.4	6.4	2.4045
90-94	90	5	0.1802	0.6044	18380	11109	61662	0.2832	86021.48	4.7	2.2779
95+	95	5	0.2985	1.0000	7272	7272	24359	0.0000	24359.09	3.3	3.3499
Males											
<1	0	1	0.0187	0.0184	100000	1838	98368	0.9786	6727137	67.3	0.1120
1-4	1	4	0.0018	0.0073	98162	713	390936	0.9937	6628769	67.5	1.5984
5-9	5	5	0.0008	0.0041	97449	402	486242	0.9959	6237833	64.0	2.5000
10-14	10	5	0.0008	0.0040	97048	391	484260	0.9949	5751590	59.3	2.5000
15-19	15	5	0.0014	0.0068	96657	654	481789	0.9910	5267330	54.5	2.7149
20-24	20	5	0.0023	0.0114	96003	1096	477467	0.9862	4785541	49.8	2.6758
25-29	25	5	0.0032	0.0160	94907	1520	470893	0.9823	4308074	45.4	2.6055
30-34	30	5	0.0039	0.0195	93386	1820	462548	0.9776	3837180	41.1	2.5916
35-39	35	5	0.0052	0.0257	91566	2358	452184	0.9705	3374632	36.9	2.6045
40-44	40	5	0.0068	0.0337	89209	3005	438851	0.9605	2922448	32.8	2.6064
45-49	45	5	0.0093	0.0455	86204	3922	421538	0.9502	2483598	28.8	2.5822
50-54	50	5	0.0112	0.0543	82282	4467	400551	0.9389	2062060	25.1	2.5686
55-59	55	5	0.0145	0.0699	77816	5437	376072	0.9150	1661509	21.4	2.6077
60-64	60	5	0.0216	0.1027	72379	7436	344102	0.8800	1285437	17.8	2.6073
65-69	65	5	0.0300	0.1401	64943	9096	302819	0.8300	941334.8	14.5	2.5928
70-74	70	5	0.0455	0.2050	55847	11447	251330	0.7652	638516	11.4	2.5621
75-79	75	5	0.0638	0.2765	44400	12275	192326	0.6304	387186.1	8.7	2.5824
80-84	80	5	0.1280	0.4832	32126	15523	121245	0.4495	194860.1	6.1	2.4629
85-89	85	5	0.1921	0.6306	16603	10470	54501	0.2991	73614.63	4.4	2.2765
90-94	90	5	0.2991	0.7949	6133	4875	16302	0.1471	19113.87	3.1	2.0537
95+	95	5	0.4473	1.0000	1258	1258	2812	0.0000	2812.034	2.2	2.2355

Table A4.2 Life tables for ecological zone, NPHC 2021

Age Group	x	n	$_nm_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	$_nS_x$	T_x	e_x	a_x
Mountain											
Both Sexes											
<1	0	1	0.0172	0.0169	100000	1695	98500	0.9798	7242454	72.4	0.1150
1-4	1	4	0.0019	0.0078	98305	762	391394	0.9935	7143954	72.7	1.6026
5-9	5	5	0.0008	0.0042	97543	407	486698	0.9960	6752560	69.2	2.5000
10-14	10	5	0.0008	0.0038	97136	367	484763	0.9952	6265862	64.5	2.5000
15-19	15	5	0.0012	0.0062	96769	600	482442	0.9927	5781098	59.7	2.6619
20-24	20	5	0.0017	0.0083	96169	799	478926	0.9908	5298656	55.1	2.5979
25-29	25	5	0.0020	0.0101	95370	960	474512	0.9892	4819730	50.5	2.5649
30-34	30	5	0.0023	0.0116	94410	1092	469388	0.9874	4345218	46.0	2.5620
35-39	35	5	0.0028	0.0138	93318	1292	463486	0.9838	3875831	41.5	2.5984
40-44	40	5	0.0038	0.0190	92026	1749	455994	0.9769	3412344	37.1	2.6359
45-49	45	5	0.0056	0.0275	90277	2479	445479	0.9689	2956351	32.7	2.6178
50-54	50	5	0.0071	0.0351	87798	3081	431620	0.9586	2510872	28.6	2.6080
55-59	55	5	0.0100	0.0490	84717	4151	413762	0.9399	2079252	24.5	2.6338
60-64	60	5	0.0150	0.0724	80566	5832	388883	0.9177	1665489	20.7	2.6087
65-69	65	5	0.0196	0.0938	74733	7011	356879	0.8850	1276607	17.1	2.6054
70-74	70	5	0.0303	0.1412	67723	9562	315832	0.8293	919728	13.6	2.6175
75-79	75	5	0.0467	0.2105	58161	12243	261913	0.7105	603896	10.4	2.6404
80-84	80	5	0.0948	0.3842	45917	17641	186089	0.5541	341983	7.4	2.5343
85-89	85	5	0.1422	0.5187	28276	14667	103116	0.3993	155894	5.5	2.3912
90-94	90	5	0.2332	0.7056	13609	9602	41174	0.2199	52778	3.9	2.2017
95+	95	5	0.3453	1.0000	4007	4007	11603	0.0000	11603	2.9	2.8960
Females											
<1	0	1	0.0157	0.0155	100000	1553	98630	0.9814	7525173	75.3	0.1179
1-4	1	4	0.0018	0.0072	98447	709	392091	0.9940	7426543	75.4	1.6067
5-9	5	5	0.0007	0.0037	97738	365	487778	0.9964	7034452	72.0	2.5000
10-14	10	5	0.0007	0.0036	97373	346	486001	0.9955	6546673	67.2	2.5000
15-19	15	5	0.0011	0.0057	97027	556	483813	0.9939	6060672	62.5	2.6182
20-24	20	5	0.0013	0.0063	96472	611	480851	0.9935	5576859	57.8	2.5311
25-29	25	5	0.0014	0.0067	95861	645	477722	0.9927	5096009	53.2	2.5464
30-34	30	5	0.0016	0.0080	95216	763	474233	0.9911	4618286	48.5	2.5798
35-39	35	5	0.0020	0.0100	94453	946	469993	0.9887	4144053	43.9	2.5965
40-44	40	5	0.0026	0.0130	93507	1212	464681	0.9836	3674060	39.3	2.6436
45-49	45	5	0.0041	0.0204	92295	1881	457064	0.9760	3209379	34.8	2.6537
50-54	50	5	0.0057	0.0280	90415	2536	446087	0.9656	2752316	30.4	2.6390
55-59	55	5	0.0085	0.0416	87879	3656	430753	0.9506	2306229	26.2	2.6361
60-64	60	5	0.0119	0.0578	84223	4870	409470	0.9332	1875476	22.3	2.6090
65-69	65	5	0.0161	0.0777	79353	6163	382101	0.9041	1466006	18.5	2.6207
70-74	70	5	0.0249	0.1178	73190	8618	345476	0.8591	1083906	14.8	2.6244
75-79	75	5	0.0376	0.1729	64572	11162	296799	0.7537	738429	11.4	2.6653

Age Group	x	n	$_nm_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	$_nS_x$	T_x	e_x	a_x
80-84	80	5	0.0803	0.3364	53410	17968	223691	0.5958	441631	8.3	2.5868
85-89	85	5	0.1274	0.4790	35442	16977	133284	0.4581	217939	6.1	2.4125
90-94	90	5	0.1886	0.6237	18466	11516	61061	0.2787	84655	4.6	2.2849
95+	95	5	0.2946	1.0000	6950	6950	23594	0.0000	23594	3.4	3.3950
Males											
<1	0	1	0.0185	0.0182	100000	1820	98385	0.9783	6983268	69.8	0.1124
1-4	1	4	0.0021	0.0083	98180	812	390771	0.9930	6884883	70.1	1.5989
5-9	5	5	0.0009	0.0046	97368	447	485725	0.9957	6494112	66.7	2.5000
10-14	10	5	0.0008	0.0040	96922	389	483637	0.9949	6008387	62.0	2.5000
15-19	15	5	0.0013	0.0067	96533	646	481177	0.9914	5524750	57.2	2.6980
20-24	20	5	0.0021	0.0105	95887	1005	477062	0.9879	5043573	52.6	2.6417
25-29	25	5	0.0027	0.0135	94881	1277	471307	0.9857	4566510	48.1	2.5720
30-34	30	5	0.0031	0.0152	93605	1421	464547	0.9837	4095203	43.8	2.5532
35-39	35	5	0.0036	0.0179	92184	1648	456969	0.9786	3630657	39.4	2.6023
40-44	40	5	0.0052	0.0256	90536	2317	447194	0.9697	3173687	35.1	2.6315
45-49	45	5	0.0071	0.0351	88220	3095	433645	0.9614	2726493	30.9	2.5919
50-54	50	5	0.0086	0.0424	85125	3606	416907	0.9515	2292848	26.9	2.5829
55-59	55	5	0.0116	0.0564	81518	4597	396699	0.9291	1875941	23.0	2.6304
60-64	60	5	0.0182	0.0870	76922	6694	368592	0.9021	1479242	19.2	2.6075
65-69	65	5	0.0233	0.1102	70227	7741	332525	0.8646	1110650	15.8	2.5956
70-74	70	5	0.0363	0.1669	62486	10430	287515	0.7968	778125	12.5	2.6110
75-79	75	5	0.0570	0.2509	52057	13059	229104	0.6667	490610	9.4	2.6124
80-84	80	5	0.1100	0.4309	38998	16805	152735	0.5118	261506	6.7	2.4856
85-89	85	5	0.1599	0.5630	22193	12495	78165	0.3317	108771	4.9	2.3750
90-94	90	5	0.2986	0.7983	9698	7742	25929	0.1528	30606	3.2	2.0859
95+	95	5	0.4182	1.0000	1956	1956	4677	0.0000	4677	2.4	2.3914
Hill											
Both Sexes											
<1	0	1	0.0128	0.0127	100000	1270	98887	0.9853	7233521	72.3	0.1237
1-4	1	4	0.0012	0.0049	98730	480	393777	0.9954	7134633	72.3	1.6148
5-9	5	5	0.0007	0.0034	98251	333	490420	0.9967	6740856	68.6	2.5000
10-14	10	5	0.0007	0.0033	97917	322	488782	0.9960	6250436	63.8	2.5000
15-19	15	5	0.0010	0.0050	97595	485	486836	0.9941	5761654	59.0	2.6493
20-24	20	5	0.0014	0.0068	97110	660	483970	0.9924	5274818	54.3	2.6054
25-29	25	5	0.0017	0.0083	96450	805	480306	0.9908	4790848	49.7	2.5842
30-34	30	5	0.0021	0.0103	95645	988	475870	0.9876	4310542	45.1	2.6163
35-39	35	5	0.0030	0.0148	94657	1405	469966	0.9824	3834672	40.5	2.6387
40-44	40	5	0.0042	0.0206	93252	1923	461686	0.9761	3364706	36.1	2.6213
45-49	45	5	0.0056	0.0275	91329	2514	450654	0.9676	2903020	31.8	2.6167
50-54	50	5	0.0077	0.0379	88815	3362	436040	0.9566	2452366	27.6	2.6104
55-59	55	5	0.0102	0.0500	85453	4270	417110	0.9390	2016326	23.6	2.6222
60-64	60	5	0.0154	0.0741	81183	6016	391652	0.9116	1599217	19.7	2.6294

Age Group	x	n	$_nm_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	$_nS_x$	T_x	e_x	a_x
65-69	65	5	0.0222	0.1055	75167	7933	357048	0.8669	1207564	16.1	2.6317
70-74	70	5	0.0361	0.1662	67234	11173	309519	0.8002	850516	12.7	2.6146
75-79	75	5	0.0552	0.2441	56061	13682	247662	0.6723	540998	9.7	2.6142
80-84	80	5	0.1085	0.4263	42379	18068	166507	0.5181	293335	6.9	2.4880
85-89	85	5	0.1543	0.5477	24311	13315	86273	0.3741	126828	5.2	2.3502
90-94	90	5	0.2474	0.7261	10996	7984	32275	0.2042	40556	3.7	2.1563
95+	95	5	0.3637	1.0000	3012	3012	8281	0.0000	8281	2.7	2.7495
Females											
<1	0	1	0.0117	0.0116	100000	1155	98990	0.9865	7549359	75.5	0.1260
1-4	1	4	0.0012	0.0047	98845	462	394279	0.9958	7450368	75.4	1.6181
5-9	5	5	0.0006	0.0029	98383	289	491192	0.9969	7056089	71.7	2.5000
10-14	10	5	0.0007	0.0033	98094	320	489670	0.9964	6564897	66.9	2.5000
15-19	15	5	0.0008	0.0041	97774	402	487897	0.9955	6075227	62.1	2.5806
20-24	20	5	0.0010	0.0048	97372	472	485703	0.9950	5587330	57.4	2.5464
25-29	25	5	0.0010	0.0052	96900	502	483275	0.9943	5101628	52.6	2.5565
30-34	30	5	0.0013	0.0064	96398	618	480513	0.9924	4618353	47.9	2.6102
35-39	35	5	0.0018	0.0089	95780	852	476876	0.9897	4137840	43.2	2.6263
40-44	40	5	0.0024	0.0119	94928	1133	471953	0.9858	3660964	38.6	2.6314
45-49	45	5	0.0034	0.0171	93794	1600	465237	0.9781	3189011	34.0	2.6664
50-54	50	5	0.0055	0.0273	92194	2514	455070	0.9681	2723774	29.5	2.6530
55-59	55	5	0.0076	0.0372	89680	3337	440556	0.9527	2268703	25.3	2.6494
60-64	60	5	0.0122	0.0594	86343	5125	419726	0.9271	1828147	21.2	2.6607
65-69	65	5	0.0185	0.0887	81218	7203	389117	0.8894	1408421	17.3	2.6434
70-74	70	5	0.0292	0.1368	74015	10122	346073	0.8332	1019303	13.8	2.6285
75-79	75	5	0.0459	0.2074	63893	13249	288357	0.7094	673231	10.5	2.6519
80-84	80	5	0.0960	0.3877	50645	19636	204571	0.5618	384874	7.6	2.5223
85-89	85	5	0.1336	0.4950	31008	15350	114935	0.4285	180302	5.8	2.3872
90-94	90	5	0.2124	0.6679	15658	10458	49248	0.2466	65367	4.2	2.2230
95+	95	5	0.3226	1.0000	5200	5200	16119	0.0000	16119	3.1	3.0999
Males											
<1	0	1	0.0139	0.0137	100000	1371	98795	0.9843	6931488	69.3	0.1216
1-4	1	4	0.0013	0.0050	98629	496	393330	0.9951	6832693	69.3	1.6119
5-9	5	5	0.0008	0.0038	98133	373	489730	0.9964	6439363	65.6	2.5000
10-14	10	5	0.0007	0.0033	97759	324	487986	0.9957	5949633	60.9	2.5000
15-19	15	5	0.0012	0.0058	97435	568	485872	0.9926	5461647	56.1	2.7052
20-24	20	5	0.0018	0.0090	96867	868	482293	0.9895	4975774	51.4	2.6474
25-29	25	5	0.0024	0.0120	95999	1153	477229	0.9867	4493482	46.8	2.6007
30-34	30	5	0.0030	0.0148	94846	1408	470876	0.9820	4016253	42.3	2.6175
35-39	35	5	0.0044	0.0217	93438	2023	462420	0.9740	3545377	37.9	2.6424
40-44	40	5	0.0062	0.0305	91415	2787	450418	0.9652	3082957	33.7	2.6124
45-49	45	5	0.0080	0.0392	88627	3471	434751	0.9561	2632539	29.7	2.5843
50-54	50	5	0.0100	0.0490	85156	4176	415680	0.9446	2197788	25.8	2.5811

Age Group	x	n	$_nm_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	$_nS_x$	T_x	e_x	a_x
55-59	55	5	0.0130	0.0632	80980	5115	392638	0.9247	1782108	22.0	2.6024
60-64	60	5	0.0187	0.0895	75865	6793	363069	0.8954	1389471	18.3	2.6069
65-69	65	5	0.0262	0.1235	69072	8530	325088	0.8422	1026402	14.9	2.6236
70-74	70	5	0.0440	0.1991	60542	12055	273783	0.7632	701314	11.6	2.6005
75-79	75	5	0.0660	0.2846	48487	13799	208963	0.6334	427531	8.8	2.5745
80-84	80	5	0.1218	0.4649	34688	16126	132366	0.4740	218568	6.3	2.4531
85-89	85	5	0.1783	0.6027	18561	11186	62736	0.3160	86201	4.6	2.3118
90-94	90	5	0.2936	0.7894	7375	5822	19827	0.1551	23466	3.2	2.0715
95+	95	5	0.4270	1.0000	1553	1553	3638	0.0000	3638	2.3	2.3422
Tarai											
Both Sexes											
<1	0	1	0.0195	0.0192	100000	1917	98295	0.9783	7064807	70.6	0.1104
1-4	1	4	0.0016	0.0063	98083	619	390845	0.9944	6966512	71.0	1.5961
5-9	5	5	0.0007	0.0037	97464	362	486415	0.9963	6575667	67.5	2.5000
10-14	10	5	0.0007	0.0037	97102	361	484608	0.9954	6089252	62.7	2.5000
15-19	15	5	0.0012	0.0059	96741	572	482362	0.9931	5604645	57.9	2.6505
20-24	20	5	0.0016	0.0077	96169	743	479050	0.9917	5122282	53.3	2.5826
25-29	25	5	0.0018	0.0089	95426	850	475065	0.9902	4643232	48.7	2.5701
30-34	30	5	0.0022	0.0110	94576	1040	470394	0.9870	4168167	44.1	2.6105
35-39	35	5	0.0031	0.0154	93536	1444	464260	0.9818	3697773	39.5	2.6324
40-44	40	5	0.0043	0.0213	92092	1963	455803	0.9748	3233512	35.1	2.6275
45-49	45	5	0.0060	0.0295	90129	2660	444330	0.9651	2777709	30.8	2.6260
50-54	50	5	0.0084	0.0411	87469	3591	428832	0.9507	2333379	26.7	2.6295
55-59	55	5	0.0121	0.0589	83878	4942	407707	0.9279	1904547	22.7	2.6362
60-64	60	5	0.0182	0.0871	78936	6876	378291	0.8977	1496840	19.0	2.6168
65-69	65	5	0.0255	0.1200	72060	8647	339605	0.8532	1118548	15.5	2.6069
70-74	70	5	0.0392	0.1790	63412	11349	289738	0.7876	778943	12.3	2.5923
75-79	75	5	0.0587	0.2571	52064	13385	228193	0.6578	489206	9.4	2.5999
80-84	80	5	0.1137	0.4414	38679	17071	150102	0.5114	261013	6.7	2.4640
85-89	85	5	0.1539	0.5467	21608	11813	76759	0.3649	110911	5.1	2.3522
90-94	90	5	0.2607	0.7456	9794	7303	28012	0.1798	34152	3.5	2.1297
95+	95	5	0.4058	1.0000	2492	2492	6140	0.0000	6140	2.5	2.4641
Females											
<1	0	1	0.0170	0.0168	100000	1676	98517	0.9808	7326339	73.3	0.1153
1-4	1	4	0.0015	0.0060	98324	594	391870	0.9947	7227822	73.5	1.6031
5-9	5	5	0.0007	0.0036	97729	353	487766	0.9962	6835952	69.9	2.5000
10-14	10	5	0.0008	0.0039	97377	380	485934	0.9953	6348186	65.2	2.5000
15-19	15	5	0.0011	0.0056	96997	545	483666	0.9942	5862252	60.4	2.5817
20-24	20	5	0.0012	0.0058	96452	563	480859	0.9941	5378586	55.8	2.5123
25-29	25	5	0.0012	0.0060	95889	578	478019	0.9936	4897726	51.1	2.5332
30-34	30	5	0.0014	0.0069	95311	660	474966	0.9919	4419707	46.4	2.5923
35-39	35	5	0.0019	0.0095	94651	899	471118	0.9890	3944740	41.7	2.6240

Age Group	x	n	$_nm_x$	$_nq_x$	l_x	$_nd_x$	$_nL_x$	$_nS_x$	T_x	e_x	a_x
40-44	40	5	0.0026	0.0128	93752	1197	465945	0.9841	3473622	37.1	2.6497
45-49	45	5	0.0040	0.0199	92555	1842	458516	0.9742	3007677	32.5	2.6893
50-54	50	5	0.0066	0.0327	90712	2964	446673	0.9598	2549161	28.1	2.6757
55-59	55	5	0.0100	0.0487	87749	4278	428716	0.9391	2102488	24.0	2.6558
60-64	60	5	0.0155	0.0747	83471	6236	402593	0.9115	1673772	20.1	2.6326
65-69	65	5	0.0220	0.1046	77235	8078	366969	0.8701	1271179	16.5	2.6222
70-74	70	5	0.0347	0.1602	69158	11079	319311	0.8076	904210	13.1	2.6102
75-79	75	5	0.0529	0.2347	58078	13631	257890	0.6847	584898	10.1	2.6155
80-84	80	5	0.1025	0.4072	44447	18099	176579	0.5548	327009	7.4	2.4772
85-89	85	5	0.1321	0.4910	26349	12938	97972	0.4188	150430	5.7	2.3897
90-94	90	5	0.2261	0.6916	13411	9275	41027	0.2179	52458	3.9	2.1938
95+	95	5	0.3618	1.0000	4136	4136	11431	0.0000	11431	2.8	2.7638
Males											
<1	0	1	0.0216	0.0212	100000	2121	98104	0.9761	6818257	68.2	0.1061
1-4	1	4	0.0016	0.0066	97879	641	389969	0.9942	6720153	68.7	1.5901
5-9	5	5	0.0008	0.0038	97237	371	485259	0.9963	6330184	65.1	2.5000
10-14	10	5	0.0007	0.0035	96866	343	483475	0.9954	5844925	60.3	2.5000
15-19	15	5	0.0012	0.0062	96524	598	481249	0.9920	5361450	55.5	2.7123
20-24	20	5	0.0020	0.0099	95925	950	477388	0.9888	4880200	50.9	2.6422
25-29	25	5	0.0025	0.0125	94976	1185	472030	0.9859	4402813	46.4	2.5958
30-34	30	5	0.0032	0.0160	93791	1503	465372	0.9810	3930783	41.9	2.6166
35-39	35	5	0.0045	0.0224	92288	2071	456521	0.9737	3465410	37.6	2.6255
40-44	40	5	0.0062	0.0304	90217	2744	444518	0.9651	3008889	33.4	2.6073
45-49	45	5	0.0081	0.0396	87473	3465	429000	0.9558	2564370	29.3	2.5863
50-54	50	5	0.0101	0.0494	84008	4153	410059	0.9419	2135370	25.4	2.5967
55-59	55	5	0.0142	0.0688	79855	5491	386216	0.9167	1725311	21.6	2.6217
60-64	60	5	0.0209	0.0997	74364	7415	354056	0.8839	1339096	18.0	2.6044
65-69	65	5	0.0289	0.1353	66949	9056	312943	0.8365	985039	14.7	2.5927
70-74	70	5	0.0436	0.1973	57893	11423	261765	0.7684	672096	11.6	2.5753
75-79	75	5	0.0643	0.2781	46470	12923	201134	0.6330	410331	8.8	2.5846
80-84	80	5	0.1245	0.4727	33546	15856	127312	0.4717	209198	6.2	2.4508
85-89	85	5	0.1763	0.5985	17690	10588	60048	0.3128	81886	4.6	2.3175
90-94	90	5	0.3024	0.7997	7102	5680	18783	0.1399	21838	3.1	2.0548
95+	95	5	0.4655	1.0000	1422	1422	3055	0.0000	3055	2.1	2.1482

Table A4.3 Life tables for urban rural area, NPHC 2021

Age Group	x	n	nmx	nqx	lx	ndx	nLx	nSx	Tx	ex	ax
Urban											
Both Sexes											
<1	0	1	0.0125	0.0124	100000	1238	98916	0.9859	7143353	71.4	0.1243
1-4	1	4	0.0011	0.0043	98762	427	394031	0.9960	7044436	71.3	1.6158
5-9	5	5	0.0006	0.0028	98335	271	490998	0.9971	6650405	67.6	2.5000
10-14	10	5	0.0006	0.0030	98064	297	489577	0.9967	6159407	62.8	2.5000
15-19	15	5	0.0007	0.0037	97767	363	487963	0.9957	5669830	58.0	2.5998
20-24	20	5	0.0010	0.0049	97404	480	485875	0.9943	5181867	53.2	2.6165
25-29	25	5	0.0013	0.0066	96924	635	483111	0.9923	4695991	48.5	2.6237
30-34	30	5	0.0018	0.0090	96289	869	479387	0.9894	4212880	43.8	2.6299
35-39	35	5	0.0025	0.0124	95420	1184	474309	0.9850	3733494	39.1	2.6409
40-44	40	5	0.0037	0.0181	94237	1707	467188	0.9775	3259184	34.6	2.6597
45-49	45	5	0.0056	0.0275	92530	2544	456656	0.9676	2791996	30.2	2.6451
50-54	50	5	0.0078	0.0381	89985	3426	441871	0.9521	2335340	26.0	2.6485
55-59	55	5	0.0123	0.0597	86560	5168	420689	0.9266	1893469	21.9	2.6568
60-64	60	5	0.0186	0.0891	81392	7254	389814	0.8904	1472780	18.1	2.6365
65-69	65	5	0.0285	0.1334	74138	9890	347094	0.8391	1082966	14.6	2.6143
70-74	70	5	0.0428	0.1942	64248	12475	291249	0.7610	735872	11.5	2.5961
75-79	75	5	0.0694	0.2969	51772	15372	221649	0.6219	444623	8.6	2.5792
80-84	80	5	0.1253	0.4746	36400	17275	137851	0.4637	222974	6.1	2.4442
85-89	85	5	0.1858	0.6209	19125	11875	63916	0.2739	85123	4.5	2.3295
90-94	90	5	0.3544	0.8557	7251	6204	17506	0.1746	21207	2.9	1.9782
95+	95	5	0.2827	1.0000	1046	1046	3702	0.0000	3702	3.5	3.5375
Females											
<1	0	1	0.0118	0.0117	100000	1167	98980	0.9866	7405926	74.1	0.1258
1-4	1	4	0.0011	0.0043	98833	425	394319	0.9961	7306946	73.9	1.6178
5-9	5	5	0.0005	0.0027	98408	265	491377	0.9972	6912627	70.2	2.5000
10-14	10	5	0.0006	0.0029	98143	286	490000	0.9970	6421250	65.4	2.5000
15-19	15	5	0.0006	0.0032	97857	314	488517	0.9966	5931250	60.6	2.5455
20-24	20	5	0.0007	0.0036	97544	355	486853	0.9960	5442734	55.8	2.5637
25-29	25	5	0.0009	0.0044	97188	426	484916	0.9950	4955881	51.0	2.5898
30-34	30	5	0.0011	0.0056	96763	547	482505	0.9936	4470964	46.2	2.6047
35-39	35	5	0.0015	0.0073	96216	703	479415	0.9912	3988460	41.5	2.6317
40-44	40	5	0.0022	0.0108	95513	1028	475181	0.9860	3509045	36.7	2.6829
45-49	45	5	0.0036	0.0179	94485	1690	468526	0.9774	3033864	32.1	2.6943
50-54	50	5	0.0057	0.0281	92795	2610	457960	0.9628	2565337	27.6	2.6962
55-59	55	5	0.0098	0.0479	90185	4318	440935	0.9397	2107377	23.4	2.6869
60-64	60	5	0.0154	0.0744	85866	6389	414363	0.9068	1666443	19.4	2.6570
65-69	65	5	0.0243	0.1148	79478	9122	375756	0.8611	1252080	15.8	2.6287
70-74	70	5	0.0365	0.1677	70355	11797	323562	0.7932	876324	12.5	2.6083
75-79	75	5	0.0588	0.2577	58558	15089	256639	0.6656	552762	9.4	2.6040
80-84	80	5	0.1081	0.4249	43469	18470	170826	0.5178	296124	6.8	2.4812

Age Group	x	n	nmx	nqx	lx	ndx	nLx	nSx	Tx	ex	ax
85-89	85	5	0.1584	0.5605	25000	14011	88446	0.3242	125297	5.0	2.3912
90-94	90	5	0.3127	0.8159	10988	8965	28673	0.2219	36852	3.4	2.0698
95+	95	5	0.2474	1.0000	2023	2023	8178	0.0000	8178	4.0	4.0420
Males											
<1	0	1	0.0131	0.0130	100000	1296	98864	0.9853	6902958	69.0	0.1231
1-4	1	4	0.0011	0.0043	98704	429	393795	0.9960	6804094	68.9	1.6141
5-9	5	5	0.0006	0.0028	98276	276	490689	0.9970	6410299	65.2	2.5000
10-14	10	5	0.0006	0.0031	98000	307	489230	0.9965	5919611	60.4	2.5000
15-19	15	5	0.0008	0.0042	97693	408	487501	0.9948	5430380	55.6	2.6441
20-24	20	5	0.0013	0.0063	97284	613	484986	0.9924	4942879	50.8	2.6601
25-29	25	5	0.0018	0.0091	96671	880	481285	0.9890	4457893	46.1	2.6481
30-34	30	5	0.0026	0.0130	95791	1248	476008	0.9845	3976608	41.5	2.6397
35-39	35	5	0.0037	0.0182	94543	1721	468646	0.9783	3500600	37.0	2.6352
40-44	40	5	0.0052	0.0257	92822	2386	458477	0.9689	3031955	32.7	2.6385
45-49	45	5	0.0075	0.0369	90436	3340	444211	0.9582	2573478	28.5	2.6139
50-54	50	5	0.0097	0.0474	87096	4126	425655	0.9420	2129267	24.4	2.6189
55-59	55	5	0.0147	0.0709	82970	5880	400965	0.9139	1703612	20.5	2.6387
60-64	60	5	0.0218	0.1038	77090	8002	366426	0.8739	1302646	16.9	2.6227
65-69	65	5	0.0329	0.1524	69088	10528	320207	0.8162	936220	13.6	2.6034
70-74	70	5	0.0498	0.2224	58560	13024	261349	0.7264	616013	10.5	2.5851
75-79	75	5	0.0814	0.3394	45536	15457	189855	0.5757	354665	7.8	2.5528
80-84	80	5	0.1449	0.5266	30079	15841	109291	0.4064	164809	5.5	2.4051
85-89	85	5	0.2199	0.6861	14239	9769	44417	0.2195	55518	3.9	2.2591
90-94	90	5	0.4114	0.8976	4469	4012	9751	0.1216	11101	2.5	1.8602
95+	95	5	0.3390	1.0000	458	458	1350	0.0000	1350	3.0	2.9502
Peri-urban											
Both Sexes											
<1	0	1	0.0199	0.0196	100000	1960	98255	0.9779	7089213	70.9	0.1095
1-4	1	4	0.0016	0.0062	98040	607	390700	0.9945	6990958	71.3	1.5948
5-9	5	5	0.0007	0.0037	97433	358	486271	0.9960	6600258	67.7	2.5000
10-14	10	5	0.0009	0.0043	97075	416	484336	0.9952	6113987	63.0	2.5000
15-19	15	5	0.0011	0.0056	96659	540	482006	0.9935	5629651	58.2	2.6116
20-24	20	5	0.0015	0.0074	96119	711	478887	0.9918	5147645	53.6	2.5964
25-29	25	5	0.0018	0.0090	95408	858	474975	0.9897	4668758	48.9	2.5930
30-34	30	5	0.0024	0.0117	94550	1110	470085	0.9868	4193783	44.4	2.5999
35-39	35	5	0.0030	0.0148	93440	1387	463898	0.9822	3723698	39.9	2.6188
40-44	40	5	0.0043	0.0213	92053	1961	455642	0.9744	3259800	35.4	2.6413
45-49	45	5	0.0061	0.0303	90092	2730	443956	0.9656	2804159	31.1	2.6164
50-54	50	5	0.0080	0.0393	87363	3429	428669	0.9518	2360202	27.0	2.6248
55-59	55	5	0.0121	0.0589	83933	4946	408010	0.9282	1931533	23.0	2.6430
60-64	60	5	0.0179	0.0860	78988	6796	378732	0.8983	1523523	19.3	2.6154
65-69	65	5	0.0252	0.1189	72192	8587	340204	0.8635	1144791	15.9	2.5831
70-74	70	5	0.0344	0.1590	63605	10110	293760	0.8005	804587	12.6	2.6000
75-79	75	5	0.0575	0.2529	53495	13529	235161	0.6731	510827	9.5	2.6116

Age Group	x	n	nmx	nqx	lx	ndx	nLx	nSx	Tx	ex	ax
80-84	80	5	0.1046	0.4141	39966	16550	158291	0.5266	275666	6.9	2.4903
85-89	85	5	0.1562	0.5561	23415	13021	83357	0.3194	117375	5.0	2.4102
90-94	90	5	0.3240	0.8298	10395	8625	26621	0.2174	34018	3.3	2.0606
95+	95	5	0.2392	1.0000	1770	1770	7397	0.0000	7397	4.2	4.1800
Females											
<1	0	1	0.0175	0.0173	100000	1725	98472	0.9803	7343251	73.4	0.1143
1-4	1	4	0.0015	0.0061	98275	595	391672	0.9946	7244779	73.7	1.6017
5-9	5	5	0.0007	0.0037	97680	364	487488	0.9959	6853107	70.2	2.5000
10-14	10	5	0.0009	0.0044	97316	428	485509	0.9952	6365619	65.4	2.5000
15-19	15	5	0.0011	0.0052	96888	507	483198	0.9945	5880110	60.7	2.5539
20-24	20	5	0.0012	0.0057	96381	554	480534	0.9941	5396912	56.0	2.5306
25-29	25	5	0.0012	0.0061	95826	588	477691	0.9933	4916377	51.3	2.5473
30-34	30	5	0.0015	0.0073	95239	695	474506	0.9921	4438687	46.6	2.5723
35-39	35	5	0.0018	0.0088	94544	832	470741	0.9892	3964180	41.9	2.6223
40-44	40	5	0.0027	0.0133	93712	1249	465660	0.9831	3493439	37.3	2.6775
45-49	45	5	0.0043	0.0211	92463	1948	457776	0.9744	3027779	32.7	2.6686
50-54	50	5	0.0063	0.0310	90516	2804	446043	0.9603	2570003	28.4	2.6696
55-59	55	5	0.0102	0.0499	87711	4381	428324	0.9387	2123960	24.2	2.6642
60-64	60	5	0.0153	0.0739	83331	6158	402055	0.9111	1695636	20.3	2.6296
65-69	65	5	0.0222	0.1054	77172	8134	366319	0.8783	1293581	16.8	2.5973
70-74	70	5	0.0305	0.1422	69039	9818	321754	0.8195	927262	13.4	2.6127
75-79	75	5	0.0518	0.2305	59220	13648	263685	0.7013	605508	10.2	2.6248
80-84	80	5	0.0932	0.3783	45572	17238	184919	0.5676	341823	7.5	2.5088
85-89	85	5	0.1372	0.5081	28334	14397	104968	0.3626	156904	5.5	2.4505
90-94	90	5	0.2897	0.7913	13938	11029	38065	0.2671	51937	3.7	2.1326
95+	95	5	0.2097	1.0000	2909	2909	13872	0.0000	13872	4.8	4.7687
Males											
<1	0	1	0.0220	0.0216	100000	2157	98070	0.9759	6846700	68.5	0.1054
1-4	1	4	0.0016	0.0063	97843	617	389885	0.9945	6748630	69.0	1.5891
5-9	5	5	0.0007	0.0036	97226	352	485250	0.9961	6358745	65.4	2.5000
10-14	10	5	0.0008	0.0042	96874	405	483358	0.9951	5873495	60.6	2.5000
15-19	15	5	0.0012	0.0059	96469	573	481008	0.9925	5390138	55.9	2.6648
20-24	20	5	0.0019	0.0093	95896	892	477388	0.9891	4909129	51.2	2.6534
25-29	25	5	0.0025	0.0126	95004	1196	472179	0.9851	4431741	46.6	2.6250
30-34	30	5	0.0035	0.0173	93808	1625	465157	0.9804	3959561	42.2	2.6110
35-39	35	5	0.0045	0.0221	92183	2039	456032	0.9742	3494405	37.9	2.6058
40-44	40	5	0.0061	0.0299	90144	2697	444283	0.9650	3038373	33.7	2.6134
45-49	45	5	0.0082	0.0401	87447	3511	428745	0.9564	2594090	29.7	2.5817
50-54	50	5	0.0097	0.0476	83936	3997	410052	0.9434	2165344	25.8	2.5911
55-59	55	5	0.0140	0.0677	79939	5408	386863	0.9178	1755293	22.0	2.6274
60-64	60	5	0.0207	0.0984	74531	7336	355075	0.8853	1368430	18.4	2.6038
65-69	65	5	0.0283	0.1324	67194	8894	314357	0.8488	1013355	15.1	2.5697
70-74	70	5	0.0383	0.1753	58301	10221	266842	0.7824	698998	12.0	2.5872
75-79	75	5	0.0631	0.2739	48079	13169	208766	0.6475	432156	9.0	2.5981

Age Group	x	n	nmx	nqx	lx	ndx	nLx	nSx	Tx	ex	ax
80-84	80	5	0.1153	0.4464	34910	15583	135171	0.4894	223390	6.4	2.4729
85-89	85	5	0.1755	0.6006	19327	11607	66156	0.2780	88219	4.6	2.3741
90-94	90	5	0.3641	0.8672	7720	6695	18388	0.1666	22063	2.9	1.9811
95+	95	5	0.2789	1.0000	1025	1025	3675	0.0000	3675	3.6	3.5851
Rural											
Both Sexes											
<1	0	1	0.0156	0.0154	100000	1540	98642	0.9821	7215981	72.2	0.1181
1-4	1	4	0.0015	0.0060	98460	588	392433	0.9945	7117339	72.3	1.6070
5-9	5	5	0.0008	0.0041	97872	396	488369	0.9957	6724907	68.7	2.5000
10-14	10	5	0.0009	0.0046	97476	450	486253	0.9948	6236537	64.0	2.5000
15-19	15	5	0.0012	0.0062	97025	599	483706	0.9926	5750285	59.3	2.6292
20-24	20	5	0.0017	0.0087	96426	837	480134	0.9902	5266579	54.6	2.6150
25-29	25	5	0.0022	0.0109	95589	1041	475441	0.9877	4786444	50.1	2.5941
30-34	30	5	0.0028	0.0139	94548	1314	469573	0.9845	4311004	45.6	2.5910
35-39	35	5	0.0035	0.0173	93234	1611	462295	0.9801	3841430	41.2	2.5963
40-44	40	5	0.0046	0.0228	91622	2085	453115	0.9739	3379135	36.9	2.6035
45-49	45	5	0.0060	0.0296	89538	2647	441288	0.9676	2926020	32.7	2.5826
50-54	50	5	0.0073	0.0357	86890	3101	426999	0.9577	2484732	28.6	2.5972
55-59	55	5	0.0103	0.0502	83789	4206	408936	0.9409	2057733	24.6	2.6206
60-64	60	5	0.0144	0.0694	79583	5526	384762	0.9161	1648797	20.7	2.6199
65-69	65	5	0.0211	0.1005	74057	7443	352495	0.8815	1264035	17.1	2.6099
70-74	70	5	0.0301	0.1402	66614	9340	310720	0.8280	911539	13.7	2.6070
75-79	75	5	0.0477	0.2141	57274	12264	257270	0.7174	600819	10.5	2.6273
80-84	80	5	0.0892	0.3657	45010	16460	184563	0.5679	343549	7.6	2.5404
85-89	85	5	0.1412	0.5184	28549	14800	104808	0.3718	158987	5.6	2.4365
90-94	90	5	0.2699	0.7650	13749	10518	38964	0.2808	54179	3.9	2.1684
95+	95	5	0.2124	1.0000	3232	3232	15215	0.0000	15215	4.7	4.7081
Females											
<1	0	1	0.0137	0.0136	100000	1356	98809	0.9842	7556589	75.6	0.1219
1-4	1	4	0.0014	0.0055	98644	543	393281	0.9950	7457780	75.6	1.6124
5-9	5	5	0.0007	0.0037	98101	360	489607	0.9960	7064499	72.0	2.5000
10-14	10	5	0.0009	0.0043	97741	418	487661	0.9953	6574892	67.3	2.5000
15-19	15	5	0.0010	0.0052	97323	506	485388	0.9943	6087231	62.5	2.5745
20-24	20	5	0.0012	0.0062	96817	598	482624	0.9935	5601843	57.9	2.5566
25-29	25	5	0.0014	0.0069	96219	664	479475	0.9924	5119219	53.2	2.5611
30-34	30	5	0.0017	0.0084	95555	802	475832	0.9908	4639744	48.6	2.5789
35-39	35	5	0.0021	0.0102	94753	970	471437	0.9881	4163912	43.9	2.6010
40-44	40	5	0.0028	0.0139	93783	1301	465825	0.9836	3692474	39.4	2.6258
45-49	45	5	0.0039	0.0192	92482	1774	458187	0.9780	3226649	34.9	2.6195
50-54	50	5	0.0052	0.0254	90708	2308	448085	0.9685	2768462	30.5	2.6366
55-59	55	5	0.0079	0.0385	88400	3408	433991	0.9534	2320378	26.2	2.6502
60-64	60	5	0.0115	0.0558	84992	4741	413779	0.9313	1886386	22.2	2.6415
65-69	65	5	0.0174	0.0834	80251	6692	385348	0.9018	1472607	18.3	2.6228
70-74	70	5	0.0246	0.1161	73559	8542	347490	0.8555	1087260	14.8	2.6228

Age Group	x	n	nmx	nqx	lx	ndx	nLx	nSx	Tx	ex	ax
75-79	75	5	0.0400	0.1830	65018	11900	297262	0.7485	739769	11.4	2.6617
80-84	80	5	0.0797	0.3339	53117	17736	222492	0.6046	442507	8.3	2.5702
85-89	85	5	0.1244	0.4730	35382	16735	134513	0.4195	220015	6.2	2.4668
90-94	90	5	0.2358	0.7137	18646	13307	56432	0.3400	85502	4.6	2.2347
95+	95	5	0.1837	1.0000	5339	5339	29070	0.0000	29070	5.4	5.4450
Males											
<1	0	1	0.0173	0.0170	100000	1703	98493	0.9804	6885251	68.9	0.1148
1-4	1	4	0.0016	0.0064	98297	628	391684	0.9941	6786758	69.0	1.6023
5-9	5	5	0.0009	0.0044	97670	430	487272	0.9953	6395074	65.5	2.5000
10-14	10	5	0.0010	0.0049	97239	481	484993	0.9942	5907802	60.8	2.5000
15-19	15	5	0.0014	0.0072	96758	697	482169	0.9907	5422809	56.0	2.6762
20-24	20	5	0.0023	0.0117	96061	1120	477678	0.9863	4940640	51.4	2.6574
25-29	25	5	0.0032	0.0156	94940	1485	471152	0.9821	4462962	47.0	2.6106
30-34	30	5	0.0041	0.0204	93455	1905	462699	0.9770	3991810	42.7	2.5974
35-39	35	5	0.0052	0.0259	91550	2370	452046	0.9705	3529111	38.5	2.5931
40-44	40	5	0.0068	0.0334	89180	2975	438720	0.9624	3077064	34.5	2.5869
45-49	45	5	0.0085	0.0417	86205	3595	422232	0.9559	2638344	30.6	2.5546
50-54	50	5	0.0096	0.0469	82610	3873	403620	0.9462	2216112	26.8	2.5656
55-59	55	5	0.0128	0.0623	78737	4904	381901	0.9279	1812492	23.0	2.5973
60-64	60	5	0.0174	0.0835	73833	6167	354382	0.9005	1430591	19.4	2.6030
65-69	65	5	0.0251	0.1182	67666	7997	319137	0.8600	1076210	15.9	2.6002
70-74	70	5	0.0362	0.1663	59669	9925	274446	0.7986	757073	12.7	2.5921
75-79	75	5	0.0560	0.2467	49744	12270	219174	0.6867	482627	9.7	2.5921
80-84	80	5	0.0985	0.3955	37474	14820	150502	0.5330	263453	7.0	2.5124
85-89	85	5	0.1591	0.5633	22653	12762	80219	0.3219	112951	5.0	2.4103
90-94	90	5	0.3143	0.8203	9892	8115	25822	0.2111	32732	3.3	2.0870
95+	95	5	0.2572	1.0000	1777	1777	6910	0.0000	6910	3.9	3.8885

ANNEX 5: INDIRECT ESTIMATION OF MORTALITY IN EARLY YEARS OF LIFE

This annex presents analysis of NPHC 2021 data from fertility section using CEBCS methodology (adapted from *Step-by-Step Guide to the Estimation of Child Mortality.* (United Nations, 1990)*).* The whole exercise has been done for the purpose of research and to assess the difference between direct and indirect estimates. The users are advised to consider the values for reference only.

Nepal's past censuses indicate low child mortality rates from the direct method due to the fact that infants and children who die at early age are mostly omitted during census enumeration (Central Bureau of Statistics (CBS), 2014) when collected at the household level. This is a generally observed tendency in mass operations such as a population census, and as a result, the direct estimation of mortality rates from the reported data gives lower values for young ages. In contrast, data on children ever born and children surviving is generally considered more reliable, as it is collected directly from mothers who have given birth and are more likely to accurately recall both the total number of births and the number of children still living. Therefore, the CEBCS method is widely applied for indirect estimation of early age mortality.

The use of proportions of children dead among children ever born as indicators of mortality in the early years of life is seen globally, with information on children ever born and children surviving dating to the 1900 census of the United States, the 1911 census of Britain, the 1940 census of Brazil, among others (Preston and Haines 1991). The first methodology for translating such proportions into standard life table indicators was proposed by William Brass in 1964. The basic equation used in this method is:

$$q(x) = D(i).k(i) \qquad \ldots (1)$$

Here, q(x) is the probability of dying at age x, D(i) is the proportion of deaths to children whose mother are in the age group 'i' and k(i) are multipliers. Brass proposed using (P_1/P_2) to estimate the multipliers k(i). Here, P(i) is the average parity, average number of children ever borne by women of age intervals 1, 2, …, 7. Trussell later suggested using (P_1/P_2) and (P_2/P_3) to compute k(i)s. This method was originally developed without explicit consideration of the effects of mortality change (Brass and Coale, 1968). Following the work of Feeney (1976, 1980), methods were developed to estimate a 'time reference' for the estimates derived from each age/duration group (Coale and Trussell (1977); Palloni and Heligman (1985); Hill and Figueroa (2001).

The following data is required to compute IMR, CMR and U5MR using the Palloni-Heligman version:

i. Number of children ever born, classified by sex and five-year age group of mother;

ii. Number of children surviving (or the number dead), classified by sex and five-year age group of mother;

iii. Total number of women (irrespective of marital status), classified by five-year age group;

iv. Mean age at childbearing (MACB).[27]

The following steps are required to compute mortality estimates in early years of life using the Palloni-Heligman version:

i) Calculate the average parity per woman, P(i)

$$P(i) = \frac{CEB\ (i)}{FP\ (i)} \quad \ldots (2)$$

Where, CEB (i) denotes the number of children ever born to age group i and FP (i) is the total number of women in age group i, irrespective of their marital status. The value i represents the age group of women–- 15-19, 20-24, …, 45-49 years.

ii) Calculation of proportion of children dead for each age group of mother, D(i)

$$D(i) = \frac{CD(i)}{CEB(i)} \quad \ldots (3)$$

Where, CEB (i) is same as step 1 and CD (i) is the number of children dead reported deceased by women in age group i.

iii) Calculation of multipliers, k (i)

Multipliers, k(i) are required to adjust the reported proportion dead, D(i), for the effects of the age pattern of childbearing and are estimated using estimation equations and necessary coefficients according to the Palloni and Helligman variant of the original Brass method by selecting a suitable family from the five different UN model life tables:[28]

[27] Mean years of childbearing (MACB) is defined as the mean age of mothers at the birth of their children if women were subjected throughout their lives to the age-specific fertility rates observed in a given year. The mean age at childbearing (MACB) is computed as the sum of age-specific fertility rates weighted by the mid-point of each age group, divided by the sum of the age-specific rates.

[28] The United Nations models encompass five distinct mortality patterns known as 'Latin American (LA)', 'Chilean (Ch)', 'South Asian (SA)', 'Far Eastern (FE)' and 'General (Gn)'.

$$k(i) = a(i) + b(i)\frac{P(1)}{P(2)} + c(i)\frac{P(2)}{P(3)} + d(i).MACB \qquad \ldots (4)$$

Where, a(i), b(i), c(i) and d(i) are constants obtained from (Palloni & Heligman, 1986), and MACB is the mean age at childbearing. Values of P(1), P(2) and P(3) are the same as step 1 calculated from equation 2.

iv. Selection of suitable model life table

A suitable model life table that best represent the mortality trend is selected. The most important criteria to consider while selecting the model life table is the difference between infant and child mortality. Available data suggests that the Far East model is most suitable for Nepal. This model is characterized by relatively high mortality rates, particularly in early childhood.

v. Calculation of probabilities of dying, q(x)

The probability of dying, q(x) is obtained for different values of exact age 'n' as the product of reported proportions dead, D(i) and the corresponding multipliers, k(i):

$$q(x) = D(i).k(i) \qquad \ldots (5)$$

Where, q(x) is the probability of dying at exact age x. D(i) and k(i) are same values calculated in steps 2 and 3, equations 3 and 4.

v) Calculation of reference period, t(x)

The reference period t(x), is an estimate of the number of years before the survey date to which the child mortality estimate q(x), obtained in step 4 from equation 5 refer to. The values of t(x) are estimated using the equation provided below:

$$t(x) = a(i) + b(i)\frac{P(1)}{P(2)} + c(i)\frac{P(2)}{P(3)} \qquad \ldots (6)$$

Where a(i), b(i) and c(i) are constants and their values are obtained from United Nations (1983) and these values are different from those used in step iii, equation 4.

vi) Convert each estimate of IMR into an estimate of U5MR

IMR values are converted into a value of α, the level parameter of a system of relational logit model life tables. The α is then used to estimate the corresponding probability of dying between birth and exact age 5.

CEBCS method and model selection

The overall computation of indirect estimates involves the use of computer software, with the IUSSP template initially used.[29] But later, the QFIVE software programme of the UN MORTPAK 4.3[30] (United Nations Population Division, 2013) package is used for the computation of early age mortality indicators[31]. The *MORTPAK* requires sex ratio at birth (Individual Table 25), mean age at child bearing (MACB), CEBCS information (Individual Table 24) and number of women by five-year age group (Individual Table 4) [32]. , The Table A4.1 presents CEBCS input data derived from the census data. The MACB values are taken from the Fertility Thematic Report 2021 (National Statistics Office, 2025a), which has utilized information from the fertility section of the questionnaire. The report has computed MACB values using Ariaga's indirect techniques. This constitutes an indirect method of computing MACB and it utilizes the age distribution of women and the number of children ever born reported by women of different age groups. The method is based on a number of assumptions, such as minimal or no misreporting of age of women and the accurate reporting of the number of CEB. It further assumes that the fertility pattern in the population has been relatively stable over the recent years, that the migration of women of reproductive age and children is negligible, that no significant fertility control practices exist, and that there is a uniform distribution of births across the age span of women in each age group. Some limited information may show some violations of these assumptions, such as the misreporting of ages as documented by post enumeration survey (PES) and an increasing trend of women migrating abroad as absentees which has increased at a rate of about 5 percentage points in 2021 from 2011, or 4.7 percent of the total women of age group 15-49 in 2021. This finding may have an effect on the use of Ariaga's method for MACB or on the actual number of CEB and total women of the child bearing age. However, as outlined in the data quality section in chapter two, the reported CEB data from the usually residing women is of acceptable quality to be used for CEBCS methodology.

The initial step in indirect estimation requires the identification of the most appropriate model life table that is representative of the existing mortality pattern. First of all, QFIVE program is used to generate five values from UN model life tables that uses Palloni-Heligman equations (Latin American, Chilean, South Asian, Far East, and General) and four values from Coale-

[29] Accessed via: https://demographicestimation.iussp.org/content/indirect-estimation-child-mortality

[30] https://www.un.org/development/desa/pd/content/mortpak-UN-software-package-mortality-measurement

[31] The early age mortality can also be computed from the template available at International Union of Scientific Study of Population (IUSSP) at https://demographicestimation.iussp.org/content/indirect-estimation-child-mortality.

[32] Data computed from figures accessed via: https://censusnepal.cbs.gov.np/results/downloads/national?type=data

Demeny models (East, West, South, North). A comparison is made using the *COMPAR* application of *MORTPAK.* This method considers the difference between average absolute deviation from the median for ages 0 to 10 and ages 10 and over to choose the appropriate model, and that which indicates the difference minimum – or that with the closest value to 0 – is selected as the suitable model. The comparison results are presented in Table A5.1. The comparison suggests that the 'Far East' family from the UN model life tables and the 'West' family from the Coale-Demeny West model life tables represent the closest match.

Table A5.1: COMPAR outputs from MORTPAK, males, females, Nepal

Age range	United Nations model life table for developing countries (Palloni-Heligman version)					Coale-Demeny model life table (Trussell version)			
	Latin American	Chilean	South Asian	Far East	General	West	North	East	South
Female									
Ages 0 to 10	2.17	4.20	2.73	3.65	2.81	1.62	1.32	2.58	3.51
Ages 10 and over	2.93	3.19	3.30	3.41	2.67	2.42	2.52	2.08	2.09
Ages 0 and over	3.41	3.53	4.38	3.45	2.96	2.30	2.34	2.20	2.89
Medn(0-10)-Medn(10+)	7.3	2.8	11.3	-0.6	4.6	-0.7	0.7	0.8	8.4
Male									
	Latin American	**Chilean**	**South Asian**	**Far East**	**General**	**West**	**North**	**East**	**South**
Ages 0 to 10	2.38	4.56	2.70	2.12	2.48	1.47	0.83	2.36	4.25
Ages 10 and over	4.09	3.70	6.64	3.99	4.06	4.29	4.69	4.69	3.64
Ages 0 and over	4.93	4.18	7.93	3.83	4.51	4.08	4.70	4.41	4.70
Medn(0-10)-Medn(10+)	10.10	5.61	17.70	3.09	7.64	2.52	5.64	2.10	10.75

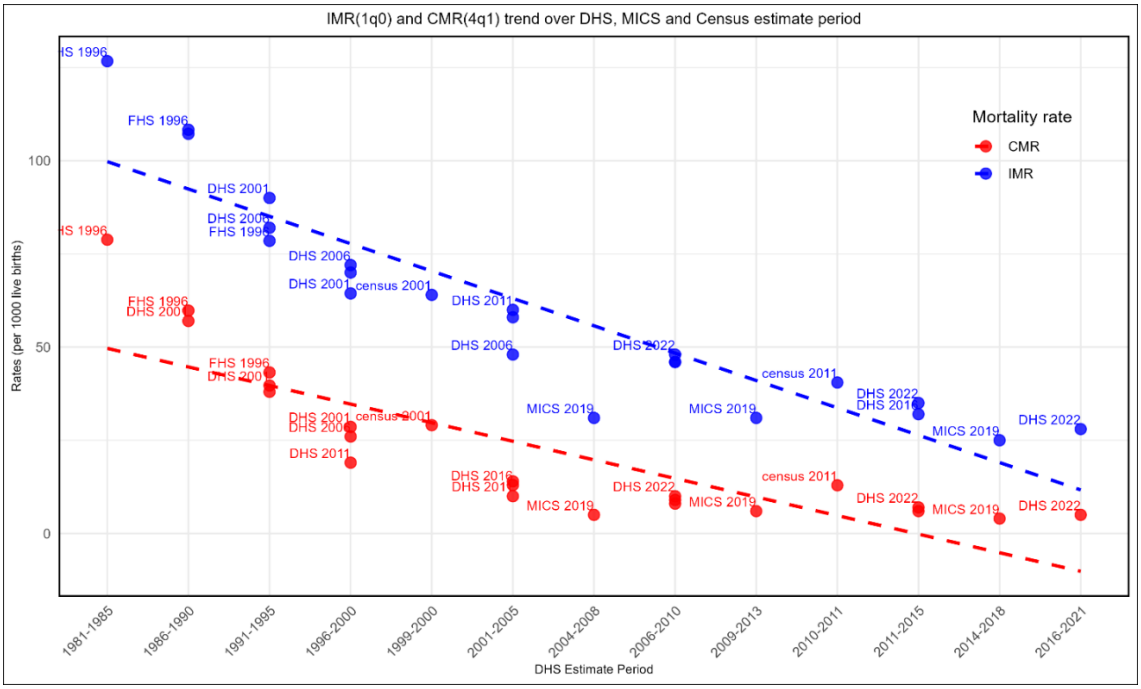
A comparison between the infant mortality rate and child mortality rate is also observed to select a representative model. Table A5.2 presents values of IMR, CMR and U5MR from NDHS series, MICS, and the censuses of 2001 and 2011. A plotting of IMR and CMR is provided in figure A5.1. The NDHSs produce separate estimates for the three quinquennial periods preceding the survey year, while the census estimates are for the previous year of the census date. The plot shows that IMR and CMR are both declining at a gradual pace, with the IMR declining at a slightly more rapid pace than the CMR. It also clearly illustrates that the gap between the IMR and CMR is gradually decreasing over time. As Nepal is undergoing a demographic and epidemiological transition, the mortality is much affected by the rise in non-communicable diseases and a decrease in communicable diseases due to rapid health transitions is influenced by socioeconomic development. Furthermore, male mortality is seen higher compared to female mortality which may be attributed to occupational hazards, risk behaviors and lower or less

frequent health-seeking practices which are common to men. The Far East model life table, based on the Palloni-Heligman equations, operates under four key assumptions. First, it assumes high mortality during early life—particularly in the neonatal and post-neonatal periods—with a sharp decline in mortality rates after infancy. Second, it presumes low to moderate mortality throughout childhood and adolescence, especially between ages 5 and 14, due to relatively strong survival in these age groups. Third, the model expects mortality to rise in adulthood, largely driven by infectious diseases, accidents, and an increasing burden of non-communicable diseases. Lastly, it assumes a compression of mortality in older ages, where mortality rates rise steeply in the 65+ age group as a result of incomplete healthcare coverage and late-life disease burdens, consistent with populations transitioning to longer life expectancy. The age specific death rate curve in chapter 3, figure 3.7 also supports the fact that the UN Far East model derived from Palloni-Heligman equations is best placed to represent the mortality pattern in Nepal.

Table A5.2 Infant, Child and Under-five mortality rates, NDHS, MICS, and CENSUS.

Type	Estimate Period	mid-year	IMR	CMR	U5MR	Ratio (IMR/CMR)
FHS 1996	1981-1985	1983	126.7	78.8	195.6	1.6
FHS 1996	1986-1990	1988	108.3	59.8	161.6	1.8
NDHS 2001	1986-1990	1988	107.2	57	158	1.9
NDHS 2001	1991-1995	1993	90	39.7	126.2	2.3
NDHS 2006	1991-1995	1993	82	38	117	2.2
FHS 1996	1991-1995	1993	78.5	43.2	118.3	1.8
NDHS 2006	1996-2000	1998	72	26	96	2.8
NDHS 2011	1996-2000	1998	70	19	87	3.7
NDHS 2001	1996-2000	1998	64.4	28.6	91.2	2.3
Census 2001	1999-2000	2000	64	29.1	91.2	2.2
NDHS 2011	2001-2005	2003	60	10	70	6.0
NDHS 2016	2001-2005	2003	58	13	71	4.5
NDHS 2006	2001-2005	2003	48	14	61	3.4
MICS 2019	2004-2008	2006	31	5	36	6.2
NDHS 2022	2006-2010	2008	48	10	58	4.8
NDHS 2011	2006-2010	2008	46	8	54	5.8
NDHS 2016	2006-2010	2008	46	9	54	5.1
Census 2011	2010-2011	2011	40.5	12.9	52.9	3.1
MICS 2019	2009-2013	2011	31	6	37	5.2
NDHS 2022	2011-2015	2013	35	7	42	5.0
NDHS 2016	2011-2015	2013	32	6	39	5.3
MICS 2019	2014-2018	2016	25	4	28	6.3
NDHS 2022	2017-2021	2019	28	5	33	5.6

Figure A5.1 Plot of IMR and CMR from NDHS, MICS and Census, 1981 – 2021



Indirect estimates of early age mortality

QFIVE application of *MORTPAK* yields IMR, CMR and U5MR from the four families of Coale-Demeny and the five families of UN model life tables for developing countries. MACB value of 25.59 and sex ratio at birth of 1.12 are used. The indirect estimates of IMR, CMR and U5MR using the UN Far East model for different age groups of women are presented in Table A5.3 and A5.6.

In indirect estimation methods, such as the CEBCS approach developed by Brass**,** the age group of the mother is critical in determining reliable child mortality estimates. While the method can be applied across reproductive age groups, using women aged 15–19 years presents several methodological and empirical limitations that compromise the accuracy and representativeness of estimates of infant and under-five mortality**.** The use of the 15–19 age group in indirect estimation of infant and under-five mortality using the CEBCS method is generally discouraged due to several methodological limitations. Firstly, women in this age group have low fertility experience, resulting in small sample sizes and unstable mortality estimates. Secondly, their births are typically very recent, meaning many of the children have not yet passed through the critical risk periods for child mortality, which can lead to underestimation. Thirdly, teenage mothers are more likely to come from socioeconomically disadvantaged backgrounds—such as rural areas or low-income households—where child mortality is generally higher, thus making

estimates from this group unrepresentative of the broader population (Moultrie, 2013) (General Directorate of Statistics, 2018). Finally, there is a greater risk of reporting errors among young women due to limited understanding or stigma, especially concerning early neonatal deaths or stillbirths, which can further compromise data accuracy. In this context, most demographic manuals recommend focusing on women aged 20–29 years for estimating recent mortality patterns. These age groups have higher fertility and sufficient exposure time, making them more suitable for estimating current infant and under-five mortality**.** And, some even suggests taking the average of the two age groups 20-24 and 25-29. But in this analysis, 20-24 age group of women is considered to represent the mortality pattern with the time reference period for these estimates to be 2019.7 (June 2019). The direct estimates are representative for June 2021 (mid-year point of census reference year). As such, indirect estimates are for the two year prior to direct estimates. The final values of IMR, CMR and U5MR using the 'Far East' model for age group 20-24 categorised by spatial units are available in Table A5.8.

With the Far East model and for 20-24 age group of women, the indirect estimates of IMR, CMR and U5MR for Nepal are observed at 18.9, 3.5 and 22.3 deaths per 1,000 live births. There is a great level of disparity seen between male and female mortality rates. Male children experienced higher mortality than female children and this difference is much higher in case of under-five mortality. However, when approaching the women of higher ages, the gap is seen to shrink.

Table A5.3 Indirect estimates (UN Far East model) of IMR, CMR and U5MR per 1000 live births for different age groups of women.

Indicator	Sex/time ref.	Age group of women						
		15 – 19	20 – 24	25 – 29	30 – 34	35 – 39	40 - 44	45 – 49
IMR	Both sexes	22.0	18.9	18.5	20.8	24.5	28.2	31.2
	Male	25.4	21.3	20.9	22.9	26.4	29.2	31.9
	Female	18.2	16.1	15.9	18.4	22.3	26.7	30.3
	Time Ref.	2020.7	2019.7	2018	2015.7	2013	2010	2006.8
U5MR	Both sexes	26.3	22.3	21.9	24.8	29.6	34.4	38.5
	Male	30.9	25.5	24.9	27.6	32.2	36.2	39.5
	Female	21.5	19.0	18.7	21.8	26.6	32.3	37.2
	Time Ref.	2020.7	2019.7	2018	2015.7	2013	2010.1	2006.9
CMR	Both sexes	4.4	3.5	3.5	4.1	5.2	6.4	8.0
	Male	5.6	4.2	4.1	4.7	5.9	7.0	8.0
	Female	3.4	2.9	2.9	3.4	4.4	5.7	7.1
	Time Ref.	2020.7	2019.7	2018	2015.7	2013	2010.1	2006.9

The Table A5.3 displays the values of IMR, CMR and U5MR for Nepal experienced by different 5-year age groups of women, showing an approximate declining trend (keeping aside 15-19 age group. Though the values are not comparable, the under 5 mortality rate seems to have slightly increased from 21.9 to 22.3 deaths per 1,000 live births between 2018 and June 2019, expressing the experiences of different age groups of women.

Table A5.4 presents the comparison of early age mortality rates for NDHS 2022 and the NPHC 2021. NDHS produces separate estimates at the national level for the last 5-year consecutive periods (i.e., 0-4, 5-9, 10-14 years) preceding the survey, whilst the province estimates are by 10-year periods. The estimates from the NPHC 2021 CEBCS information are lower than the corresponding values from NDHS 2022 for 0-4 years preceding the survey. The NDHS fieldwork was carried out from January to June 2022. As such, the estimates for 0-4 years preceding the survey are for the mid-period of 2019 and 2020, which also coincides with the census indirect estimates for June 2019. Unlike the census, the NDHS uses longer period data and the estimates from it are considered to be equally reliable and robust. The census indirect estimates are significantly lower than the NDHS estimates which requires further research to ascertain if it is due to short reference period or possible underreporting.

Both NPHC and NDHS show higher IMR and U5MR for Karnali. The census shows these values to be highest for Karnali Province (29 and 36), whilst NDHS shows the highest for Sudurpashchim Province (40 and 49) followed by Karnali (36 and 46). The census shows the lowest values for Bagmati Province, whereas the lowest for NDHS are seen in Gandaki Province.

Table A5.4 IMR, CMR and U5MR per 1000 live births, NDHS 2022 and NPHC 2021- CEBCS Far East model)

Survey Period	NDHS				NPHC 2021 (2019.7) (20-24 age group of mother)		
	IMR	CMR	U5MR		IMR	CMR	U5MR
0-4	28	5	33		18.9	3.5	22.3
5-9	35	7	42				
10-14	48	10	58				
Province (Ten-yearly rates)							
Koshi	28	6	34		18	3	21
Madhesh	38	5	43		17	3	20
Bagmati	21	3	24		15	3	17
Gandaki	19	5	23		16	3	19
Lumbini	34	8	41		21	4	25
Karnali	36	10	46		29	7	36
Sudurpashchim	40	9	49		20	4	24
Note: All values rounded to whole numbers							

Table A5.8 presents the infant, child and under-five mortality rate for ecological zones, provinces and districts by sex. Male mortality rates are higher than female rates in all areas. The largest gap is seen between the IMR and U5MR in Karnali, followed by Sudurpashchim and Lumbini. The gap is similar in Koshi, Madhesh and Gandaki provinces. A higher gap in the IMR and U5MR shows that more deaths occur after infancy and these can be linked to issues like post-infancy health services, malnutrition, and sanitation, which are linked with the survival of children beyond infancy.

Comparison with NPHC 2011 (Coale-Demeny West model)

Figure A5.2 (districts from east to west of Nepal plotted in order of district codes in the x-axis) expresses the change in infant mortality rate for Nepal between 2011 and 2021 using data from the two most recent censuses. Since the 2011 census adopts the Trussell variant (Coale-Demeny West model life table) to compute mortality rates for early years of life, estimates from the same method are also extracted from MORTPAK outputs for 15-19 age group for NPHC 2021 dataset so as to make exact comparisons for Nepal and its districts (with the exception of Nawalparasi and Rukum which have now become four districts) in spite of the fact that the current mortality trends do not follow the earlier discussed pattern. A close examination of the data in this figure shows that the most significant decline in IMR is seen for districts from Koshi and Madhesh provinces. The infant mortality rate in these districts has significantly declined. Districts from Madhesh Province have made the greatest progress, with Dhanusha, Sarlahi and Mahottari showing the largest growth. In Bagmati, the IMR has decreased for most districts except Dhading and Ramechhap, where values are seen to be slightly higher in 2021. A large spike in Manang and a small spike in Mustang is observed due to the relatively small population size. Interestingly, Kaski, Parbat, Baglung show a higher IMR in 2021 compared to 2011. In Karnali Province, Humla and Jajarkot show a relatively higher IMR in both censuses. For Humla, the IMR has significantly increased and a slight decline in the IMR is observed for Jajarkot. In Sudurpashchim Province, all districts except Bajhang show improvements in the IMR, with Bajura showing the greatest improvement.

Figure A5.2: Comparison of infant mortality rate by district for both sexes, Nepal, 2011-2021

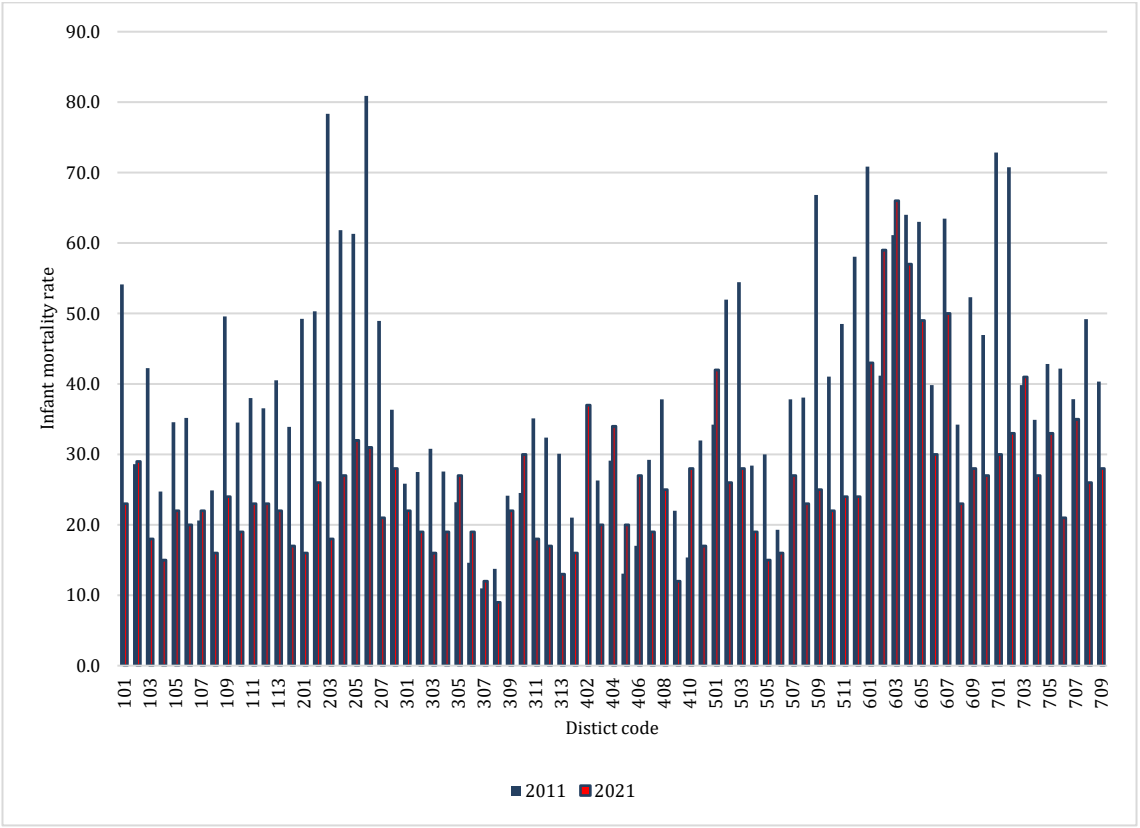


Figure source: NPHC 2011 and 2021.

Note: The Trussell method (Coale-Demeny West model life table) is used for comparison.

Table A5.5: Sex ratio at birth, mean age at childbearing, average children ever born, average children surviving and proportion of children dead (both sexes) by five-year age group of women (used in MORTPAK for computing indirect estimates), NPHC 2021

Area	Sex Ratio at Birth	Mean age at childbearing	15-19 Yrs.			20-24 Yrs.			25-29 Yrs.			30-34 Yrs.		
			Av_CEB	Av_CS	Di	Av_CEB	Av_CS	Di	Av_CEB	Av_CS	Di	Av_CEB	Av_CS	Di
Nepal	1.12	25.59	0.074	0.072	0.021	0.661	0.648	0.019	1.438	1.408	0.021	2.051	1.999	0.025
Province														
Koshi	1.06	25.73	0.073	0.072	0.019	0.586	0.575	0.018	1.281	1.258	0.018	1.812	1.773	0.022
Madhesh	1.18	25.37	0.097	0.095	0.020	0.989	0.972	0.018	2.020	1.981	0.019	2.684	2.624	0.022
Bagmati	1.11	26.54	0.048	0.048	0.016	0.392	0.386	0.015	0.984	0.969	0.015	1.569	1.542	0.017
Gandaki	1.11	25.48	0.071	0.070	0.019	0.520	0.512	0.016	1.218	1.196	0.018	1.776	1.741	0.019
Lumbini	1.10	25.74	0.066	0.064	0.020	0.621	0.608	0.021	1.431	1.397	0.023	2.082	2.021	0.029
Karnali	1.09	24.54	0.119	0.115	0.030	0.927	0.899	0.031	1.841	1.774	0.037	2.588	2.463	0.048
Sudurpashchim	1.16	25.39	0.064	0.062	0.024	0.701	0.687	0.020	1.594	1.554	0.025	2.337	2.261	0.033
District														
Taplejung	1.01	28.60	0.108	0.106	0.021	0.673	0.660	0.020	1.354	1.320	0.025	2.032	1.971	0.030
Sankhuwasabha	1.09	26.75	0.102	0.100	0.026	0.694	0.678	0.023	1.412	1.371	0.029	2.038	1.969	0.034
Solukhumbu	1.09	26.56	0.074	0.072	0.016	0.582	0.570	0.020	1.276	1.249	0.021	1.869	1.815	0.029
Okhaldhunga	0.99	24.96	0.064	0.064	0.012	0.596	0.587	0.016	1.298	1.279	0.015	1.965	1.935	0.016
Khotang	1.08	26.31	0.103	0.101	0.020	0.688	0.676	0.017	1.451	1.419	0.022	2.113	2.060	0.025
Bhojpur	1.07	27.53	0.110	0.108	0.018	0.666	0.651	0.022	1.359	1.328	0.023	1.977	1.923	0.028
Dhankuta	0.99	27.20	0.096	0.094	0.022	0.545	0.533	0.021	1.168	1.142	0.022	1.713	1.670	0.025
Tehrathum	1.14	25.78	0.104	0.102	0.016	0.617	0.605	0.019	1.309	1.286	0.017	1.866	1.815	0.027
Panchthar	1.06	25.83	0.115	0.112	0.023	0.636	0.621	0.024	1.242	1.216	0.021	1.803	1.749	0.030
Ilam	0.99	26.54	0.075	0.073	0.018	0.465	0.458	0.016	1.004	0.991	0.013	1.466	1.440	0.018
Jhapa	1.11	26.27	0.057	0.056	0.020	0.485	0.477	0.018	1.152	1.131	0.018	1.659	1.624	0.021
Morang	1.04	25.70	0.058	0.057	0.019	0.583	0.573	0.017	1.321	1.300	0.016	1.837	1.802	0.019
Sunsari	1.06	25.48	0.063	0.062	0.018	0.636	0.625	0.018	1.364	1.342	0.016	1.869	1.832	0.020
Udayapur	1.07	24.58	0.089	0.087	0.015	0.647	0.636	0.017	1.380	1.355	0.018	1.967	1.922	0.023
Saptari	1.23	27.21	0.082	0.081	0.012	0.893	0.880	0.014	1.779	1.754	0.014	2.368	2.329	0.017
Siraha	1.28	26.39	0.100	0.098	0.021	0.984	0.969	0.015	1.936	1.904	0.017	2.548	2.496	0.020
Dhanusa	1.33	28.04	0.112	0.111	0.015	1.068	1.050	0.016	2.037	2.000	0.018	2.651	2.592	0.022

Area	Sex Ratio at Birth	Mean age at childbearing	15-19 Yrs.			20-24 Yrs.			25-29 Yrs.			30-34 Yrs.		
			Av_CEB	Av_CS	Di	Av_CEB	Av_CS	Di	Av_CEB	Av_CS	Di	Av_CEB	Av_CS	Di
Mahottari	1.18	26.30	0.091	0.089	0.021	1.007	0.990	0.017	2.074	2.032	0.020	2.774	2.712	0.022
Sarlahi	1.16	26.17	0.088	0.086	0.026	0.945	0.925	0.021	2.064	2.014	0.024	2.760	2.685	0.027
Rautahat	1.08	27.60	0.113	0.110	0.025	1.107	1.083	0.022	2.271	2.216	0.024	3.024	2.939	0.028
Bara	1.08	25.89	0.096	0.094	0.017	0.963	0.947	0.017	2.012	1.977	0.018	2.691	2.633	0.021
Parsa	1.17	26.44	0.085	0.083	0.022	0.914	0.898	0.017	1.966	1.933	0.017	2.654	2.606	0.018
Dolakha	1.13	26.61	0.058	0.057	0.019	0.550	0.543	0.014	1.301	1.282	0.014	1.952	1.915	0.019
Sindhupalchok	1.12	26.09	0.061	0.060	0.016	0.591	0.579	0.020	1.337	1.308	0.022	2.003	1.939	0.032
Rasuwa	1.08	27.87	0.067	0.067	0.007	0.581	0.572	0.016	1.449	1.417	0.022	2.163	2.092	0.033
Dhading	1.03	25.25	0.077	0.076	0.016	0.642	0.629	0.021	1.423	1.394	0.021	2.078	2.024	0.026
Nuwakot	1.06	28.31	0.074	0.072	0.023	0.641	0.629	0.019	1.424	1.393	0.022	2.055	1.994	0.030
Kathmandu	1.16	28.57	0.022	0.022	0.017	0.228	0.225	0.011	0.719	0.711	0.011	1.292	1.277	0.012
Bhaktapur	1.12	27.99	0.027	0.027	0.011	0.267	0.265	0.009	0.782	0.773	0.012	1.377	1.362	0.011
Lalitpur	1.10	28.51	0.026	0.026	0.008	0.239	0.237	0.008	0.701	0.696	0.008	1.256	1.244	0.009
Kavrepalanchok	1.09	28.91	0.053	0.052	0.019	0.479	0.473	0.014	1.160	1.146	0.013	1.776	1.744	0.018
Ramechhap	1.11	26.67	0.053	0.052	0.024	0.576	0.567	0.015	1.305	1.288	0.013	1.984	1.951	0.017
Sindhuli	1.06	24.40	0.086	0.085	0.016	0.689	0.676	0.019	1.518	1.489	0.020	2.226	2.170	0.025
Makwanpur	1.05	24.65	0.085	0.084	0.015	0.596	0.586	0.017	1.289	1.265	0.018	1.911	1.869	0.022
Chitawan	1.12	25.36	0.067	0.066	0.012	0.463	0.457	0.014	1.144	1.124	0.017	1.688	1.656	0.019
Gorkha	1.12	25.70	0.075	0.074	0.014	0.605	0.595	0.016	1.327	1.301	0.019	1.918	1.869	0.026
Manang	1.00	28.60	0.066	0.059	0.111	0.374	0.359	0.041	0.797	0.772	0.032	1.336	1.283	0.040
Mustang	0.92	33.45	0.040	0.040	0.000	0.373	0.365	0.021	0.895	0.866	0.032	1.543	1.484	0.038
Myagdi	1.11	26.20	0.102	0.099	0.030	0.692	0.679	0.019	1.432	1.403	0.020	1.999	1.952	0.024
Kaski	1.10	26.57	0.040	0.040	0.019	0.348	0.343	0.013	1.006	0.992	0.014	1.581	1.559	0.014
Lamjung	1.07	25.53	0.074	0.072	0.024	0.537	0.531	0.011	1.212	1.195	0.015	1.760	1.734	0.015
Tanahu	1.16	24.96	0.089	0.087	0.018	0.564	0.553	0.019	1.254	1.233	0.017	1.792	1.756	0.020
Nawalparasi-East	1.14	24.54	0.085	0.083	0.024	0.536	0.526	0.019	1.218	1.195	0.019	1.765	1.724	0.023
Syangja	1.05	25.51	0.056	0.056	0.011	0.526	0.517	0.016	1.227	1.210	0.014	1.786	1.758	0.015
Parbat	1.19	24.94	0.080	0.078	0.025	0.623	0.611	0.019	1.409	1.382	0.019	1.953	1.922	0.016
Baglung	1.06	26.51	0.092	0.091	0.015	0.685	0.675	0.014	1.472	1.440	0.022	2.046	1.995	0.025
Rukum-East	1.10	28.40	0.134	0.129	0.039	0.799	0.778	0.027	1.613	1.556	0.035	2.286	2.187	0.043
Rolpa	0.97	25.27	0.113	0.110	0.022	0.815	0.794	0.026	1.630	1.580	0.031	2.315	2.218	0.042

Area	Sex Ratio at Birth	Mean age at childbearing	15-19 Yrs.			20-24 Yrs.			25-29 Yrs.			30-34 Yrs.		
			Av_CEB	Av_CS	Di	Av_CEB	Av_CS	Di	Av_CEB	Av_CS	Di	Av_CEB	Av_CS	Di
Pyuthan	1.09	24.41	0.089	0.087	0.023	0.788	0.772	0.021	1.661	1.619	0.025	2.352	2.280	0.031
Gulmi	1.08	24.85	0.085	0.084	0.016	0.710	0.699	0.016	1.492	1.466	0.018	2.080	2.031	0.024
Arghakhanchi	1.24	24.33	0.087	0.086	0.012	0.738	0.724	0.019	1.561	1.526	0.023	2.140	2.082	0.027
Palpa	1.13	26.05	0.086	0.085	0.015	0.559	0.550	0.017	1.233	1.210	0.019	1.776	1.736	0.022
Nawalparasi-West	1.11	25.78	0.048	0.047	0.022	0.557	0.545	0.021	1.397	1.363	0.024	1.991	1.934	0.028
Rupandehi	1.10	26.40	0.038	0.037	0.019	0.509	0.499	0.019	1.336	1.309	0.021	1.971	1.923	0.024
Kapilbastu	1.06	27.69	0.037	0.036	0.020	0.628	0.611	0.028	1.636	1.588	0.029	2.485	2.390	0.039
Dang	1.10	24.32	0.086	0.084	0.019	0.635	0.625	0.017	1.360	1.336	0.018	1.942	1.898	0.023
Banke	1.12	26.27	0.063	0.062	0.020	0.636	0.621	0.025	1.470	1.435	0.024	2.159	2.095	0.030
Bardiya	1.12	24.47	0.082	0.081	0.021	0.621	0.609	0.020	1.292	1.258	0.027	1.912	1.846	0.034
Dolpa	1.06	25.89	0.078	0.075	0.036	0.702	0.670	0.046	1.568	1.494	0.047	2.435	2.286	0.061
Mugu	1.14	24.98	0.129	0.123	0.050	1.056	1.009	0.045	2.173	2.056	0.054	3.057	2.841	0.070
Humla	0.99	25.23	0.115	0.109	0.053	1.048	0.980	0.065	2.036	1.903	0.065	3.016	2.765	0.083
Jumla	1.13	29.18	0.103	0.098	0.047	0.896	0.859	0.041	1.883	1.781	0.054	2.639	2.442	0.074
Kalikot	1.12	26.16	0.084	0.081	0.040	0.956	0.920	0.038	2.154	2.057	0.045	3.229	3.029	0.062
Dailekh	1.07	25.93	0.104	0.101	0.024	0.953	0.931	0.023	1.928	1.870	0.030	2.688	2.594	0.035
Jajarkot	1.03	25.97	0.133	0.128	0.041	1.119	1.077	0.038	2.196	2.097	0.045	3.166	2.966	0.063
Rukum-West	1.09	24.25	0.140	0.137	0.020	0.971	0.947	0.024	1.841	1.790	0.028	2.536	2.448	0.035
Salyan	1.08	24.84	0.138	0.134	0.024	0.956	0.933	0.024	1.765	1.716	0.028	2.438	2.341	0.040
Surkhet	1.12	24.48	0.121	0.118	0.024	0.787	0.768	0.024	1.588	1.541	0.029	2.192	2.113	0.036
Bajura	1.07	24.67	0.086	0.084	0.024	0.932	0.902	0.032	2.016	1.944	0.036	2.879	2.731	0.051
Bajhang	1.10	25.21	0.087	0.085	0.027	0.940	0.920	0.021	2.116	2.040	0.036	2.964	2.821	0.048
Darchula	1.13	25.06	0.080	0.077	0.033	0.832	0.816	0.019	1.755	1.713	0.024	2.512	2.450	0.025
Baitadi	1.14	26.22	0.057	0.056	0.021	0.824	0.809	0.018	1.903	1.858	0.024	2.683	2.608	0.028
Dadeldhura	1.18	26.27	0.077	0.075	0.027	0.797	0.780	0.021	1.774	1.733	0.023	2.537	2.458	0.031
Doti	1.19	26.64	0.059	0.058	0.017	0.887	0.868	0.021	2.024	1.972	0.026	2.835	2.736	0.035
Achham	1.04	27.96	0.065	0.064	0.028	0.895	0.873	0.025	2.121	2.054	0.032	3.070	2.937	0.043
Kailali	1.20	25.30	0.059	0.058	0.022	0.558	0.547	0.019	1.308	1.279	0.023	1.983	1.924	0.029
Kanchanpur	1.20	25.50	0.052	0.051	0.023	0.570	0.560	0.016	1.410	1.380	0.021	2.099	2.044	0.026

Table A5.5: contd....

Area	Sex Ratio at Birth	Mean age at childbearing	35-39 Yrs.			40-44 Yrs.			45-49 Yrs.		
			Av_CEB	Av_CS	Di	Av_CEB	Av_CS	Di	Av_CEB	Av_CS	Di
Nepal	1.12	25.59	2.477	2.398	0.032	2.709	2.600	0.040	2.894	2.751	0.050
Province											
Koshi	1.06	25.73	2.208	2.148	0.027	2.462	2.379	0.034	2.688	2.573	0.043
Madhesh	1.18	25.37	3.038	2.956	0.027	3.144	3.043	0.032	3.175	3.056	0.038
Bagmati	1.11	26.54	1.986	1.942	0.022	2.253	2.186	0.029	2.454	2.358	0.039
Gandaki	1.11	25.48	2.143	2.086	0.027	2.403	2.325	0.033	2.604	2.496	0.041
Lumbini	1.10	25.74	2.536	2.441	0.038	2.825	2.691	0.047	3.024	2.851	0.057
Karnali	1.09	24.54	3.101	2.915	0.060	3.479	3.210	0.078	3.771	3.419	0.093
Sudurpashchim	1.16	25.39	2.858	2.733	0.044	3.223	3.040	0.057	3.439	3.199	0.070
District											
Taplejung	1.01	28.60	2.536	2.441	0.037	2.934	2.800	0.046	3.270	3.086	0.056
Sankhuwasabha	1.09	26.75	2.511	2.406	0.042	2.896	2.755	0.049	3.157	2.982	0.055
Solukhumbu	1.09	26.56	2.503	2.409	0.037	3.010	2.830	0.060	3.178	2.984	0.061
Okhaldhunga	0.99	24.96	2.444	2.389	0.022	2.794	2.719	0.027	2.945	2.833	0.038
Khotang	1.08	26.31	2.719	2.630	0.032	3.190	3.065	0.039	3.459	3.279	0.052
Bhojpur	1.07	27.53	2.500	2.401	0.039	2.849	2.718	0.046	3.164	2.998	0.053
Dhankuta	0.99	27.20	2.114	2.045	0.033	2.442	2.349	0.038	2.688	2.568	0.045
Tehrathum	1.14	25.78	2.283	2.215	0.030	2.598	2.513	0.033	2.890	2.762	0.044
Panchthar	1.06	25.83	2.337	2.250	0.037	2.734	2.611	0.045	2.986	2.804	0.061
Ilam	0.99	26.54	1.839	1.793	0.025	2.161	2.101	0.028	2.411	2.318	0.039
Jhapa	1.11	26.27	2.026	1.971	0.027	2.247	2.169	0.034	2.465	2.355	0.045
Morang	1.04	25.70	2.195	2.144	0.024	2.359	2.291	0.029	2.517	2.427	0.036
Sunsari	1.06	25.48	2.224	2.171	0.024	2.405	2.336	0.029	2.611	2.516	0.036
Udayapur	1.07	24.58	2.409	2.340	0.029	2.792	2.699	0.033	3.075	2.941	0.044
Saptari	1.23	27.21	2.658	2.607	0.019	2.719	2.657	0.023	2.733	2.667	0.024
Siraha	1.28	26.39	2.882	2.815	0.023	2.976	2.894	0.028	3.013	2.912	0.034
Dhanusa	1.33	28.04	3.000	2.916	0.028	3.094	2.990	0.034	3.127	3.001	0.040
Mahottari	1.18	26.30	3.136	3.050	0.028	3.238	3.126	0.035	3.252	3.117	0.042
Sarlahi	1.16	26.17	3.143	3.041	0.033	3.265	3.140	0.038	3.315	3.169	0.044
Rautahat	1.08	27.60	3.425	3.311	0.033	3.555	3.414	0.040	3.530	3.364	0.047

Area	Sex Ratio at Birth	Mean age at childbearing	35-39 Yrs.			40-44 Yrs.			45-49 Yrs.		
			Av_CEB	Av_CS	Di	Av_CEB	Av_CS	Di	Av_CEB	Av_CS	Di
Bara	1.08	25.89	3.060	2.982	0.025	3.163	3.074	0.028	3.255	3.143	0.034
Parsa	1.17	26.44	3.018	2.948	0.023	3.140	3.054	0.027	3.179	3.085	0.030
Dolakha	1.13	26.61	2.412	2.354	0.024	2.756	2.662	0.034	2.927	2.782	0.049
Sindhupalchok	1.12	26.09	2.468	2.379	0.036	2.766	2.634	0.048	2.966	2.795	0.058
Rasuwa	1.08	27.87	2.752	2.656	0.035	3.137	2.965	0.055	3.237	2.990	0.076
Dhading	1.03	25.25	2.526	2.435	0.036	2.878	2.735	0.050	3.083	2.889	0.063
Nuwakot	1.06	28.31	2.488	2.389	0.040	2.811	2.661	0.053	3.027	2.840	0.062
Kathmandu	1.16	28.57	1.673	1.650	0.014	1.871	1.839	0.017	2.029	1.983	0.023
Bhaktapur	1.12	27.99	1.755	1.730	0.014	1.978	1.942	0.018	2.096	2.044	0.025
Lalitpur	1.10	28.51	1.634	1.616	0.011	1.835	1.809	0.014	1.934	1.899	0.018
Kavrepalanchok	1.09	28.91	2.237	2.183	0.024	2.542	2.464	0.031	2.732	2.616	0.043
Ramechhap	1.11	26.67	2.461	2.409	0.021	2.799	2.711	0.032	3.017	2.906	0.037
Sindhuli	1.06	24.40	2.776	2.685	0.033	3.236	3.098	0.043	3.490	3.310	0.052
Makwanpur	1.05	24.65	2.405	2.335	0.029	2.830	2.715	0.041	3.136	2.961	0.056
Chitawan	1.12	25.36	2.042	1.995	0.023	2.278	2.209	0.031	2.463	2.359	0.042
Gorkha	1.12	25.70	2.312	2.241	0.031	2.576	2.474	0.040	2.738	2.607	0.048
Manang	1.00	28.60	1.771	1.682	0.050	1.958	1.901	0.029	2.060	1.970	0.044
Mustang	0.92	33.45	1.968	1.849	0.060	2.073	1.986	0.042	2.157	2.019	0.064
Myagdi	1.11	26.20	2.411	2.329	0.034	2.682	2.575	0.040	2.862	2.712	0.052
Kaski	1.10	26.57	1.936	1.898	0.019	2.140	2.090	0.024	2.279	2.211	0.030
Lamjung	1.07	25.53	2.078	2.029	0.024	2.297	2.234	0.027	2.459	2.373	0.035
Tanahu	1.16	24.96	2.157	2.098	0.027	2.460	2.375	0.035	2.694	2.584	0.041
Nawalparasi-East	1.14	24.54	2.128	2.057	0.033	2.437	2.335	0.042	2.758	2.594	0.060
Syangja	1.05	25.51	2.169	2.117	0.024	2.435	2.365	0.029	2.621	2.533	0.034
Parbat	1.19	24.94	2.330	2.273	0.024	2.545	2.468	0.030	2.751	2.652	0.036
Baglung	1.06	26.51	2.426	2.357	0.028	2.681	2.589	0.034	2.826	2.715	0.039
Rukum-East	1.10	28.40	2.840	2.682	0.056	3.179	2.918	0.082	3.284	2.923	0.110
Rolpa	0.97	25.27	2.827	2.676	0.053	3.288	3.044	0.074	3.512	3.208	0.087
Pyuthan	1.09	24.41	2.825	2.708	0.042	3.215	3.054	0.050	3.470	3.242	0.066
Gulmi	1.08	24.85	2.528	2.450	0.031	2.819	2.711	0.038	3.064	2.938	0.041
Arghakhanchi	1.24	24.33	2.550	2.468	0.032	2.912	2.798	0.039	3.162	3.018	0.046

Area	Sex Ratio at Birth	Mean age at childbearing	35-39 Yrs.			40-44 Yrs.			45-49 Yrs.		
			Av_CEB	Av_CS	Di	Av_CEB	Av_CS	Di	Av_CEB	Av_CS	Di
Palpa	1.13	26.05	2.177	2.110	0.031	2.499	2.415	0.033	2.756	2.626	0.047
Nawalparasi-West	1.11	25.78	2.402	2.311	0.038	2.638	2.510	0.049	2.797	2.633	0.059
Rupandehi	1.10	26.40	2.411	2.334	0.032	2.636	2.526	0.042	2.809	2.674	0.048
Kapilbastu	1.06	27.69	3.065	2.925	0.046	3.394	3.210	0.054	3.572	3.342	0.064
Dang	1.10	24.32	2.332	2.261	0.031	2.608	2.503	0.041	2.775	2.635	0.051
Banke	1.12	26.27	2.616	2.517	0.038	2.886	2.758	0.044	3.072	2.901	0.056
Bardiya	1.12	24.47	2.399	2.289	0.046	2.704	2.546	0.059	2.964	2.756	0.070
Dolpa	1.06	25.89	2.965	2.721	0.082	3.283	2.952	0.101	3.553	3.091	0.130
Mugu	1.14	24.98	3.500	3.191	0.088	3.955	3.515	0.111	4.248	3.703	0.128
Humla	0.99	25.23	3.454	3.111	0.099	3.779	3.295	0.128	4.130	3.543	0.142
Jumla	1.13	29.18	3.049	2.792	0.084	3.079	2.735	0.112	3.602	3.160	0.123
Kalikot	1.12	26.16	3.857	3.558	0.078	4.380	3.938	0.101	4.596	4.042	0.121
Dailekh	1.07	25.93	3.296	3.124	0.052	3.658	3.416	0.066	3.916	3.611	0.078
Jajarkot	1.03	25.97	3.791	3.504	0.075	4.231	3.830	0.095	4.486	3.937	0.122
Rukum-West	1.09	24.25	3.059	2.915	0.047	3.463	3.246	0.062	3.695	3.431	0.072
Salyan	1.08	24.84	2.908	2.776	0.045	3.313	3.113	0.060	3.577	3.306	0.076
Surkhet	1.12	24.48	2.636	2.517	0.045	3.004	2.823	0.060	3.265	3.026	0.073
Bajura	1.07	24.67	3.423	3.195	0.067	3.706	3.424	0.076	3.885	3.511	0.096
Bajhang	1.10	25.21	3.428	3.224	0.060	3.787	3.490	0.078	3.920	3.572	0.089
Darchula	1.13	25.06	2.885	2.796	0.031	3.121	3.014	0.034	3.225	3.072	0.047
Baitadi	1.14	26.22	3.190	3.074	0.037	3.409	3.254	0.045	3.534	3.350	0.052
Dadeldhura	1.18	26.27	3.074	2.935	0.045	3.393	3.206	0.055	3.571	3.347	0.063
Doti	1.19	26.64	3.384	3.233	0.045	3.678	3.468	0.057	3.838	3.569	0.070
Achham	1.04	27.96	3.676	3.487	0.051	4.145	3.842	0.073	4.345	3.954	0.090
Kailali	1.20	25.30	2.498	2.395	0.041	2.868	2.708	0.056	3.118	2.904	0.069
Kanchanpur	1.20	25.50	2.582	2.484	0.038	2.941	2.801	0.048	3.198	2.997	0.063

Table A5.6: Infant, child and under 5 mortality rates based on all model life tables, Nepal (NPHC 2021)

Age group of woman	United Nations Models (Palloni-Heligman Equations)										Coale-Demeny West model (Trussell Equations)							
	Latin American		Chilean		South Asian		Far East		General		West		North		East		South	
	Ref. Date	q(x)	Ref. Date	q(x)	Ref. Date	q(x)	Ref. Date	q(x)	Ref. Date	q(x)	Ref. Date	q(x)	Ref. Date	q(x)	Ref. Date	q(x)	Ref. Date	q(x)
Both Sexes																		
Infant mortality rate (probability of dying between ages 0 and 1): q(1)																		
15 - 19	2020.8	0.0222	2020.7	0.0243	2020.8	0.0222	2020.7	0.02201	2020.8	0.0221	2021.1	0.0247	2021.1	0.0244	2021.1	0.0245	2021.1	0.0238
20 - 24	2019.8	0.0183	2019.7	0.0201	2019.8	0.0184	2019.7	0.01887	2019.8	0.0187	2019.8	0.0194	2019.9	0.0182	2019.8	0.0197	2019.9	0.0191
25 - 29	2018.1	0.0176	2017.9	0.0198	2018.0	0.0177	2018.0	0.01854	2018.1	0.0182	2017.8	0.0188	2018.0	0.0172	2017.8	0.0195	2017.9	0.0189
30 - 34	2015.8	0.0196	2015.5	0.0227	2015.7	0.0200	2015.7	0.02083	2015.8	0.0205	2015.4	0.0214	2015.7	0.0197	2015.2	0.0225	2015.4	0.0220
35 - 39	2013.1	0.0234	2012.6	0.0275	2012.9	0.0241	2013.0	0.02454	2013.0	0.0245	2012.6	0.0249	2013.1	0.0233	2012.4	0.0272	2012.6	0.0275
40 - 44	2009.9	0.0273	2009.5	0.0332	2009.6	0.0292	2010.1	0.02816	2010.0	0.0284	2009.7	0.0288	2010.2	0.0265	2009.3	0.0321	2009.6	0.0331
45 - 49	2006.3	0.0319	2006.0	0.0385	2005.7	0.0344	2006.9	0.03116	2006.5	0.0327	2006.7	0.0316	2007.3	0.0280	2006.0	0.0359	2006.4	0.0386
Probability of dying between ages 1 and 5: q(1,4)																		
15 - 19	2020.8	0.0064	2020.7	0.0028	2020.8	0.0061	2020.7	0.00440	2020.8	0.0050	2021.1	0.0049	2021.1	0.0067	2021.1	0.0031	2021.1	0.0038
20 - 24	2019.8	0.0052	2019.7	0.0023	2019.8	0.0050	2019.7	0.00354	2019.8	0.0041	2019.8	0.0034	2019.9	0.0046	2019.8	0.0023	2019.9	0.0030
25 - 29	2018.1	0.0050	2017.9	0.0022	2018.0	0.0048	2018.0	0.00346	2018.1	0.0040	2017.8	0.0033	2018.0	0.0044	2017.8	0.0023	2017.9	0.0030
30 - 34	2015.8	0.0056	2015.5	0.0026	2015.7	0.0055	2015.7	0.00407	2015.8	0.0046	2015.4	0.0039	2015.7	0.0050	2015.2	0.0028	2015.4	0.0035
35 - 39	2013.1	0.0068	2012.6	0.0032	2012.9	0.0067	2013.0	0.00518	2013.0	0.0057	2012.6	0.0049	2013.1	0.0063	2012.4	0.0036	2012.6	0.0045
40 - 44	2009.9	0.0082	2009.5	0.0041	2009.6	0.0084	2010.1	0.00641	2010.0	0.0070	2009.7	0.0062	2010.2	0.0077	2009.3	0.0046	2009.6	0.0056
45 - 49	2006.3	0.0100	2006.0	0.0050	2005.7	0.0103	2006.9	0.00755	2006.5	0.0086	2006.7	0.0072	2007.3	0.0085	2006.0	0.0055	2006.4	0.0069
Probability of dying by age 5: q(5)																		
15 - 19	2020.8	0.0285	2020.7	0.0271	2020.8	0.0282	2020.7	0.02632	2020.8	0.0270	2021.1	0.0295	2021.1	0.0310	2021.1	0.0276	2021.1	0.0275
20 - 24	2019.8	0.0235	2019.7	0.0223	2019.8	0.0234	2019.7	0.02234	2019.8	0.0228	2019.8	0.0227	2019.9	0.0227	2019.8	0.0220	2019.9	0.0221
25 - 29	2018.1	0.0224	2017.9	0.0220	2018.0	0.0224	2018.0	0.02194	2018.1	0.0221	2017.8	0.0220	2018.0	0.0215	2017.8	0.0217	2017.9	0.0218
30 - 34	2015.8	0.0251	2015.5	0.0252	2015.7	0.0254	2015.7	0.02481	2015.8	0.0249	2015.4	0.0252	2015.7	0.0246	2015.2	0.0252	2015.4	0.0255
35 - 39	2013.1	0.0301	2012.6	0.0307	2012.9	0.0307	2013.0	0.02959	2013.0	0.0301	2012.6	0.0297	2013.1	0.0295	2012.4	0.0308	2012.6	0.0318
40 - 44	2009.9	0.0352	2009.5	0.0371	2009.6	0.0373	2010.1	0.03438	2010.0	0.0352	2009.7	0.0349	2010.2	0.0340	2009.3	0.0365	2009.6	0.0385
45 - 49	2006.3	0.0416	2006.0	0.0434	2005.7	0.0443	2006.9	0.03847	2006.5	0.0410	2006.7	0.0385	2007.3	0.0363	2006.0	0.0412	2006.4	0.0453
Life expectancy at birth: e(0)																		
15 - 19	2020.8	77.72	2020.7	77.75	2020.8	78.65	2020.7	71.90	2020.8	76.17	2021.1	71.16	2021.1	72.39	2021.1	72.73	2021.1	79.10
20 - 24	2019.8	79.56	2019.7	79.66	2019.8	80.40	2019.7	73.47	2019.8	77.89	2019.8	73.00	2019.9	75.37	2019.8	74.34	2019.9	81.07
25 - 29	2018.1	79.97	2017.9	79.78	2018.0	80.77	2018.0	73.64	2018.1	78.21	2017.8	73.24	2018.0	75.96	2017.8	74.42	2017.9	81.18
30 - 34	2015.8	78.92	2015.5	78.45	2015.7	79.63	2015.7	72.46	2015.8	76.98	2015.4	72.27	2015.7	74.55	2015.2	73.37	2015.4	79.81
35 - 39	2013.1	77.18	2012.6	76.49	2012.9	77.85	2013.0	70.76	2013.0	75.05	2012.6	71.10	2013.1	72.83	2012.4	71.94	2012.6	77.75
40 - 44	2009.9	75.62	2009.5	74.52	2009.6	75.96	2010.1	69.25	2010.0	73.45	2009.7	69.96	2010.2	71.59	2009.3	70.69	2009.6	75.88
45 - 49	2006.3	73.90	2006.0	72.88	2005.7	74.26	2006.9	68.08	2006.5	71.86	2006.7	69.21	2007.3	71.04	2006.0	69.81	2006.4	74.23

Age group of woman	United Nations Models (Palloni-Heligman Equations)										Coale-Demeny West model (Trussell Equations)							
	Latin American		Chilean		South Asian		Far East		General		West		North		East		South	
	Ref. Date	q(x)	Ref. Date	q(x)	Ref. Date	q(x)	Ref. Date	q(x)	Ref. Date	q(x)	Ref. Date	q(x)	Ref. Date	q(x)	Ref. Date	q(x)	Ref. Date	q(x)
Female																		
Infant mortality rate (probability of dying between ages 0 and 1): q(1)																		
15 - 19	2020.8	0.0184	2020.7	0.0201	2020.8	0.0184	2020.7	0.01821	2020.8	0.0183	2021.1	0.0205	2021.1	0.0202	2021.1	0.0203	2021.1	0.0197
20 - 24	2019.8	0.0161	2019.7	0.0174	2019.8	0.0159	2019.7	0.01635	2019.8	0.0164	2019.8	0.0169	2019.9	0.0159	2019.8	0.0171	2019.9	0.0167
25 - 29	2018.1	0.0155	2017.9	0.0172	2018.0	0.0153	2018.0	0.01609	2018.1	0.0160	2017.8	0.0165	2018.0	0.0151	2017.7	0.0170	2017.9	0.0166
30 - 34	2015.8	0.0178	2015.5	0.0202	2015.7	0.0177	2015.7	0.01842	2015.7	0.0185	2015.3	0.0192	2015.6	0.0178	2015.2	0.0202	2015.4	0.0200
35 - 39	2013.0	0.0214	2012.6	0.0247	2012.8	0.0215	2013.0	0.02169	2013.0	0.0222	2012.6	0.0225	2013.0	0.0213	2012.4	0.0246	2012.6	0.0251
40 - 44	2009.9	0.0256	2009.4	0.0305	2009.5	0.0266	2010.0	0.02531	2009.9	0.0264	2009.7	0.0268	2010.2	0.0248	2009.3	0.0295	2009.5	0.0311
45 - 49	2006.3	0.0301	2005.9	0.0355	2005.6	0.0317	2006.8	0.02812	2006.4	0.0306	2006.7	0.0295	2007.2	0.0261	2006.0	0.0329	2006.3	0.0366
Probability of dying between ages 1 and 5: q(1,4)																		
15 - 19	2020.8	0.0045	2020.7	0.0019	2020.8	0.0048	2020.7	0.00336	2020.8	0.0034	2021.1	0.0032	2021.1	0.0045	2021.1	0.0020	2021.1	0.0024
20 - 24	2019.8	0.0039	2019.7	0.0016	2019.8	0.0042	2019.7	0.00286	2019.8	0.0030	2019.8	0.0024	2019.9	0.0034	2019.8	0.0015	2019.9	0.0021
25 - 29	2018.1	0.0037	2017.9	0.0016	2018.0	0.0040	2018.0	0.00279	2018.1	0.0029	2017.8	0.0023	2018.0	0.0032	2017.7	0.0015	2017.9	0.0020
30 - 34	2015.8	0.0043	2015.5	0.0019	2015.7	0.0046	2015.7	0.00342	2015.7	0.0035	2015.3	0.0029	2015.6	0.0038	2015.2	0.0020	2015.4	0.0024
35 - 39	2013.0	0.0053	2012.6	0.0025	2012.8	0.0057	2013.0	0.00438	2013.0	0.0045	2012.6	0.0037	2013.0	0.0048	2012.4	0.0027	2012.6	0.0031
40 - 44	2009.9	0.0066	2009.4	0.0033	2009.5	0.0074	2010.0	0.00557	2009.9	0.0057	2009.7	0.0049	2010.2	0.0061	2009.3	0.0036	2009.5	0.0041
45 - 49	2006.3	0.0082	2005.9	0.0042	2005.6	0.0092	2006.8	0.00655	2006.4	0.0070	2006.7	0.0057	2007.2	0.0066	2006.0	0.0043	2006.3	0.0053
Probability of dying by age 5: q(5)																		
15 - 19	2020.8	0.0227	2020.7	0.0220	2020.8	0.0231	2020.7	0.02151	2020.8	0.0217	2021.1	0.0236	2021.1	0.0246	2021.1	0.0223	2021.1	0.0221
20 - 24	2019.8	0.0199	2019.7	0.0190	2019.8	0.0200	2019.7	0.01917	2019.8	0.0193	2019.8	0.0193	2019.9	0.0193	2019.8	0.0187	2019.9	0.0188
25 - 29	2018.1	0.0192	2017.9	0.0188	2018.0	0.0193	2018.0	0.01884	2018.1	0.0189	2017.8	0.0188	2018.0	0.0183	2017.7	0.0185	2017.9	0.0186
30 - 34	2015.8	0.0221	2015.5	0.0221	2015.7	0.0223	2015.7	0.02178	2015.7	0.0219	2015.3	0.0221	2015.6	0.0216	2015.2	0.0221	2015.4	0.0224
35 - 39	2013.0	0.0267	2012.6	0.0271	2012.8	0.0271	2013.0	0.02598	2013.0	0.0266	2012.6	0.0262	2013.0	0.0259	2012.4	0.0272	2012.6	0.0282
40 - 44	2009.9	0.0320	2009.4	0.0337	2009.5	0.0338	2010.0	0.03073	2009.9	0.0319	2009.7	0.0316	2010.2	0.0307	2009.3	0.0330	2009.5	0.0351
45 - 49	2006.3	0.0380	2005.9	0.0395	2005.6	0.0406	2006.8	0.03449	2006.4	0.0374	2006.7	0.0351	2007.2	0.0326	2006.0	0.0371	2006.3	0.0417
Life expectancy at birth: e(0)																		
15 - 19	2020.8	78.21	2020.7	76.96	2020.8	78.96	2020.7	70.63	2020.80	76.14	2021.1	71.62	2021.1	73.34	2021.1	72.16	2021.1	79.36
20 - 24	2019.8	79.46	2019.7	78.38	2019.8	80.32	2019.7	71.53	2019.80	77.23	2019.8	72.85	2019.9	75.69	2019.8	73.16	2019.9	80.79
25 - 29	2018.1	79.80	2017.9	78.48	2018.0	80.68	2018.0	71.66	2018.10	77.48	2017.8	73.01	2018.0	76.23	2017.7	73.20	2017.9	80.85
30 - 34	2015.8	78.51	2015.5	76.91	2015.7	79.33	2015.7	70.53	2015.70	76.04	2015.3	72.02	2015.6	74.56	2015.2	72.20	2015.4	79.25
35 - 39	2013.0	76.74	2012.6	74.95	2012.8	77.47	2013.0	69.11	2013.00	74.20	2012.6	70.96	2013.0	72.85	2012.4	71.00	2012.6	77.12
40 - 44	2009.9	75.00	2009.4	72.90	2009.5	75.38	2010.0	67.68	2009.90	72.50	2009.7	69.71	2010.2	71.45	2009.3	69.80	2009.5	75.09
45 - 49	2006.3	73.36	2005.9	71.40	2005.6	73.68	2006.8	66.64	2006.40	71.04	2006.7	68.97	2007.2	70.97	2006.0	69.04	2006.3	73.47
Male																		
Infant mortality rate (probability of dying between ages 0 and 1): q(1)																		
15 - 19	2020.8	0.0256	2020.7	0.0281	2020.8	0.0257	2020.7	0.02544	2020.80	0.0255	2021.1	0.0286	2021.1	0.0282	2021.1	0.0284	2021.1	0.0275
20 - 24	2019.8	0.0211	2019.7	0.0229	2019.7	0.0210	2019.7	0.02132	2019.80	0.0214	2019.8	0.0221	2019.9	0.0209	2019.8	0.0224	2019.9	0.0220

Age group of woman	United Nations Models (Palloni-Heligman Equations)										Coale-Demeny West model (Trussell Equations)							
	Latin American		Chilean		South Asian		Far East		General		West		North		East		South	
	Ref. Date	q(x)	Ref. Date	q(x)	Ref. Date	q(x)	Ref. Date	q(x)	Ref. Date	q(x)	Ref. Date	q(x)	Ref. Date	q(x)	Ref. Date	q(x)	Ref. Date	q(x)
25 - 29	2018.1	0.0203	2017.9	0.0226	2018.0	0.0202	2018.0	0.02088	2018.10	0.0209	2017.8	0.0215	2018.0	0.0199	2017.8	0.0223	2017.9	0.0219
30 - 34	2015.8	0.0224	2015.5	0.0255	2015.7	0.0223	2015.7	0.02290	2015.80	0.0231	2015.4	0.0240	2015.7	0.0223	2015.3	0.0253	2015.4	0.0253
35 - 39	2013.1	0.0265	2012.7	0.0305	2012.9	0.0266	2013.0	0.02644	2013.10	0.0273	2012.7	0.0277	2013.1	0.0259	2012.4	0.0303	2012.7	0.0312
40 - 44	2010.0	0.0299	2009.6	0.0357	2009.7	0.0312	2010.1	0.02938	2010.00	0.0308	2009.8	0.0313	2010.3	0.0287	2009.4	0.0346	2009.7	0.0364
45 - 49	2006.4	0.0342	2006.0	0.0404	2005.8	0.0360	2006.9	0.03184	2006.50	0.0347	2006.8	0.0338	2007.3	0.0296	2006.1	0.0378	2006.5	0.0416
Probability of dying between ages 1 and 5: q(1,4)																		
15 - 19	2020.8	0.0066	2020.7	0.0030	2020.8	0.0070	2020.7	0.00561	2020.80	0.0054	2021.1	0.0054	2021.1	0.0076	2021.1	0.0033	2021.1	0.0035
20 - 24	2019.8	0.0052	2019.7	0.0023	2019.7	0.0055	2019.7	0.00427	2019.80	0.0042	2019.8	0.0036	2019.9	0.0046	2019.8	0.0023	2019.9	0.0027
25 - 29	2018.1	0.0050	2017.9	0.0022	2018.0	0.0053	2018.0	0.00413	2018.10	0.0041	2017.8	0.0035	2018.0	0.0044	2017.8	0.0023	2017.9	0.0027
30 - 34	2015.8	0.0056	2015.5	0.0026	2015.7	0.0060	2015.7	0.00477	2015.80	0.0047	2015.4	0.0041	2015.7	0.0051	2015.3	0.0028	2015.4	0.0031
35 - 39	2013.1	0.0069	2012.7	0.0033	2012.9	0.0073	2013.0	0.00596	2013.10	0.0059	2012.7	0.0052	2013.1	0.0065	2012.4	0.0037	2012.7	0.0041
40 - 44	2010.0	0.0081	2009.6	0.0042	2009.7	0.0090	2010.1	0.00701	2010.00	0.0071	2009.8	0.0063	2010.3	0.0078	2009.4	0.0046	2009.7	0.0053
45 - 49	2006.4	0.0098	2006.0	0.0051	2005.8	0.0110	2006.9	0.00795	2006.50	0.0085	2006.8	0.0071	2007.3	0.0083	2006.1	0.0053	2006.5	0.0066
Probability of dying by age 5: q(5)																		
15 - 19	2020.8	0.0321	2020.7	0.0310	2020.8	0.0325	2020.7	0.03091	2020.80	0.0308	2021.1	0.0338	2021.1	0.0355	2021.1	0.0316	2021.1	0.0309
20 - 24	2019.8	0.0262	2019.7	0.0251	2019.7	0.0264	2019.7	0.02549	2019.80	0.0256	2019.8	0.0256	2019.9	0.0254	2019.8	0.0247	2019.9	0.0247
25 - 29	2018.1	0.0252	2017.9	0.0248	2018.0	0.0254	2018.0	0.02493	2018.10	0.0249	2017.8	0.0248	2018.0	0.0242	2017.8	0.0245	2017.9	0.0245
30 - 34	2015.8	0.0279	2015.5	0.0280	2015.7	0.0282	2015.7	0.02756	2015.80	0.0277	2015.4	0.0280	2015.7	0.0274	2015.3	0.0280	2015.4	0.0283
35 - 39	2013.1	0.0332	2012.7	0.0338	2012.9	0.0337	2013.0	0.03224	2013.10	0.0331	2012.7	0.0327	2013.1	0.0323	2012.4	0.0339	2012.7	0.0352
40 - 44	2010.0	0.0378	2009.6	0.0398	2009.7	0.0399	2010.1	0.03618	2010.00	0.0376	2009.8	0.0375	2010.3	0.0363	2009.4	0.0391	2009.7	0.0415
45 - 49	2006.4	0.0437	2006.0	0.0453	2005.8	0.0466	2006.9	0.03954	2006.50	0.0429	2006.8	0.0406	2007.3	0.0377	2006.1	0.0429	2006.5	0.0479
Life expectancy at birth: e(0)																		
15 - 19	2020.8	74.99	2020.7	73.71	2020.8	75.75	2020.7	67.63	2020.80	72.83	2021.1	69.23	2021.1	70.24	2021.1	70.07	2021.1	76.29
20 - 24	2019.8	76.88	2019.7	75.72	2019.7	77.71	2019.7	69.27	2019.80	74.56	2019.8	71.10	2019.9	73.00	2019.8	71.57	2019.9	78.35
25 - 29	2018.1	77.25	2017.9	75.82	2018.0	78.07	2018.0	69.45	2018.10	74.80	2017.8	71.30	2018.0	73.50	2017.8	71.62	2017.9	78.39
30 - 34	2015.8	76.32	2015.5	74.67	2015.7	77.08	2015.7	68.62	2015.80	73.82	2015.4	70.53	2015.7	72.41	2015.3	70.83	2015.4	77.07
35 - 39	2013.1	74.67	2012.7	72.88	2012.9	75.41	2013.0	67.26	2013.10	72.18	2012.7	69.47	2013.1	71.04	2012.4	69.64	2012.7	75.06
40 - 44	2010.0	73.42	2009.6	71.34	2009.7	73.82	2010.1	66.19	2010.00	70.99	2009.8	68.50	2010.3	70.05	2009.4	68.68	2009.7	73.52
45 - 49	2006.4	71.99	2006.0	70.02	2005.8	72.35	2006.9	65.33	2006.50	69.73	2006.8	67.88	2007.3	69.76	2006.1	68.01	2006.5	72.11

Table A5.7: IMR, CMR and U5MR for province for different age group of women, both sexes, males, females – CEBCS, UN Far East model, NPHC 2021

Province	Age group of women	Male						Female						Both sexes					
		t(x)	IMR	t(x)	CMR	t(x)	U5MR	t(x)	IMR	t(x)	CMR	t(x)	U5MR	t(x)	IMR	t(x)	CMR	t(x)	U5MR
Koshi	15 - 19	2020.7	24	2020.7	5	2020.7	29	2020.7	15	2020.7	3	2020.7	18	2020.7	20	2020.7	4	2020.7	24
	20 - 24	2019.6	21	2019.6	4	2019.6	25	2019.6	14	2019.6	3	2019.6	17	2019.6	18	2019.6	3	2019.6	21
	25 - 29	2018	19	2018	4	2018	22	2018	13	2018	2	2018	15	2018	16	2018	3	2018	19
	30 - 34	2015.7	21	2015.7	4	2015.7	25	2015.8	15	2015.8	3	2015.8	18	2015.8	18	2015.8	3	2015.8	21
	35 - 39	2013.1	24	2013.1	5	2013.1	29	2013.2	18	2013.2	3	2013.2	22	2013.2	22	2013.2	4	2013.2	26
	40 - 44	2010.3	26	2010.3	6	2010.3	32	2010.4	22	2010.4	4	2010.4	26	2010.3	24	2010.3	5	2010.3	29
	45 - 49	2007.1	30	2007.1	7	2007.1	37	2007.2	25	2007.2	5	2007.2	30	2007.1	28	2007.1	6	2007.1	34
Madhesh	15 - 19	2020.8	24	2020.8	5	2020.8	29	2020.8	19	2020.8	4	2020.8	23	2020.8	22	2020.8	4	2020.8	26
	20 - 24	2019.7	19	2019.7	4	2019.7	23	2019.7	15	2019.7	3	2019.7	18	2019.7	17	2019.7	3	2019.7	20
	25 - 29	2017.9	19	2017.9	4	2017.9	23	2017.9	15	2017.9	3	2017.9	18	2017.9	17	2017.9	3	2017.9	20
	30 - 34	2015.4	20	2015.4	4	2015.4	24	2015.4	17	2015.4	3	2015.4	20	2015.4	19	2015.4	3	2015.4	22
	35 - 39	2012.4	22	2012.4	4	2012.4	26	2012.4	20	2012.4	4	2012.4	24	2012.4	21	2012.4	4	2012.4	25
	40 - 44	2009.4	23	2009.4	5	2009.4	27	2009.3	23	2009.3	5	2009.3	28	2009.3	23	2009.3	5	2009.3	27
	45 - 49	2006.1	23	2006.1	5	2006.1	28	2006	26	2006	5	2006	31	2006.1	24	2006.1	5	2006.1	29
Bagmati	15 - 19	2020.7	20	2020.7	4	2020.7	24	2020.7	12	2020.7	2	2020.7	14	2020.7	16	2020.7	3	2020.7	19
	20 - 24	2019.6	17	2019.6	3	2019.6	20	2019.6	12	2019.6	2	2019.6	14	2019.6	15	2019.6	3	2019.6	17
	25 - 29	2018.2	16	2018.2	3	2018.2	19	2018.2	11	2018.2	2	2018.2	13	2018.2	14	2018.2	2	2018.2	16
	30 - 34	2016.3	17	2016.3	3	2016.3	20	2016.2	13	2016.2	2	2016.2	15	2016.3	15	2016.3	3	2016.3	18
	35 - 39	2014.1	19	2014.1	4	2014.1	23	2014	16	2014	3	2014	18	2014	18	2014	3	2014	21
	40 - 44	2011.4	23	2011.4	5	2011.4	28	2011.3	20	2011.3	4	2011.3	24	2011.4	22	2011.4	4	2011.4	26
	45 - 49	2008.3	27	2008.3	6	2008.3	33	2008.2	25	2008.2	5	2008.2	30	2008.3	26	2008.3	6	2008.3	31
Gandaki	15 - 19	2020.7	21	2020.7	4	2020.7	25	2020.7	18	2020.7	3	2020.7	21	2020.7	19	2020.7	4	2020.7	23
	20 - 24	2019.6	18	2019.6	3	2019.6	21	2019.6	14	2019.6	2	2019.6	16	2019.6	16	2019.6	3	2019.6	19
	25 - 29	2018.1	18	2018.1	3	2018.1	21	2018	13	2018	2	2018	16	2018.1	16	2018.1	3	2018.1	19

Province	Age group of women	Male						Female						Both sexes					
		t(x)	IMR	t(x)	CMR	t(x)	U5MR	t(x)	IMR	t(x)	CMR	t(x)	U5MR	t(x)	IMR	t(x)	CMR	t(x)	U5MR
	30 - 34	2016.1	18	2016.1	3	2016.1	22	2016	14	2016	3	2016	17	2016.1	16	2016.1	3	2016.1	19
	35 - 39	2013.8	23	2013.8	5	2013.8	28	2013.6	18	2013.6	3	2013.6	21	2013.7	21	2013.7	4	2013.7	25
	40 - 44	2011.2	25	2011.2	6	2011.2	31	2010.9	21	2010.9	4	2010.9	25	2011.1	23	2011.1	5	2011.1	28
	45 - 49	2008.1	28	2008.1	6	2008.1	34	2007.8	25	2007.8	5	2007.8	30	2007.9	27	2007.9	6	2007.9	32
Lumbini	15 - 19	2020.7	24	2020.7	5	2020.7	30	2020.7	17	2020.7	3	2020.7	20	2020.7	21	2020.7	4	2020.7	25
	20 - 24	2019.7	24	2019.7	5	2019.7	29	2019.7	18	2019.7	3	2019.7	21	2019.7	21	2019.7	4	2019.7	25
	25 - 29	2018.1	23	2018.1	5	2018.1	28	2018.1	18	2018.1	3	2018.1	21	2018.1	21	2018.1	4	2018.1	25
	30 - 34	2016	26	2016	6	2016	32	2015.9	22	2015.9	4	2015.9	26	2015.9	24	2015.9	5	2015.9	29
	35 - 39	2013.4	31	2013.4	8	2013.4	38	2013.2	26	2013.2	6	2013.2	32	2013.3	29	2013.3	7	2013.3	35
	40 - 44	2010.5	34	2010.5	9	2010.5	43	2010.4	30	2010.4	7	2010.4	37	2010.5	33	2010.5	8	2010.5	40
	45 - 49	2007.4	36	2007.4	10	2007.4	46	2007.2	34	2007.2	9	2007.2	43	2007.3	35	2007.3	9	2007.3	44
Karnali	15 - 19	2020.7	38	2020.7	11	2020.7	48	2020.8	25	2020.8	5	2020.8	30	2020.7	32	2020.7	8	2020.7	40
	20 - 24	2019.6	32	2019.6	8	2019.6	40	2019.6	26	2019.6	5	2019.6	31	2019.6	29	2019.6	7	2019.6	36
	25 - 29	2017.8	35	2017.8	9	2017.8	43	2017.8	27	2017.8	6	2017.8	33	2017.8	31	2017.8	8	2017.8	38
	30 - 34	2015.4	41	2015.4	12	2015.4	52	2015.3	33	2015.3	8	2015.3	42	2015.3	37	2015.3	10	2015.3	47
	35 - 39	2012.6	46	2012.6	14	2012.6	60	2012.5	38	2012.5	10	2012.5	48	2012.5	42	2012.5	12	2012.5	54
	40 - 44	2009.6	51	2009.6	17	2009.6	67	2009.5	45	2009.5	14	2009.5	59	2009.5	48	2009.5	16	2009.5	63
	45 - 49	2006.3	54	2006.3	18	2006.3	72	2006.2	49	2006.2	16	2006.2	65	2006.3	52	2006.3	17	2006.3	68
Sudurpashchim	15 - 19	2020.8	28	2020.8	7	2020.8	34	2020.8	23	2020.8	5	2020.8	27	2020.8	26	2020.8	6	2020.8	31
	20 - 24	2019.8	22	2019.8	5	2019.8	27	2019.8	18	2019.8	3	2019.8	21	2019.8	20	2019.8	4	2019.8	24
	25 - 29	2018.1	25	2018.1	5	2018.1	30	2018.1	20	2018.1	4	2018.1	24	2018.1	22	2018.1	5	2018.1	27
	30 - 34	2015.9	29	2015.9	7	2015.9	35	2015.8	24	2015.8	5	2015.8	29	2015.8	26	2015.8	6	2015.8	32
	35 - 39	2013.1	35	2013.1	9	2013.1	43	2013	30	2013	7	2013	37	2013.1	33	2013.1	8	2013.1	40
	40 - 44	2010.2	39	2010.2	11	2010.2	49	2010.1	37	2010.1	10	2010.1	46	2010.1	38	2010.1	10	2010.1	48
	45 - 49	2007	42	2007	12	2007	54	2006.9	40	2006.9	12	2006.9	51	2007	41	2007	12	2007	53

Table A5.8: Infant, child and under 5 mortality rates using CEBCS (Palloni-Helligman method, UN Far East model, 20-24 age group of women), Nepal, ecological zone, province and district, NPHC 2021

Area	IMR			CMR			U5MR		
	Both sexes	Female	Male	Both sexes	Female	Male	Both sexes	Female	Male
Nepal	18.9	16.4	21.3	3.5	2.9	4.3	22.3	21.5	25.5
Ecological zone									
Mountain	27	24	31	6	5	8	33	28	38
Hill	19	16	21	3	3	4	22	19	25
Tarai	18	15	20	3	3	4	21	18	24
Province									
Koshi	18.0	14.0	21.0	3.0	3.0	4.0	21.0	17.0	25.0
Madhesh	17.0	15.0	19.0	3.0	3.0	4.0	20.0	18.0	23.0
Bagmati	15.0	12.0	17.0	3.0	2.0	3.0	17.0	14.0	20.0
Gandaki	16.0	14.0	18.0	3.0	2.0	3.0	19.0	16.0	21.0
Lumbini	21.0	18.0	24.0	4.0	3.0	5.0	25.0	21.0	29.0
Karnali	29.0	26.0	32.0	7.0	5.0	8.0	36.0	31.0	40.0
Sudurpashchim	20.0	18.0	22.0	4.0	3.0	5.0	24.0	21.0	27.0
District									
Taplejung	19.0	13.0	24.0	4.0	2.0	5.0	23.0	16.0	29.0
Sankhuwasabha	22.0	14.0	28.0	4.0	3.0	7.0	26.0	17.0	35.0
Solukhumbu	19.0	13.0	24.0	4.0	2.0	5.0	22.0	16.0	29.0
Okhaldhunga	16.0	9.0	21.0	3.0	2.0	4.0	18.0	11.0	25.0
Khotang	16.0	15.0	18.0	3.0	3.0	3.0	19.0	18.0	21.0
Bhojpur	21.0	19.0	22.0	4.0	4.0	5.0	25.0	23.0	27.0
Dhankuta	20.0	17.0	22.0	4.0	3.0	5.0	24.0	21.0	27.0
Tehrathum	19.0	13.0	23.0	3.0	2.0	5.0	22.0	15.0	28.0
Panchthar	23.0	21.0	24.0	5.0	4.0	5.0	27.0	25.0	28.0
Ilam	16.0	16.0	15.0	3.0	3.0	3.0	18.0	18.0	18.0
Jhapa	17.0	13.0	21.0	3.0	2.0	4.0	20.0	15.0	25.0
Morang	17.0	13.0	20.0	3.0	2.0	4.0	20.0	16.0	23.0
Sunsari	18.0	13.0	22.0	3.0	2.0	4.0	21.0	15.0	26.0
Udayapur	17.0	15.0	18.0	3.0	3.0	3.0	19.0	17.0	22.0
Saptari	14.0	11.0	16.0	2.0	2.0	3.0	16.0	13.0	19.0
Siraha	15.0	13.0	16.0	3.0	2.0	3.0	17.0	16.0	19.0
Dhanusa	16.0	13.0	18.0	3.0	2.0	3.0	19.0	15.0	22.0
Mahottari	16.0	14.0	18.0	3.0	3.0	3.0	19.0	17.0	21.0
Sarlahi	21.0	19.0	22.0	4.0	4.0	5.0	25.0	23.0	27.0
Rautahat	21.0	19.0	23.0	4.0	4.0	5.0	26.0	23.0	28.0
Bara	16.0	14.0	19.0	3.0	2.0	3.0	19.0	16.0	22.0
Parsa	17.0	16.0	17.0	3.0	3.0	3.0	20.0	19.0	21.0
Dolakha	14.0	9.0	17.0	2.0	2.0	3.0	16.0	11.0	21.0
Sindhupalchok	19.0	15.0	24.0	4.0	3.0	5.0	23.0	17.0	29.0
Rasuwa	16.0	14.0	19.0	3.0	2.0	3.0	19.0	16.0	22.0
Dhading	20.0	19.0	21.0	4.0	4.0	4.0	24.0	22.0	26.0

Area	IMR			CMR			U5MR		
	Both sexes	Female	Male	Both sexes	Female	Male	Both sexes	Female	Male
Nuwakot	19.0	14.0	22.0	3.0	3.0	5.0	22.0	17.0	27.0
Kathmandu	11.0	9.0	12.0	2.0	2.0	2.0	13.0	11.0	14.0
Bhaktapur	10.0	9.0	10.0	2.0	2.0	1.0	11.0	11.0	11.0
Lalitpur	8.0	8.0	8.0	1.0	1.0	1.0	9.0	10.0	9.0
Kavrepalanchok	13.0	12.0	15.0	2.0	2.0	3.0	16.0	14.0	18.0
Ramechhap	15.0	10.0	19.0	3.0	2.0	3.0	17.0	12.0	22.0
Sindhuli	19.0	15.0	22.0	4.0	3.0	4.0	22.0	18.0	26.0
Makwanpur	16.0	12.0	20.0	3.0	2.0	4.0	19.0	14.0	24.0
Chitawan	14.0	12.0	16.0	2.0	2.0	3.0	16.0	15.0	18.0
Gorkha	16.0	15.0	16.0	3.0	3.0	3.0	18.0	18.0	19.0
Manang	37.0	23.0	54.0	10.0	5.0	18.0	47.0	28.0	72.0
Mustang	20.0	NA	41.0	4.0	NA	12.0	24.0	NA	52.0
Myagdi	18.0	13.0	23.0	3.0	2.0	5.0	21.0	15.0	28.0
Kaski	13.0	11.0	15.0	2.0	2.0	3.0	15.0	13.0	18.0
Lamjung	11.0	8.0	14.0	2.0	1.0	2.0	13.0	9.0	16.0
Tanahu	18.0	17.0	19.0	3.0	3.0	4.0	21.0	20.0	22.0
Nawalparasi-East	18.0	16.0	21.0	3.0	3.0	4.0	21.0	18.0	25.0
Syangja	16.0	13.0	19.0	3.0	2.0	4.0	19.0	15.0	23.0
Parbat	19.0	16.0	21.0	4.0	3.0	4.0	22.0	19.0	25.0
Baglung	14.0	12.0	15.0	2.0	2.0	2.0	16.0	15.0	17.0
Rukum-East	25.0	23.0	27.0	5.0	4.0	6.0	30.0	27.0	33.0
Rolpa	25.0	21.0	28.0	5.0	4.0	7.0	30.0	25.0	35.0
Pyuthan	20.0	17.0	23.0	4.0	3.0	5.0	24.0	20.0	28.0
Gulmi	15.0	13.0	17.0	3.0	2.0	3.0	18.0	16.0	20.0
Arghakhanchi	18.0	17.0	19.0	3.0	3.0	4.0	22.0	20.0	23.0
Palpa	16.0	13.0	19.0	3.0	2.0	4.0	19.0	16.0	23.0
Nawalparasi-West	20.0	14.0	26.0	4.0	3.0	6.0	24.0	17.0	31.0
Rupandehi	19.0	16.0	21.0	3.0	3.0	4.0	22.0	19.0	25.0
Kapilbastu	28.0	23.0	32.0	6.0	5.0	8.0	34.0	27.0	40.0
Dang	17.0	14.0	19.0	3.0	3.0	3.0	19.0	17.0	22.0
Banke	24.0	20.0	27.0	5.0	4.0	6.0	29.0	24.0	33.0
Bardiya	20.0	18.0	22.0	4.0	3.0	4.0	24.0	21.0	26.0
Dolpa	44.0	32.0	55.0	13.0	8.0	19.0	56.0	39.0	73.0
Mugu	42.0	36.0	47.0	12.0	10.0	15.0	53.0	45.0	61.0
Humla	59.0	53.0	65.0	22.0	19.0	24.0	80.0	71.0	87.0
Jumla	39.0	36.0	40.0	11.0	10.0	12.0	49.0	46.0	51.0
Kalikot	36.0	34.0	38.0	10.0	9.0	10.0	45.0	43.0	48.0
Dailekh	23.0	19.0	26.0	5.0	4.0	6.0	27.0	22.0	32.0
Jajarkot	36.0	29.0	42.0	9.0	7.0	12.0	45.0	36.0	54.0
Rukum-West	23.0	21.0	25.0	5.0	4.0	6.0	28.0	25.0	31.0
Salyan	23.0	20.0	25.0	5.0	4.0	6.0	28.0	24.0	31.0
Surkhet	23.0	20.0	26.0	5.0	4.0	6.0	28.0	24.0	31.0
Bajura	31.0	26.0	36.0	8.0	5.0	10.0	38.0	31.0	45.0
Bajhang	21.0	21.0	21.0	4.0	4.0	4.0	25.0	25.0	25.0

Area	IMR			CMR			U5MR		
	Both sexes	Female	Male	Both sexes	Female	Male	Both sexes	Female	Male
Darchula	19.0	16.0	22.0	4.0	3.0	4.0	22.0	19.0	26.0
Baitadi	18.0	15.0	20.0	3.0	3.0	4.0	21.0	18.0	24.0
Dadeldhura	20.0	17.0	23.0	4.0	3.0	5.0	24.0	20.0	28.0
Doti	21.0	19.0	23.0	4.0	4.0	5.0	25.0	22.0	28.0
Achham	25.0	21.0	27.0	5.0	4.0	6.0	30.0	25.0	34.0
Kailali	19.0	17.0	21.0	4.0	3.0	4.0	22.0	20.0	25.0
Kanchanpur	16.0	14.0	18.0	3.0	3.0	3.0	19.0	17.0	21.0

Note: Female values for Mustang district are not available due to small sample problem

Table A5.9: Mortality rates and life expectancy at birth from Census 2011

Area	IMR Trussell Variant CD West model			e_0 (CD West model)		
	Both sex	Male	Female	Both sex	Male	Female
Nepal	40.5	44.3	38.9	66.6	65.5	67.9
Ecological zone						
Mountain	50.2	56.8	45.3	64.1	62.8	65.5
Hill	30.7	33.7	28.8	68.9	67.6	70.3
Tarai	48.8	51.8	48.2	65.1	64.0	66.3
District						
Taplejung	54.1	58.2	51.4	65.1	64.1	66.2
Sankhuwasabha	28.6	29.2	29.9	69.3	69.2	69.5
Solukhumbu	42.2	46.8	39.8	66.7	65.0	68.4
Okhaldhunga	24.7	22.3	29.8	66.8	65.1	68.7
Khotang	34.6	42.6	27.9	67.0	65.2	68.8
Bhojpur	35.2	42.2	29.1	68.8	67.8	69.9
Dhankuta	20.6	23.7	17.7	69.1	67.8	70.5
Tehrathum	24.9	33.2	16.0	68.7	67.8	69.7
Panchthar	49.6	60.9	39.8	66.2	64.6	67.9
Ilam	34.5	34.5	36.7	67.5	66.5	68.5
Jhapa	38.0	38.6	39.7	67.3	66.6	68.1
Morang	36.5	41.2	33.4	67.3	65.9	68.8
Sunsari	40.5	38.0	46.8	67.2	67.0	67.4
Udayapur	33.9	36.4	33.0	68.3	66.6	70.1
Saptari	49.2	50.1	51.2	64.8	64.0	65.6
Siraha	50.3	52.7	50.6	65.6	64.6	66.7
Dhanusa	78.4	81.0	79.5	62.9	61.7	64.2
Mahottari	61.8	64.2	62.9	63.5	62.3	64.7
Sarlahi	61.3	69.2	55.5	62.9	61.6	64.3
Rautahat	80.9	99.3	66.0	59.6	58.4	60.9
Bara	49.0	52.9	47.2	64.6	63.5	65.7
Parsa	36.3	35.3	40.0	67.3	66.6	68.0
Dolakha	25.8	31.0	21.1	69.8	68.7	70.9
Sindhupalchok	27.5	28.1	28.5	69.3	68.4	70.2
Rasuwa	30.8	45.0	16.8	67.4	65.8	69.1
Dhading	27.6	26.7	30.6	68.8	67.9	69.7
Nuwakot	23.2	29.8	16.6	69.1	67.8	70.5
Kathmandu	14.6	15.4	14.4	73.0	72.5	73.6
Bhaktapur	11.0	10.7	12.1	74.2	74.0	74.5
Lalitpur	13.8	12.8	15.8	73.2	72.9	73.6
Kavrepalanchok	24.1	20.0	31.4	70.7	70.5	70.9
Ramechhap	24.5	31.3	19.4	68.8	67.4	70.1
Sindhuli	35.1	42.7	28.0	67.8	66.5	69.3
Makwanpur	32.4	32.1	34.8	68.0	67.3	68.7
Chitawan	30.1	30.5	31.4	69.2	68.9	69.5
Gorkha	21.0	20.7	22.7	68.9	68.0	69.9
Manang	0.0	0.0	0.0	69.9	68.4	71.2
Mustang	26.3	40.5	16.5	69.6	69.1	69.9
Myagdi	29.1	34.0	24.7	69.6	69.1	70.2

Area	IMR Trussell Variant CD West model			e_0 (CD West model)		
	Both sex	Male	Female	Both sex	Male	Female
Kaski	13.1	12.1	15.2	73.5	73.2	73.9
Lamjung	17.0	22.3	11.6	69.5	68.3	70.9
Tanahu	29.2	31.0	29.0	69.8	69.2	70.4
Nawalparasi-East	37.8	36.4	42.2	67.8	67.2	68.4
Syangja	22.0	28.2	16.5	70.1	69.0	71.3
Parbat	15.4	13.0	19.8	72.7	72.2	73.2
Baglung	32.0	32.0	34.0	68.3	67.6	69.1
Rukum-East	34.2	42.2	27.6	64.9	63.7	66.2
Rolpa	52.0	65.3	42.2	64.8	63.5	66.1
Pyuthan	54.4	60.7	49.9	65.8	64.6	67.1
Gulmi	28.4	28.8	29.6	70.6	69.7	71.6
Arghakhanchi	30.0	27.4	36.5	69.4	69.5	69.3
Palpa	19.3	21.7	17.4	71.3	71.0	71.7
Nawalparasi-West	37.8	36.4	42.2	67.8	67.2	68.4
Rupandehi	38.1	39.4	38.9	68.0	67.4	68.6
Kapilbastu	66.8	68.5	68.9	61.3	60.9	61.7
Dang	41.0	43.6	40.6	66.3	65.1	67.6
Banke	48.5	52.6	46.3	63.8	63.5	64.1
Bardiya	58.1	63.0	55.3	64.6	63.4	65.9
Dolpa	70.9	73.2	72.7	57.7	56.7	58.7
Mugu	41.2	54.6	28.7	59.5	58.9	60.2
Humla	61.1	72.9	51.7	58.9	57.9	60.0
Jumla	64.0	76.3	53.1	62.7	61.6	63.8
Kalikot	63.0	70.1	57.5	59.7	59.2	60.3
Dailekh	39.8	47.8	33.8	65.2	64.4	66.0
Jajarkot	63.5	72.2	57.4	61.7	60.5	63.0
Rukum-West	34.2	42.2	27.6	64.9	63.7	66.2
Salyan	52.3	58.7	47.6	65.3	64.0	66.7
Surkhet	47.0	51.3	44.1	66.5	65.2	67.8
Bajura	72.9	79.9	68.3	59.5	58.3	60.8
Bajhang	70.8	83.3	61.3	60.4	59.2	61.7
Darchula	39.8	43.3	37.6	64.6	63.3	65.8
Baitadi	34.9	45.4	23.8	64.2	63.0	65.5
Dadeldhura	42.8	53.1	34.3	64.4	63.1	65.7
Doti	42.2	45.1	40.7	65.0	64.1	65.9
Achham	37.8	41.5	35.1	65.0	63.9	66.2
Kailali	49.2	52.9	47.8	66.2	65.0	67.4
Kanchanpur	40.3	46.4	34.4	66.1	65.0	67.3

Table Source: Population Monograph of Nepal VOLUME I

Note: Value of Rukum is used as the values for Rukum-East and Rukum-West and Nawalparasi as the values for Nawalparasi -East and Nawalparasi-West for 2011 so that they are comparable with 2011 values.

ANNEX 6: MORTALITY DIFFERENTIALS

Table A6.1: Standardized crude death rate (Direct), infant mortality rate, child mortality rate, under 5 mortality rate by differentials, NPHC 2021

Area	SCDR	IMR			CMR			U5MR		
	Both Sex	Both sexes	Female	Male	Both sexes	Female	Male	Both sexes	Female	Male
Nepal	6.8	16.6	14.7	18.3	5.9	5.6	6.1	22.4	20.2	24.3
DEGURBA										
Urban	7.1	12.4	11.7	13.0	4.3	4.3	4.3	16.6	15.9	17.2
Peri-Urban	6.8	19.6	17.3	21.6	6.2	6.1	6.3	25.7	23.2	27.7
Rural	6.3	15.4	13.6	17.0	6.0	5.5	6.4	21.3	19.0	23.3
Caste/Ethnicity										
Hill Caste	5.6	7.8	7.2	8.3	5.6	5.2	6.0	13.4	12.3	14.3
Madhesh/Tarai Caste	6.5	13.6	12.9	14.2	8.4	8.1	8.7	21.9	20.9	22.7
Hill Dalit	9.2	12.5	11.0	13.8	8.3	7.4	9.2	20.7	18.3	22.9
Madhesh/Tarai Dalit	8.6	15.8	13.9	17.4	10.5	9.7	11.2	26.1	23.5	28.4
Mountain/Hill Janajati	6.9	9.6	8.9	10.3	7.0	6.5	7.4	16.5	15.3	17.5
Tarai Janajati	7.7	11.6	9.4	13.6	8.0	6.6	9.4	19.5	15.9	22.8
Other/Foreigner/Not stated	5.3	19.7	18.2	21.0	10.0	11.7	8.5	29.5	29.7	29.4
Religious/Linguistic groups	7.4	18.0	14.1	21.7	11.6	10.0	13.1	29.4	24.0	34.5
Wealth Quintile[33]										
Lowest	6.5	15.2	13.8	16.4	10.3	9.5	11.1	25.3	23.2	27.3
Lower	6.7	12.8	11.2	14.1	8.6	7.7	9.4	21.3	18.9	23.4
Middle	6.7	11.5	10.0	12.8	7.7	6.9	8.4	19.1	16.8	21.1
Higher	7.2	9.5	8.3	10.5	6.2	5.6	6.7	15.6	13.9	17.1
Highest	6.5	5.9	5.7	6.2	4.1	4.0	4.2	10.1	9.7	10.4

[33] Early age mortality rates for different wealth quintiles may not align with the national estimate as the institutional population is not accounted for while generating wealth quintiles at the household level.

Table A6.2: Life expectancy at birth, percentage of population surviving to age 60 and life expectancy at age 60 by differentials, NPHC 2021

Differential	Life expectancy at birth			Percentage surviving to age 60 years			Life expectancy (age 60 years)		
	Both sexes	Female	Male	Both sexes	Female	Male	Both sexes	Female	Male
Nepal	71.4	74.3	68.7	80.0	84.7	75.1	19.4	20.7	18.2
DEGURBA									
Urban	71.7	74.3	69.3	82.1	86.5	77.8	18.0	19.3	16.8
Peri-Urban	71.4	73.8	69.0	80.0	84.3	75.5	19.2	20.2	18.3
Rural	72.3	75.7	69.0	80.0	85.4	74.3	20.5	22.0	19.1
Caste and ethnicity groups									
Hill Caste	74.3	77.4	71.3	84.4	89.3	79.2	20.5	22.0	19.2
Madhesh/Tarai Caste	72.4	73.6	71.3	82.3	84.3	80.4	19.5	20.0	19.1
Hill Dalit	67.3	71.5	63.1	72.8	81.1	63.8	17.2	18.8	15.6
Madhesh/Tarai Dalit	68.8	70.6	67.1	76.7	80.0	73.5	17.6	18.2	17.0
Mountain/Hill Janajati	71.2	74.3	68.2	78.9	84.1	73.5	19.1	20.6	17.8
Tarai Janajati	70.6	73.3	68.1	80.2	84.9	75.5	18.1	19.1	17.2
Other/Foreigner/Not stated	75.5	80.7	70.3	85.6	89.1	82.4	22.1	26.7	17.0
Religious/linguistic groups	70.5	72.0	68.9	79.8	82.3	77.1	18.5	18.9	18.1
Wealth quintile									
Lowest	71.3	75.1	67.7	77.7	83.4	71.7	21.0	22.7	19.4
Lower	71.5	74.5	68.5	79.5	84.6	74.0	19.8	21.0	18.7
Middle	71.6	74.3	69.0	80.1	84.9	75.1	19.4	20.5	18.4
Higher	71.1	73.8	68.6	80.2	85.1	75.2	18.2	19.3	17.2
Highest	73.1	75.3	71.0	84.7	88.4	81.0	18.4	19.5	17.3

ANNEX 7: CAUSE OF DEATH

Table A7.1: Distribution of number of death by cause (as row percent), NPHC 2021

Area	Cause of death (%)									
	Communi-cable	Non communi-cable	Road accident	Other accident	Pregnancy	Crime	Suicide	Natural disaster	Other	Not stated
Nepal	12.6	49.8	1.9	4.0	0.3	0.6	2.7	4.8	22.7	0.7
Province										
Koshi	11.2	56.6	1.9	3.3	0.3	0.5	3.1	3.2	19.7	0.4
Madhesh	11.3	40.6	2.4	4.5	0.4	0.7	1.9	10.0	27.4	1.0
Bagmati	14.4	52.9	1.6	3.1	0.2	0.3	2.5	3.1	20.9	0.9
Gandaki	11.3	53.7	1.5	3.4	0.2	0.4	2.7	3.9	22.2	0.6
Lumbini	13.5	46.9	2.1	4.2	0.4	0.6	2.6	4.9	24.1	0.6
Karnali	14.1	46.7	2.1	6.6	0.7	0.9	3.7	4.5	20.0	0.7
Sudurpashchim	13.1	47.4	1.9	5.4	0.4	1.0	3.2	3.8	23.2	0.5
District										
Taplejung	7.8	52.1	1.0	6.1	0.2	0.7	2.3	1.8	27.3	0.5
Sankhuwasabha	10.1	52.6	1.1	3.3	0.2	1.0	4.2	2.5	24.8	0.2
Solukhumbu	11.4	46.3	1.0	5.7	0.3	0.5	7.2	4.6	22.6	0.4
Okhaldhunga	8.0	39.2	2.6	6.8	0.3	1.2	6.4	6.8	28.1	0.6
Khotang	8.0	50.0	1.5	6.8	0.3	0.4	4.7	4.8	23.1	0.3
Bhojpur	8.5	56.4	1.5	4.0	0.2	0.3	3.9	2.9	21.9	0.5
Dhankuta	11.4	55.9	1.4	3.3	0.1	0.6	2.6	2.2	22.1	0.3
Tehrathum	8.3	56.3	1.0	2.5	0.3	0.1	3.9	2.6	24.9	0.0
Panchthar	6.4	61.8	1.4	3.0	0.4	0.5	2.9	3.8	19.1	0.7
Ilam	10.6	62.0	1.5	2.8	0.5	0.3	4.1	1.9	16.0	0.4
Jhapa	12.3	61.1	2.0	2.6	0.4	0.4	3.3	2.4	15.3	0.2
Morang	11.9	57.7	2.2	3.1	0.2	0.5	2.4	3.3	18.1	0.5
Sunsari	12.3	54.5	2.0	2.8	0.2	0.5	2.0	3.7	21.6	0.4
Udayapur	11.4	51.5	2.2	4.1	0.2	0.5	3.2	3.6	22.8	0.5
Saptari	11.2	39.3	2.5	4.7	0.4	0.9	1.8	10.6	27.6	1.0
Siraha	12.0	40.5	2.7	4.3	0.4	0.6	2.0	9.5	27.1	0.9
Dhanusa	11.0	42.5	2.7	4.1	0.3	0.7	2.0	9.1	26.9	0.9
Mahottari	10.4	40.6	2.2	4.9	0.3	0.7	2.1	11.6	26.1	1.1
Sarlahi	10.9	39.5	2.0	4.6	0.6	0.8	2.0	10.2	28.6	0.8
Rautahat	12.3	40.2	2.1	5.1	0.6	0.8	1.4	11.1	25.2	1.1
Bara	11.2	40.9	2.6	4.6	0.3	0.4	1.9	8.9	28.2	1.0
Parsa	11.5	40.7	2.1	4.0	0.5	0.5	1.7	8.2	29.9	0.8
Dolakha	11.3	53.8	1.4	4.3	0.1	0.6	5.2	2.8	20.3	0.2
Sindhupalchok	10.6	50.4	1.0	4.8	0.2	0.5	4.0	4.2	23.5	0.7

Area	Cause of death (%)									
	Communi-cable	Non communi-cable	Road accident	Other accident	Pregnancy	Crime	Suicide	Natural disaster	Other	Not stated
Rasuwa	11.3	52.4	1.3	4.8	0.0	0.6	3.2	4.5	19.9	1.9
Dhading	8.8	49.5	2.4	5.1	0.2	0.6	4.0	3.0	25.3	1.1
Nuwakot	9.8	50.2	1.7	4.2	0.1	0.4	4.4	2.2	26.6	0.3
Kathmandu	18.4	51.7	1.3	2.0	0.1	0.2	1.3	3.0	20.1	2.0
Bhaktapur	15.5	54.0	1.1	2.4	0.1	0.3	1.5	3.0	21.8	0.3
Lalitpur	18.6	55.1	1.2	2.4	0.2	0.3	1.2	3.4	17.3	0.3
Kavrepalanchok	11.9	53.2	1.4	3.8	0.2	0.4	2.9	3.8	22.0	0.4
Ramechhap	10.8	52.6	1.6	4.2	0.2	0.5	3.8	4.3	21.2	0.6
Sindhuli	13.2	53.4	2.6	4.6	0.4	0.3	3.0	3.3	18.8	0.4
Makwanpur	12.6	53.6	1.7	3.5	0.2	0.5	3.5	2.7	21.2	0.4
Chitawan	10.8	56.7	2.9	3.1	0.1	0.4	3.0	2.6	20.2	0.2
Gorkha	8.6	51.7	1.0	3.9	0.3	0.6	3.5	7.8	22.1	0.6
Manang	33.3	29.8	5.3	7.0	1.8	0.0	3.5	1.8	17.5	0.0
Mustang	10.9	43.6	1.0	5.0	0.0	0.0	2.0	4.0	33.7	0.0
Myagdi	8.8	48.5	1.6	4.7	0.1	0.8	5.4	2.9	26.2	0.9
Kaski	15.5	54.7	1.4	2.7	0.3	0.3	2.1	3.1	19.5	0.5
Lamjung	8.1	50.3	1.5	3.2	0.2	0.4	2.6	5.2	27.5	1.1
Tanahu	9.6	54.1	1.9	3.3	0.2	0.5	2.1	4.0	23.8	0.4
Nawalparasi-East	10.2	57.4	1.8	3.4	0.1	0.4	3.0	2.5	20.5	0.5
Syangja	12.2	53.3	1.4	2.8	0.2	0.2	3.0	2.6	23.8	0.5
Parbat	9.3	55.0	2.2	2.9	0.5	0.5	3.2	4.6	21.6	0.4
Baglung	10.3	53.2	1.3	5.1	0.1	0.5	2.1	4.9	21.8	0.6
Rukum-East	15.1	41.4	2.5	8.1	0.4	1.1	2.5	5.6	23.2	0.4
Rolpa	11.7	46.5	1.6	6.9	0.5	0.9	3.6	3.9	24.0	0.4
Pyuthan	11.4	52.2	1.7	6.1	0.4	0.8	3.9	3.0	19.9	0.7
Gulmi	11.9	55.8	2.0	4.5	0.3	0.5	3.0	2.9	18.7	0.4
Arghakhanchi	12.7	54.7	1.8	4.2	0.3	0.5	2.7	3.0	20.2	0.0
Palpa	13.3	55.0	1.3	5.4	0.2	0.2	2.6	3.5	18.3	0.3
Nawalparasi-West	10.6	48.7	2.1	2.9	0.3	0.9	2.8	4.2	26.9	0.6
Rupandehi	16.0	43.1	1.9	3.1	0.4	0.5	2.1	6.0	26.4	0.5
Kapilbastu	11.5	39.9	2.4	4.0	0.6	0.6	1.7	6.9	31.7	0.9
Dang	14.3	49.1	2.3	4.6	0.4	0.9	3.4	3.7	20.7	0.7
Banke	15.4	44.4	2.4	4.5	0.9	0.7	2.0	7.0	21.7	1.1
Bardiya	11.6	49.9	2.2	4.3	0.5	0.5	3.9	3.5	23.0	0.6
Dolpa	17.5	22.7	2.6	12.9	1.5	0.0	2.1	5.7	34.0	1.0
Mugu	16.0	45.6	7.2	8.0	0.6	0.6	2.9	5.7	13.5	0.0
Humla	15.5	39.3	1.7	4.6	2.1	0.0	0.0	13.4	23.0	0.4
Jumla	13.1	49.0	1.0	4.1	0.2	1.1	3.2	4.9	21.5	1.9

Area	Cause of death (%)									
	Communi-cable	Non communi-cable	Road accident	Other accident	Pregnancy	Crime	Suicide	Natural disaster	Other	Not stated
Kalikot	14.2	44.5	1.1	8.2	1.4	0.9	3.2	5.5	20.8	0.2
Dailekh	11.7	49.1	1.4	6.6	0.5	1.4	4.4	4.6	20.1	0.3
Jajarkot	13.2	46.0	2.4	10.0	1.0	1.3	3.4	4.4	16.4	1.9
Rukum-West	15.5	36.2	2.9	10.6	0.9	0.4	2.9	4.3	25.5	0.7
Salyan	13.8	49.3	1.9	5.0	0.6	1.3	4.2	3.9	19.3	0.6
Surkhet	14.8	50.3	2.0	4.9	0.5	0.8	4.2	3.1	18.9	0.5
Bajura	16.1	46.8	1.4	7.6	0.4	0.9	2.6	4.8	18.7	0.8
Bajhang	12.8	41.0	1.9	9.3	0.3	1.2	3.1	8.0	22.2	0.1
Darchula	10.8	47.9	0.4	10.5	0.3	0.9	2.1	5.1	22.0	0.0
Baitadi	11.9	44.2	2.5	6.8	0.6	0.7	2.7	4.5	24.9	1.0
Dadeldhura	8.9	53.6	1.7	4.8	0.8	0.9	2.7	3.7	22.6	0.3
Doti	14.1	37.5	1.8	7.0	0.4	0.8	2.5	4.5	31.0	0.4
Achham	13.9	47.1	1.9	5.5	0.5	1.8	2.4	3.3	22.7	0.9
Kailali	14.0	49.3	2.1	4.2	0.3	0.9	3.7	3.4	21.6	0.6
Kanchanpur	12.3	49.1	2.0	4.2	0.3	0.9	3.5	2.5	24.9	0.5

Table A7.2: Mortality sex ratio by cause of death by five-year age group, both sexes, Nepal, NPHC 2021

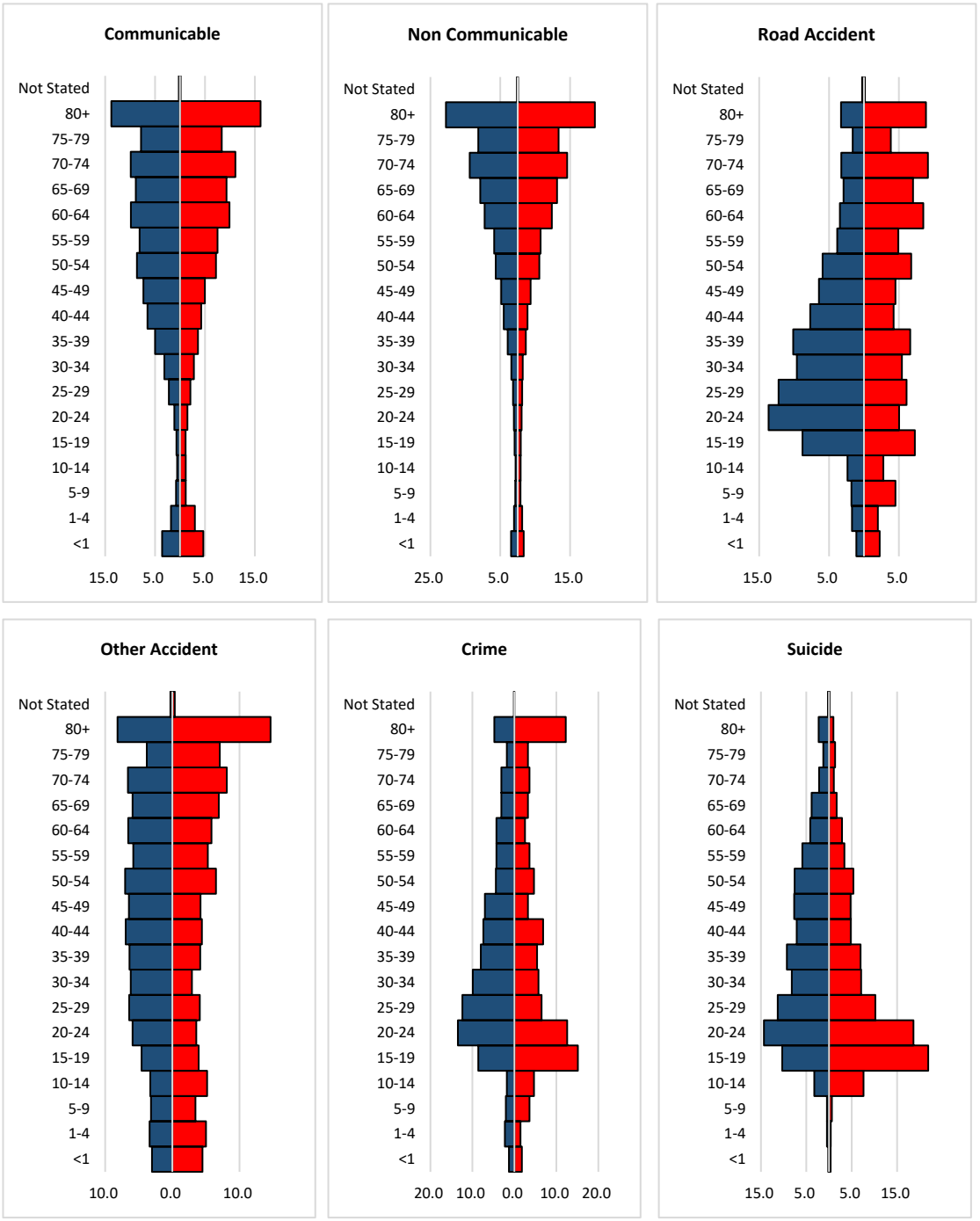
Age group	Mortality Sex Ratio									
	Total	Communi-cable	Non communi-cable	Road accident	Other accident	Crime	Suicide	Natural disaster	Other	Not stated
<1	142.8	133.8	144.4	194.1	147.7	220.0	85.7	130.1	147.5	117.1
1-4	121.4	105.5	106.0	346.7	148.4	475.0	187.5	116.1	134.8	208.3
5-9	127.4	119.8	116.9	161.8	202.4	170.0	115.4	120.3	114.1	112.5
10-14	99.7	85.7	92.9	342.9	139.1	115.4	66.2	109.5	87.4	600.0
15-19	125.1	111.9	128.8	489.1	256.7	171.4	73.0	172.0	113.3	23.3
20-24	155.3	133.1	125.3	1097.4	364.8	322.9	119.2	241.9	183.9	29.4
25-29	177.0	188.9	134.2	810.9	345.5	577.8	171.6	238.9	225.7	26.7
30-34	196.1	198.0	161.8	714.6	466.7	518.8	180.1	265.9	194.5	56.0
35-39	199.1	243.3	160.1	618.0	335.9	446.7	206.3	219.6	200.0	57.7
40-44	222.5	268.2	185.6	734.4	345.9	326.3	230.3	253.0	224.0	77.3
45-49	206.2	257.5	166.4	579.4	337.5	655.6	251.0	204.1	238.4	85.7
50-54	157.3	209.3	131.5	354.9	236.6	284.6	218.9	163.1	161.5	222.2
55-59	153.3	188.3	132.9	316.2	241.2	360.0	268.6	147.3	168.5	95.5
60-64	140.6	173.9	125.5	164.1	247.2	514.3	225.4	142.7	149.0	164.7
65-69	130.7	166.2	123.3	167.9	187.7	288.9	351.4	118.8	122.3	103.4
70-74	127.9	155.4	125.5	143.5	178.6	260.0	318.2	117.5	118.2	88.2
75-79	125.3	163.3	124.9	169.0	118.3	166.7	142.9	128.2	112.7	118.9
80+	114.0	148.9	120.4	149.3	122.4	117.6	365.0	110.3	101.0	110.6
Not Stated	229.5	316.7	240.8	800.0	177.8		266.7	111.1	191.7	248.1

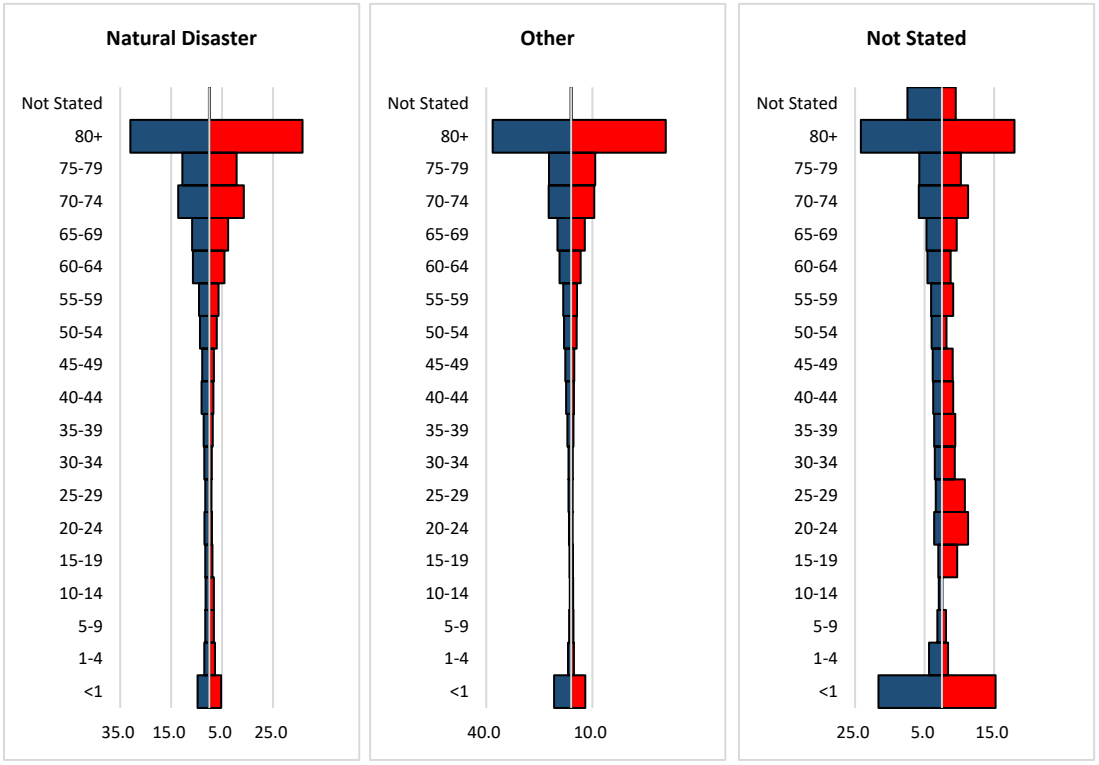
Table A7.3 Percentage of death by cause, province and district, NPHC 2021

Area	Cause of Death - Both Sex (Percent)									
	Communi-cable	Non communi-cable	Road accident	Other accident	Pregnancy related	Crime	Suici-de	Natural cisaster	Other	Not stated
Nepal	12.6	49.8	1.9	4.0	0.3	0.6	2.7	4.8	22.7	0.7
Province										
Koshi	11.2	56.6	1.9	3.3	0.3	0.5	3.1	3.2	19.7	0.4
Madhesh	11.3	40.6	2.4	4.5	0.4	0.7	1.9	10.0	27.4	1.0
Bagmati	14.4	52.9	1.6	3.1	0.2	0.3	2.5	3.1	20.9	0.9
Gandaki	11.3	53.7	1.5	3.4	0.2	0.4	2.7	3.9	22.2	0.6
Lumbini	13.5	46.9	2.1	4.2	0.4	0.6	2.6	4.9	24.1	0.6
Karnali	14.1	46.7	2.1	6.6	0.7	0.9	3.7	4.5	20.0	0.7
Sudurpashchim	13.1	47.4	1.9	5.4	0.4	1.0	3.2	3.8	23.2	0.5
District										
Taplejung	7.8	52.1	1.0	6.1	0.2	0.7	2.3	1.8	27.3	0.5
Sankhuwasabha	10.1	52.6	1.1	3.3	0.2	1.0	4.2	2.5	24.8	0.2
Solukhumbu	11.4	46.3	1.0	5.7	0.3	0.5	7.2	4.6	22.6	0.4
Okhaldhunga	8.0	39.2	2.6	6.8	0.3	1.2	6.4	6.8	28.1	0.6
Khotang	8.0	50.0	1.5	6.8	0.3	0.4	4.7	4.8	23.1	0.3
Bhojpur	8.5	56.4	1.5	4.0	0.2	0.3	3.9	2.9	21.9	0.5
Dhankuta	11.4	55.9	1.4	3.3	0.1	0.6	2.6	2.2	22.1	0.3
Tehrathum	8.3	56.3	1.0	2.5	0.3	0.1	3.9	2.6	24.9	0.0
Panchthar	6.4	61.8	1.4	3.0	0.4	0.5	2.9	3.8	19.1	0.7
Ilam	10.6	62.0	1.5	2.8	0.5	0.3	4.1	1.9	16.0	0.4
Jhapa	12.3	61.1	2.0	2.6	0.4	0.4	3.3	2.4	15.3	0.2
Morang	11.9	57.7	2.2	3.1	0.2	0.5	2.4	3.3	18.1	0.5
Sunsari	12.3	54.5	2.0	2.8	0.2	0.5	2.0	3.7	21.6	0.4
Udayapur	11.4	51.5	2.2	4.1	0.2	0.5	3.2	3.6	22.8	0.5
Saptari	11.2	39.3	2.5	4.7	0.4	0.9	1.8	10.6	27.6	1.0
Siraha	12.0	40.5	2.7	4.3	0.4	0.6	2.0	9.5	27.1	0.9
Dhanusa	11.0	42.5	2.7	4.1	0.3	0.7	2.0	9.1	26.9	0.9
Mahottari	10.4	40.6	2.2	4.9	0.3	0.7	2.1	11.6	26.1	1.1
Sarlahi	10.9	39.5	2.0	4.6	0.6	0.8	2.0	10.2	28.6	0.8
Rautahat	12.3	40.2	2.1	5.1	0.6	0.8	1.4	11.1	25.2	1.1
Bara	11.2	40.9	2.6	4.6	0.3	0.4	1.9	8.9	28.2	1.0
Parsa	11.5	40.7	2.1	4.0	0.5	0.5	1.7	8.2	29.9	0.8
Dolakha	11.3	53.8	1.4	4.3	0.1	0.6	5.2	2.8	20.3	0.2
Sindhupalchok	10.6	50.4	1.0	4.8	0.2	0.5	4.0	4.2	23.5	0.7
Rasuwa	11.3	52.4	1.3	4.8	0.0	0.6	3.2	4.5	19.9	1.9
Dhading	8.8	49.5	2.4	5.1	0.2	0.6	4.0	3.0	25.3	1.1
Nuwakot	9.8	50.2	1.7	4.2	0.1	0.4	4.4	2.2	26.6	0.3
Kathmandu	18.4	51.7	1.3	2.0	0.1	0.2	1.3	3.0	20.1	2.0
Bhaktapur	15.5	54.0	1.1	2.4	0.1	0.3	1.5	3.0	21.8	0.3
Lalitpur	18.6	55.1	1.2	2.4	0.2	0.3	1.2	3.4	17.3	0.3
Kavrepalanchok	11.9	53.2	1.4	3.8	0.2	0.4	2.9	3.8	22.0	0.4
Ramechhap	10.8	52.6	1.6	4.2	0.2	0.5	3.8	4.3	21.2	0.6
Sindhuli	13.2	53.4	2.6	4.6	0.4	0.3	3.0	3.3	18.8	0.4
Makwanpur	12.6	53.6	1.7	3.5	0.2	0.5	3.5	2.7	21.2	0.4

Area	Cause of Death - Both Sex (Percent)									
	Communi-cable	Non communi-cable	Road accident	Other accident	Pregnancy related	Crime	Suici-de	Natural cisaster	Other	Not stated
Chitawan	10.8	56.7	2.9	3.1	0.1	0.4	3.0	2.6	20.2	0.2
Gorkha	8.6	51.7	1.0	3.9	0.3	0.6	3.5	7.8	22.1	0.6
Manang	33.3	29.8	5.3	7.0	1.8	0.0	3.5	1.8	17.5	0.0
Mustang	10.9	43.6	1.0	5.0	0.0	0.0	2.0	4.0	33.7	0.0
Myagdi	8.8	48.5	1.6	4.7	0.1	0.8	5.4	2.9	26.2	0.9
Kaski	15.5	54.7	1.4	2.7	0.3	0.3	2.1	3.1	19.5	0.5
Lamjung	8.1	50.3	1.5	3.2	0.2	0.4	2.6	5.2	27.5	1.1
Tanahu	9.6	54.1	1.9	3.3	0.2	0.5	2.1	4.0	23.8	0.4
Nawalparasi-East	10.2	57.4	1.8	3.4	0.1	0.4	3.0	2.5	20.5	0.5
Syangja	12.2	53.3	1.4	2.8	0.2	0.2	3.0	2.6	23.8	0.5
Parbat	9.3	55.0	2.2	2.9	0.5	0.5	3.2	4.6	21.6	0.4
Baglung	10.3	53.2	1.3	5.1	0.1	0.5	2.1	4.9	21.8	0.6
Rukum-East	15.1	41.4	2.5	8.1	0.4	1.1	2.5	5.6	23.2	0.4
Rolpa	11.7	46.5	1.6	6.9	0.5	0.9	3.6	3.9	24.0	0.4
Pyuthan	11.4	52.2	1.7	6.1	0.4	0.8	3.9	3.0	19.9	0.7
Gulmi	11.9	55.8	2.0	4.5	0.3	0.5	3.0	2.9	18.7	0.4
Arghakhanchi	12.7	54.7	1.8	4.2	0.3	0.5	2.7	3.0	20.2	0.0
Palpa	13.3	55.0	1.3	5.4	0.2	0.2	2.6	3.5	18.3	0.3
Nawalparasi-West	10.6	48.7	2.1	2.9	0.3	0.9	2.8	4.2	26.9	0.6
Rupandehi	16.0	43.1	1.9	3.1	0.4	0.5	2.1	6.0	26.4	0.5
Kapilbastu	11.5	39.9	2.4	4.0	0.6	0.6	1.7	6.9	31.7	0.9
Dang	14.3	49.1	2.3	4.6	0.4	0.9	3.4	3.7	20.7	0.7
Banke	15.4	44.4	2.4	4.5	0.9	0.7	2.0	7.0	21.7	1.1
Bardiya	11.6	49.9	2.2	4.3	0.5	0.5	3.9	3.5	23.0	0.6
Dolpa	17.5	22.7	2.6	12.9	1.5	0.0	2.1	5.7	34.0	1.0
Mugu	16.0	45.6	7.2	8.0	0.6	0.6	2.9	5.7	13.5	0.0
Humla	15.5	39.3	1.7	4.6	2.1	0.0	0.0	13.4	23.0	0.4
Jumla	13.1	49.0	1.0	4.1	0.2	1.1	3.2	4.9	21.5	1.9
Kalikot	14.2	44.5	1.1	8.2	1.4	0.9	3.2	5.5	20.8	0.2
Dailekh	11.7	49.1	1.4	6.6	0.5	1.4	4.4	4.6	20.1	0.3
Jajarkot	13.2	46.0	2.4	10.0	1.0	1.3	3.4	4.4	16.4	1.9
Rukum-West	15.5	36.2	2.9	10.6	0.9	0.4	2.9	4.3	25.5	0.7
Salyan	13.8	49.3	1.9	5.0	0.6	1.3	4.2	3.9	19.3	0.6
Surkhet	14.8	50.3	2.0	4.9	0.5	0.8	4.2	3.1	18.9	0.5
Bajura	16.1	46.8	1.4	7.6	0.4	0.9	2.6	4.8	18.7	0.8
Bajhang	12.8	41.0	1.9	9.3	0.3	1.2	3.1	8.0	22.2	0.1
Darchula	10.8	47.9	0.4	10.5	0.3	0.9	2.1	5.1	22.0	0.0
Baitadi	11.9	44.2	2.5	6.8	0.6	0.7	2.7	4.5	24.9	1.0
Dadeldhura	8.9	53.6	1.7	4.8	0.8	0.9	2.7	3.7	22.6	0.3
Doti	14.1	37.5	1.8	7.0	0.4	0.8	2.5	4.5	31.0	0.4
Achham	13.9	47.1	1.9	5.5	0.5	1.8	2.4	3.3	22.7	0.9
Kailali	14.0	49.3	2.1	4.2	0.3	0.9	3.7	3.4	21.6	0.6
Kanchanpur	12.3	49.1	2.0	4.2	0.3	0.9	3.5	2.5	24.9	0.5

Figure A7.1: Population pyramid of deceased persons by cause of death – Nepal, NPHC 2021




Natural Disaster
Not Stated
80+
75-79
70-74
65-69
60-64
55-59
50-54
45-49
40-44
35-39
30-34
25-29
20-24
15-19
10-14
5-9
1-4
<1
35.0
15.0
5.0
25.0
Other
Not Stated
80+
75-79
70-74
65-69
60-64
55-59
50-54
45-49
40-44
35-39
30-34
25-29
20-24
15-19
10-14
5-9
1-4
<1
40.0
10.0
Not Stated
Not Stated
80+
75-79
70-74
65-69
60-64
55-59
50-54
45-49
40-44
35-39
30-34
25-29
20-24
15-19
10-14
5-9
1-4
<1
25.0
5.0
15.0

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