



Global, regional, and national burden of diseases and injuries for adults 70 years and older: systematic analysis for the Global Burden of Disease 2019 Study

on behalf of GBD 2019 Ageing Collaborators

Correspondence to:

N J Kassebaum
Department of Health Metrics Sciences, Global Health, and Anesthesiology & Pain Medicine, Institute for Health Metrics and Evaluation, University of Washington, Seattle, Washington, USA nickjk@uw.edu (ORCID 0000-0002-4299-9348)

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ABSTRACT

OBJECTIVES

To use data from the Global Burden of Diseases, Injuries, and Risk Factors Study 2019 (GBD 2019) to estimate mortality and disability trends for the population aged ≥ 70 and evaluate patterns in causes of death, disability, and risk factors.

DESIGN

Systematic analysis.

SETTING

Participants were aged ≥ 70 from 204 countries and territories, 1990-2019.

MAIN OUTCOMES MEASURES

Years of life lost, years lived with disability, disability adjusted life years, life expectancy at age 70 (LE-70), healthy life expectancy at age 70 (HALE-70), proportion of years in ill health at age 70 (PYIH-70), risk factors, and data coverage index were estimated based on standardised GBD methods.

RESULTS

Globally the population of older adults has increased since 1990 and all cause death rates have decreased for men and women. However, mortality rates due to falls increased between 1990 and 2019. The probability of death among people aged 70-90 decreased, mainly because of reductions in non-communicable diseases. Globally disability burden was largely driven by functional decline, vision and hearing loss, and symptoms of pain. LE-70 and HALE-70 showed continuous increases since 1990 globally, with certain regional disparities. Globally higher LE-70 resulted in higher HALE-70 and slightly increased PYIH-70. Sociodemographic and healthcare access and quality indices were positively correlated with HALE-70 and LE-70. For high exposure risk factors,

data coverage was moderate, while limited data were available for various dietary, environmental or occupational, and metabolic risks.

CONCLUSIONS

Life expectancy at age 70 has continued to rise globally, mostly because of decreases in chronic diseases. Adults aged ≥ 70 living in high income countries and regions with better healthcare access and quality were found to experience the highest life expectancy and healthy life expectancy. Disability burden, however, remained constant, suggesting the need to enhance public health and intervention programmes to improve wellbeing among older adults.

Introduction

For the first time in history, most newborns might live into their 70s and beyond.¹ With the global population experiencing extra years of life, the health and wellbeing of older adults is paramount so that they can continue to be actively engaged in society.² However, if added years are spent in poor health, health systems will face increased healthcare expenses due to increased demand.³ To conceptualise years of life spent in good health, a variety of ageing indicators have been developed. Healthy and successful ageing, and frailty, project high or low wellbeing in older people, respectively.⁴⁻⁶ Ageing research suggests that functional decline and health loss are more reflective of healthy ageing than chronological age.⁷ Consequently, surveillance of the older population's health is essential to capture its ageing status. Variations in the definition of old age exist that account for chronological age or for remaining life expectancy.⁸ Epidemiological data indicate that population ageing patterns are changing, with people aged ≥ 70 and ≥ 90 being the fastest growing segment in Europe, Asia, and the United States.⁹⁻¹¹ In 1950, older adults represented 5% of the global population; this estimate is projected to rise to 16% by 2050.¹² Consequently, the health and wellbeing of ageing populations have become important public health issues with wide reaching economic implications that affect medical care, in-home care and assistance, and healthcare staff.¹³

The projected ageing demographics are linked to increased burden and duration of non-communicable diseases.⁷ An analysis of the Global Burden of Disease (GBD) 2010 data established that the major causes of disability for adults aged ≥ 60 were musculoskeletal disorders, cardiovascular diseases, diabetes, and neurological disorders.¹⁴ In 2015, the World Health Organization declared that the rise in chronic conditions among older adults was a worldwide epidemic.⁷

WHAT IS ALREADY KNOWN ON THIS TOPIC

The global population is living longer and the health and wellbeing of older adults has become a major public health issue

While it is recognised that populations are ageing differently, global epidemiological data on the burden of diseases in adults aged ≥ 70 are lacking

WHAT THIS STUDY ADDS

In 2019, adults aged ≥ 70 were found to live more than two years longer compared with 1990 life expectancy estimates

Sociodemographic development and healthcare access and quality were major determinants of life expectancy and healthy life expectancy in adults aged ≥ 70 ; disability burden followed a stable pattern across the development spectrum

Specific healthy ageing policies are needed with targeted data coverage for adults aged ≥ 70 and consistent collaboration among stakeholders

The management of accumulated chronic conditions is likely to weigh upon healthcare financing over the next few decades in high income and in low to middle income regions.¹⁵⁻¹⁷ Low to middle income regions face an ongoing agenda of communicable diseases and will have to manage the added burden with limited resources and infrastructure. Understanding and reducing the burden of disease among older people is critical to mitigate the economic burden of ageing and build sustainability within the global health system for the next generations.¹³

While ageing draws increasing attention from policy makers and stakeholders, global epidemiological data on the burden of disease in older adults are limited. Studies from high life expectancy populations do exist,^{4 18 19} but most are based on localised sample populations without detailed analyses of adults older than 70.²⁰⁻²² Epidemiological studies from WHO,²³ including the recently published world report on ageing and health, have highlighted an increasingly ageing global population and the need for urgent public health changes.⁷ The GBD 2019 study provides annually updated global, regional, and national population data on mortality, 369 diseases and injuries, and 87 risk factors among 204 countries.²⁴⁻²⁶ Therefore, it provides an excellent opportunity for global and regional systematic analysis of causes of fatal and non-fatal health loss and risk factors in older adults.

The overall aim of the present study was to describe levels and trends in death and disability burden in the population aged ≥ 70 using GBD 2019 data. We approached this with several new metrics and assessments that leverage the GBD 2019 results. These assessments included life expectancy at age 70 (LE-70), the probability of death between ages 70 and 90 (20q70), assessment of diseases and injuries leading to changes in 20q70 through causal decomposition, calculating healthy life expectancy at age 70 (HALE-70), and the proportion of remaining years in ill health at age 70 (PYIH-70). To provide context to these analyses, we further evaluated the historical relation between LE-70, HALE-70, and PYIH-70 with two societal proxies for development: the sociodemographic index (SDI) and the healthcare access and quality (HAQ) index. Data coverage underpinning the GBD estimates was also assessed. Overall, this study provides a comprehensive and detailed assessment of the health of older adults.

Methods

Extensive details on the methods used to derive each of the measures in GBD 2019 have been published previously.²⁴⁻²⁶ A brief summary of each component is presented, with emphasis on the metrics and analyses that are distinct to the present study to evaluate trends in epidemiological patterns and disease burden for people aged ≥ 70 . Reporting was performed with adherence to the guidelines for accurate and transparent health estimates reporting (GATHER) statement (supplementary table 1). Data inputs are downloadable from the Global Health Data Exchange

(<http://ghdx.healthdata.org/>). Results are viewable online in GBD Compare (<https://vizhub.healthdata.org/gbd-compare/>).

Dimensions of GBD 2019

GBD 2019 includes estimates for 369 diseases and injuries, and 87 risk factors for 23 age groups and both sexes from 1990 to 2019 covering 204 countries and territories—22 of which were analysed subnationally—hierarchically arranged into 21 regions and 7 super regions (supplementary table 2). SDI is a composite indicator that uses the following components: country level income per capita, average educational attainment among people older than 15 years, and total fertility rate among women younger than 25 years.²⁴ SDI ranges from 0 (high fertility, low education, low income) to 1 (low fertility, high income, high education). Each GBD location was assigned to a single SDI group based on its SDI value in 2019.

All deaths were assigned a single underlying cause according to the international classification of diseases, and each was mapped according to a four level mutually exclusive and collectively exhaustive GBD cause list (supplementary table 3). Level 1 differentiates between communicable, maternal, neonatal, and nutritional disorders; non-communicable diseases; and injuries. Level 2 covers 22 disease and injury aggregate clusters, such as cardiovascular diseases, respiratory diseases, and transport related injuries. Some level 2 disorders (maternal disorders, neonatal disorders, and congenital birth defects) do not cause death in adults aged ≥ 70 , but there is burden present for the first two arising from long term sequelae of neonatal disorders (eg, cerebral palsy) and long term complications of pregnancy (eg, severe preeclampsia and eclampsia). Level 3 (174 conditions) and level 4 (301 conditions) causes represent increasingly more specific diseases and injuries. Most causes were estimated as underlying causes of death and causes of disability burden. A few causes were assessed to cause either death or disability, but not both. Examples include aortic aneurysm (death only) and periodontal disease (disability only). The GBD 2019 comparative risk assessment framework classified each of 87 risk factors and clusters of risk factors into one of three categories: behavioural, environmental or occupational, and metabolic.²⁶

All cause mortality and cause specific mortality

Mortality estimation methods have been extensively described elsewhere.^{24 25} Briefly, all available global data including vital registration, sample registration, household surveys, censuses, disease registries, notification systems, and police records were identified, extracted, and standardised. Standardised methods were then applied to produce internally consistent estimates of population, fertility, net migration, all cause mortality, and cause specific mortality. All cause mortality estimates for each location, sex, and year were inputs to the calculation of overall life expectancy

and LE-70. Years of life lost were the product of cause specific mortality rates and remaining GBD standard life expectancy at age of death.

Non-fatal disease burden and disability adjusted life years

Estimation methods for prevalence, incidence, years lived with disability, and disability adjusted life years have been described elsewhere.²⁵ Briefly, global datasets were assembled as for the mortality models with the addition of administrative datasets (hospital discharges and insurance claims) and published scientific studies. Data were standardised to a single reference definition using meta-regression—bayesian, regularised, trimmed (MR-BRT), a meta-regression framework developed for GBD 2019.²⁷ Most causes used DisMod-MR 2.1, a bayesian meta-regression tool developed for GBD, to generate internally consistent models of prevalence, incidence, remission, and excess mortality. The proportion experiencing each type of non-fatal sequela were then calculated separately and paired with corresponding global GBD disability weights derived from worldwide population surveys to calculate years of life lived with disability.²⁸ Finally, a microsimulation adjusted for years lived with disability to account for comorbidity. The simulation assumed independent comorbidity between different diseases but was run separately for each age group, sex, location, and year based on extensive testing during GBD 2010, which revealed age and sex explained most comorbidities.²⁹ Disability adjusted life years were the sum of years of life lost and years lived with disability.

Specialised metrics of ageing

We calculated the probability of death between ages 70 and 90 (20q70) and paired this with cause specific mortality results in a decomposition analysis to understand how trends in 20q70 between 1990 and 2019 related to temporal trends in specific GBD causes. Next, we used previously described methods²⁴ to calculate HALE-70, evaluating age specific mortality and years lived with disability rates for each age group. Finally, we calculated PYIH-70: $(LE-70 - HALE-70)/LE-70$.

Risk factor exposure and attributable burden

Risk factor exposure, relative risk, and population attributable fraction estimation methods have been extensively described previously.²⁶ Briefly, exposure models drew on similar data sources as non-fatal estimates. A continuous distribution of exposure was estimated for several risk factors (eg, high body mass index) known to have a spectrum of associated severity and outcome using ensemble distribution methods developed for GBD. For risk factors, exposure data were modelled by applying either spatiotemporal Gaussian process regression or DisMod-MR 2.1, bayesian statistical models.^{24 26} Quantitative relative risks were estimated for each risk-outcome pair, then paired with corresponding exposure estimates to calculate the population attributable fraction for each risk-outcome

pair. Population attributable fractions were multiplied by the outcome rates to calculate attributable years lived with disability, years of life lost, and disability adjusted life years.

Summary exposure value is a measure ranging from 0 (lowest) to 1 (highest) developed for GBD to capture exposure, magnitude of relative risk, and attributable burden in a single number. Summary exposure values allow comparison of intensity of exposure from the perspective of adverse health outcomes across risk factors and across different demographical groups. We evaluated the relation between total attributable disability adjusted life years to each risk factor in the population aged ≥ 70 and the annualised rate of change in summary exposure values from 1990 to 2019 in those aged ≥ 70 . The annualised rate of change was calculated as \log transformed (final estimates/initial estimates)/(No of years).

Epidemiological transition: historical relation with SDI and HAQ index

We assessed the epidemiological transition in ageing metrics (LE-70, HALE-70, and PYIH-70) as a function of summary measures of societal development and health system performance, including SDI and HAQ index. The HAQ index is a composite metric developed for GBD 2016 and subsequently updated. It is based on comparative risk standardised mortality rates for healthcare sensitive diseases, ranges from 0 (worst) to 100 (best), and represents a health centric assessment of development to complement SDI.³⁰ For each metric, we incorporated all observed location specific estimates from 1990 to 2019 in MR-BRT,²⁷ including an intercept and a cubic spline on either SDI or HAQ index, depending on the model version, to predict the historical average relation between them. Models were fit in \log space and an offset of 1×10^{-7} was used. The observed value for each location year was compared with the expected value, which was the result of the spline model, to calculate the observed to expected ratio.

Uncertainty and data coverage index for population aged ≥ 70

For all results, we report 95% uncertainty intervals derived from 1000 draws from the posterior distribution of each step in the estimation process according to established GBD methods.

The geographical and temporal representativeness of the data sources for non-fatal health outcomes were estimated through a measure we term the data coverage index (DCI). DCI was calculated in two ways for non-fatal disease burden and risk factor exposure. Firstly, we calculated the proportion of countries and territories with input data for each level 3 cause or risk factor (DCI by cause or risk). Secondly, we calculated the proportion of cause or risk factor with any input data for each country and territory (DCI by country). We compared the DCI for all ages with that for the population aged ≥ 70 only to highlight potential data gaps.

Patient and public involvement

The GBD study is a global collaborative scientific endeavour involving more than 7500 people from around 150 countries. Enrolment as a GBD collaborator is a public facing process without specific limitations placed on educational degree or professional status. All collaborators were invited to review and comment on the manuscript according to their personal involvement and expertise.

Results

Demographics, mortality, and morbidity trends

From 1990 to 2019, the size of the global population aged ≥ 70 increased (fig 1). The 70–79 year old age group grew 115.4%, while the proportion of adults aged 80–94 increased by 164.7%. The population aged ≥ 95 grew by 363.7%. These trends were consistent across all SDI groups and GBD super regions (supplementary figs 1–12). In 2019, there were 168.3 million more people aged 70–79, 90.1 million more people aged 80–94, and 3.7 million more people aged ≥ 95 than in 1990. Globally all cause deaths increased while death rates decreased for men and women aged ≥ 70 between 1990 and 2019 (supplementary table 4), a pattern that was followed for nearly all specific causes of death. Globally during the same period, rates for years lived with disability increased only slightly in people aged ≥ 70 (+0.7%, 95% uncertainty interval 0.0% to 1.4%) and in all SDI groups. Globally all cause years lived with disability rates decreased for men but increased for women aged ≥ 70 between 1990 and 2019 (supplementary table 5).

LE-70, HALE-70, and PYIH-70

Globally LE-70 increased for men and women in 2019 (men: 12.88, 95% uncertainty level 12.53 to 13.26; women: 15.21, 14.88 to 15.55) compared with 1990 (men: 10.60, 10.43 to 10.80; women: 12.82, 12.68 to 12.99; table 1, supplementary tables 6–8). Globally HALE-70 increased for men (from 7.72 (6.92 to 8.42) healthy years in 1990 to 9.35 (8.43 to 10.27) in 2019) and women (from 9.10 (8.12 to 10.0) healthy years in 1990 to 10.69 (9.52 to 11.76) in 2019). Improvements in HALE-70 were slightly faster than LE-70 globally, which equated to a minimal increase in PYIH-70. All super regions saw improvements in LE-70, higher HALE-70, and a relatively stagnated PYIH-70 (fig 2, supplementary figs 13 and 14 by sex). We found associations between SDI, HAQ index, and each of LE-70, HALE-70, and PYIH-70 (fig 3; supplementary figs 15 and 16 by sex). Low regional variability was noted in LE-70, HALE-70, and PYIH-70 within countries of the same regional clusters.

More than 90% of the 204 countries and territories had increased LE-70 and HALE-70 between 1990 and 2019. The largest increases in LE-70 for men were in Singapore, South Korea, Bermuda, Maldives, and Luxembourg. In contrast, there were decreases of at least two years in LE-70 in Uzbekistan, Tajikistan, Nicaragua, Honduras, and Azerbaijan. Despite trends of slight PYIH-70 increases with increasing SDI and

HAQ index, only 74 of 204 countries had decreased PYIH-70 between 1990 and 2019. The biggest improvements, in order, were seen in Côte d'Ivoire, Iraq, Singapore, Ukraine, and Kyrgyzstan, all of which saw declines of at least 1% in PYIH-70. In contrast, 64 countries had increases in PYIH-70 of at least 2%, including Sri Lanka, US, Seychelles, Georgia, Lebanon, and Syrian Arab Republic. LE-70 was higher in women than in men in 195 of 204 countries by an average of 1.89 years. The only exceptions were Afghanistan, Algeria, Egypt, Jordan, Marshall Islands, Mauritania, Qatar, Syrian Arab Republic, and Tokelau, where LE-70 was higher in men in 2019.

Causal decomposition of changes in probability of death

We performed causal decomposition of probability of death for the population aged 70–90 from 1990 to 2019 for level 2 GBD causes (fig 4; supplementary figs 17–19). Nearly all regions saw declines in probability of death from age 70 to 90 (thick black line on the left of dotted black line), with the only exceptions being Central Asia (83.2% probability of death in 1990 vs 89.0% in 2019) and southern sub-Saharan Africa (81.6% probability of death in 1990 vs 83.5% in 2019). Broad declines were mostly due to reductions in mortality from cardiovascular diseases and chronic respiratory diseases; declines would have been even greater if not for increases in mortality attributed to neoplasms, diabetes and kidney diseases, and neurological disorders in men and women. Trends in falls and unintentional injuries are important to highlight as proxies for frailty in older adults. In 121 countries, the probability of death by unintentional injury and falls decreased between 1990 and 2019.

Leading causes of mortality and morbidity

In 2019, the most notable causes of disease burden were cardiovascular diseases, neoplasms, and chronic respiratory diseases, while the least burden was caused by other infectious diseases and unintentional injuries (among other causes) for men and women (data given in online supplementary material). Globally the top five level 3 causes of death in people aged ≥ 70 in 2019 were ischaemic heart disease, stroke, chronic obstructive pulmonary disease, Alzheimer's disease and other dementias, and lower respiratory infections (fig 5; supplementary figs 20 and 21 by country and sex). Although ischaemic heart disease, stroke, colorectal cancer, diabetes, and chronic kidney disease remained among the leading causes of death globally, observed levels of deaths were generally lower than those expected based on SDI (ratio of observed to expected levels less than one; fig 5). Increases in death rates in people aged ≥ 70 from 1990 to 2019 were noted for Alzheimer's disease and other dementias (+29.28%), lung cancer (+11.74%), diabetes (+16.35%), and chronic kidney disease (+31.95%) (data given in online supplementary material). Based on the observed to expected mortality ratios, Alzheimer's disease and

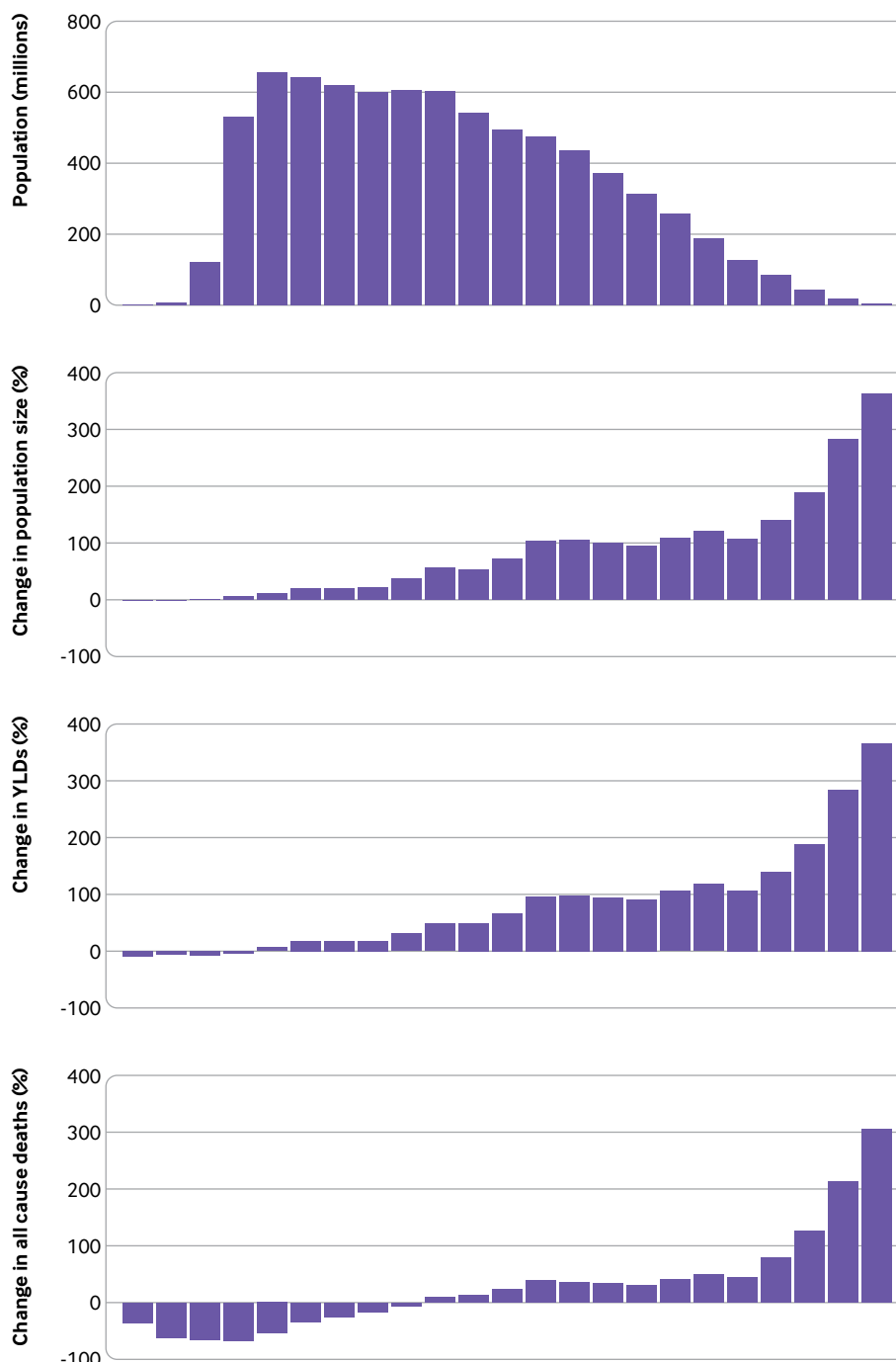


Fig 1 | Global population, years lived with disability, and all-cause mortality transition by age group, 1990-2019. Distribution of global population by age group was estimated as simple difference from 1990 to 2019 (top panel), or as percentage change during the same period (second panel). Percentage differences in years lived with disability and all cause mortality as estimated by GBD 2019 are also provided for all age groups from 1990 to 2019 (lower two panels) to indicate quality of life lost due to illness before death and to quantify all cause mortality. All age groups have been included to provide a comparator when assessing health loss in older adults. GBD=Global Burden of Diseases, Injuries, and Risk Factors Study; YLD=years lived with disability

other dementias (ratio 1.05) was expected to have slightly higher estimates than the observed proportion of 29.28%, while for diabetes (ratio 0.82) the increase was expected to be a bit lower than 31.95%. Falls also increased 15.28% and were ranked 13th in 2019. Neoplasms showed heterogeneity, with half of cancers (15 of 30) increasing and half decreasing. The top two

neoplasms—tracheal, bronchus and lung cancer, and colorectal cancer—both increased (while lung cancer had an observed to expected ratio of 1.12 and the ratio for colorectal cancer was 0.83; fig 5), and the largest increase was in pancreatic cancer (+32.48%, ranked 18th overall). Cancers of the stomach (−33.34%), prostate (−3.74%), breast (−9.28%), oesophagus

Table 1 | Life expectancy, healthy life expectancy, and proportion of years spent in ill health for the population 70 years and older by sociodemographic index and location for both sexes in 1990, 2005, and 2019

	LE-70			HALE-70			PYIH-70		
	1990	2005	2019	1990	2005	2019	1990	2005	2019
Global	11.8 (11.7 to 12)	12.8 (12.7 to 12.9)	14.1 (13.9 to 14.4)	8.48 (7.57 to 9.29)	9.18 (8.24 to 10)	10.1 (9.01 to 11)	0.28 (0.22 to 0.35)	0.28 (0.22 to 0.35)	0.29 (0.23 to 0.35)
Low SDI	9.53 (9.34 to 9.74)	10.3 (10.0 to 10.5)	11.5 (11.2 to 11.8)	6.79 (6.07 to 7.48)	7.32 (6.55 to 8.07)	8.2 (7.31 to 9.04)	0.29 (0.23 to 0.35)	0.29 (0.23 to 0.35)	0.29 (0.24 to 0.35)
Low-middle SDI	10 (9.88 to 10.2)	11.1 (10.9 to 11.2)	12.3 (11.9 to 12.7)	7.09 (6.33 to 7.81)	7.8 (6.94 to 8.57)	8.62 (7.66 to 9.55)	0.29 (0.24 to 0.36)	0.3 (0.24 to 0.36)	0.3 (0.25 to 0.36)
Middle SDI	11.2 (10.9 to 11.5)	11.9 (11.7 to 12.1)	13.3 (12.8 to 13.7)	8.06 (7.19 to 8.83)	8.59 (7.72 to 9.39)	9.49 (8.54 to 10.4)	0.28 (0.23 to 0.34)	0.28 (0.22 to 0.34)	0.28 (0.24 to 0.34)
High-middle SDI	11.8 (11.7 to 12)	12.6 (12.5 to 12.7)	14.5 (14.1 to 14.8)	8.55 (7.66 to 9.35)	9.14 (8.21 to 9.97)	10.4 (9.38 to 11.4)	0.28 (0.22 to 0.34)	0.28 (0.22 to 0.34)	0.28 (0.23 to 0.34)
High SDI	13.8 (13.7 to 13.8)	15.5 (15.5 to 15.5)	16.7 (16.6 to 16.8)	9.81 (8.76 to 10.8)	11.1 (9.87 to 12.1)	11.8 (10.5 to 13)	0.29 (0.22 to 0.36)	0.29 (0.22 to 0.36)	0.29 (0.23 to 0.37)
Central Europe, Eastern Europe, and Central Asia	11.6 (11.6 to 11.6)	11.4 (11.4 to 11.4)	13.2 (12.8 to 13.6)	8.43 (7.55 to 9.22)	8.34 (7.48 to 9.1)	9.62 (8.59 to 10.5)	0.27 (0.21 to 0.35)	0.27 (0.21 to 0.34)	0.27 (0.23 to 0.33)
Central Asia	12.1 (12 to 12.2)	9.84 (9.76 to 9.93)	11 (10.6 to 11.4)	9.1 (8.27 to 9.86)	7.46 (6.8 to 8.07)	8.26 (7.49 to 9.04)	0.25 (0.19 to 0.31)	0.24 (0.19 to 0.3)	0.25 (0.21 to 0.29)
Central Europe	11.3 (11.2 to 11.3)	12.4 (12.4 to 12.4)	13.9 (13.2 to 14.6)	8.15 (7.3 to 8.9)	9.03 (8.1 to 9.85)	10.1 (8.97 to 11.2)	0.28 (0.21 to 0.35)	0.27 (0.21 to 0.34)	0.27 (0.23 to 0.32)
Eastern Europe	11.8 (11.7 to 11.8)	11.1 (11.1 to 11.1)	13.3 (12.8 to 13.9)	8.49 (7.59 to 9.29)	8.09 (7.24 to 8.83)	9.73 (8.62 to 10.7)	0.28 (0.21 to 0.35)	0.27 (0.21 to 0.35)	0.27 (0.22 to 0.33)
High income	13.8 (13.8 to 13.8)	15.6 (15.6 to 15.6)	16.7 (16.7 to 16.7)	9.87 (8.82 to 10.8)	11.1 (9.92 to 12.2)	11.8 (10.6 to 13)	0.29 (0.22 to 0.36)	0.29 (0.22 to 0.36)	0.29 (0.22 to 0.37)
Australasia	13.8 (13.7 to 13.8)	16.1 (16 to 16.1)	17.1 (17 to 17.2)	9.8 (8.74 to 10.8)	11.3 (10.1 to 12.5)	12 (10.6 to 13.2)	0.29 (0.22 to 0.36)	0.3 (0.23 to 0.37)	0.3 (0.23 to 0.37)
High income Asia Pacific	14.4 (14.4 to 14.4)	16.9 (16.9 to 16.9)	18.3 (18.3 to 18.4)	10.6 (9.53 to 11.5)	12.4 (11.2 to 13.5)	13.5 (12.2 to 14.7)	0.27 (0.2 to 0.34)	0.27 (0.2 to 0.34)	0.26 (0.2 to 0.33)
High income North America	14.3 (14.3 to 14.3)	15.2 (15.2 to 15.2)	16 (16 to 16.1)	9.72 (8.55 to 10.8)	10.3 (9.05 to 11.4)	10.5 (9.18 to 11.8)	0.32 (0.24 to 0.4)	0.32 (0.25 to 0.4)	0.34 (0.27 to 0.43)
Southern Latin America	12.8 (12.8 to 12.8)	14 (13.9 to 14)	14.6 (14.5 to 14.8)	9.56 (8.65 to 10.4)	10.4 (9.37 to 11.3)	10.8 (9.73 to 11.8)	0.25 (0.19 to 0.32)	0.26 (0.19 to 0.33)	0.26 (0.2 to 0.33)
Western Europe	13.5 (13.4 to 13.5)	15.4 (15.4 to 15.4)	16.5 (16.5 to 16.6)	9.81 (8.82 to 10.7)	11.2 (10 to 12.2)	12 (10.8 to 13.1)	0.27 (0.21 to 0.34)	0.27 (0.21 to 0.35)	0.28 (0.21 to 0.35)
Latin America and Caribbean	13.1 (13 to 13.1)	14.6 (14.5 to 14.6)	15.2 (14.7 to 15.7)	9.44 (8.45 to 10.3)	10.6 (9.51 to 11.6)	11 (9.91 to 12.1)	0.28 (0.21 to 0.35)	0.27 (0.21 to 0.34)	0.27 (0.23 to 0.33)
Andean Latin America	13.5 (13.1 to 13.9)	14.8 (14.4 to 15.2)	15.4 (14.4 to 16.5)	10.1 (9.05 to 11.1)	11 (9.89 to 12)	11.4 (10.1 to 12.7)	0.25 (0.21 to 0.31)	0.26 (0.21 to 0.31)	0.26 (0.23 to 0.3)
Caribbean	13.2 (13.1 to 13.3)	14.1 (13.9 to 14.3)	14.6 (13.8 to 15.4)	9.89 (8.95 to 10.7)	10.5 (9.48 to 11.4)	10.7 (9.54 to 11.8)	0.25 (0.19 to 0.32)	0.26 (0.2 to 0.32)	0.26 (0.23 to 0.31)
Central Latin America	13.3 (13.3 to 13.4)	14.7 (14.7 to 14.8)	14.7 (14.6 to 16.1)	9.55 (8.52 to 10.5)	10.7 (9.58 to 11.7)	11.1 (9.82 to 12.3)	0.28 (0.22 to 0.36)	0.27 (0.21 to 0.35)	0.28 (0.24 to 0.33)
Tropical Latin America	12.6 (12.5 to 12.6)	14.4 (14.4 to 14.5)	15.3 (15.1 to 15.4)	8.98 (8.01 to 9.86)	10.4 (9.32 to 11.4)	11.1 (9.94 to 12.1)	0.28 (0.22 to 0.36)	0.28 (0.21 to 0.35)	0.27 (0.22 to 0.34)
North Africa and Middle East	11.3 (11.1 to 11.5)	12.4 (12.2 to 12.7)	13 (12.5 to 13.4)	8.23 (7.38 to 9.04)	9.01 (8.18 to 9.88)	9.33 (8.35 to 10.3)	0.27 (0.21 to 0.33)	0.28 (0.22 to 0.33)	0.28 (0.23 to 0.33)
South Asia	9.49 (9.29 to 9.69)	10.8 (10.5 to 11)	12.4 (11.8 to 13)	5.15 (4.59 to 5.77)	7.24 (6.5 to 8.18)	8.48 (7.41 to 9.5)	0.31 (0.25 to 0.38)	0.31 (0.26 to 0.38)	0.32 (0.27 to 0.37)
South East Asia, East Asia, and Oceania	10.8 (10.5 to 11.2)	11.7 (11.5 to 12)	13 (12.8 to 14)	7.84 (7.02 to 8.62)	8.47 (7.63 to 9.26)	9.6 (8.62 to 10.6)	0.27 (0.23 to 0.33)	0.28 (0.23 to 0.33)	0.28 (0.24 to 0.33)
East Asia	10.6 (10.2 to 11.2)	11.6 (11.3 to 12)	13.5 (12.8 to 14.3)	7.76 (6.96 to 8.56)	8.45 (7.61 to 9.24)	9.76 (8.69 to 10.8)	0.27 (0.23 to 0.32)	0.27 (0.23 to 0.33)	0.28 (0.24 to 0.32)
Oceania	10.3 (9.83 to 10.8)	10.3 (9.7 to 10.9)	10.7 (9.82 to 11.5)	7.34 (6.51 to 8.14)	7.35 (6.47 to 8.19)	7.6 (6.58 to 8.6)	0.29 (0.24 to 0.34)	0.29 (0.25 to 0.33)	0.29 (0.25 to 0.33)
South East Asia	11.5 (11.3 to 11.7)	12 (11.8 to 12.2)	12.8 (12.4 to 13.3)	8.14 (7.26 to 8.94)	8.57 (7.68 to 9.42)	9.1 (8.08 to 10)	0.29 (0.24 to 0.36)	0.29 (0.23 to 0.35)	0.29 (0.25 to 0.35)
Sub-Saharan Africa	10.1 (9.88 to 10.3)	10.4 (10.1 to 10.6)	11.5 (11.1 to 11.8)	7.33 (6.59 to 8.04)	7.54 (6.79 to 8.24)	8.39 (7.55 to 9.2)	0.28 (0.22 to 0.33)	0.27 (0.22 to 0.33)	0.27 (0.22 to 0.32)
Central sub-Saharan Africa	9.32 (8.83 to 9.79)	9.83 (9.4 to 10.3)	10.9 (10.1 to 11.6)	6.73 (6 to 7.47)	7.13 (6.4 to 7.86)	7.96 (7.01 to 8.89)	0.28 (0.24 to 0.32)	0.27 (0.24 to 0.32)	0.27 (0.23 to 0.33)
Eastern sub-Saharan Africa	9.37 (9.19 to 9.59)	10.2 (10 to 10.4)	11 (11.1 to 11.7)	6.81 (6.11 to 7.45)	7.44 (6.68 to 8.12)	8.34 (7.51 to 9.1)	0.27 (0.22 to 0.33)	0.27 (0.22 to 0.33)	0.27 (0.22 to 0.32)
Southern sub-Saharan Africa	12.1 (12.1 to 12.1)	13.1 (13.1 to 13.1)	14.1 (14.1 to 14.1)	8.99 (8.99 to 8.99)	8.77 (8.77 to 8.77)	8.55 (8.55 to 8.55)	0.29 (0.29 to 0.29)	0.29 (0.29 to 0.29)	0.29 (0.29 to 0.29)
Western sub-Saharan Africa	10.2 (9.84 to 10.5)	10.4 (10 to 10.9)	11.5 (11 to 11.9)	7.4 (6.63 to 8.11)	7.65 (6.87 to 8.4)	8.48 (7.54 to 9.27)	0.27 (0.23 to 0.33)	0.27 (0.23 to 0.33)	0.27 (0.22 to 0.31)

2005 has been selected as midpoint of period 1990-2019, allowing comparisons between almost equal time periods. Data in parentheses are 95% uncertainty intervals.

LE-70=life expectancy at age 70; HALE-70=healthy life expectancy at age 70; PYIH-70=proportion of years in ill health at age 70.

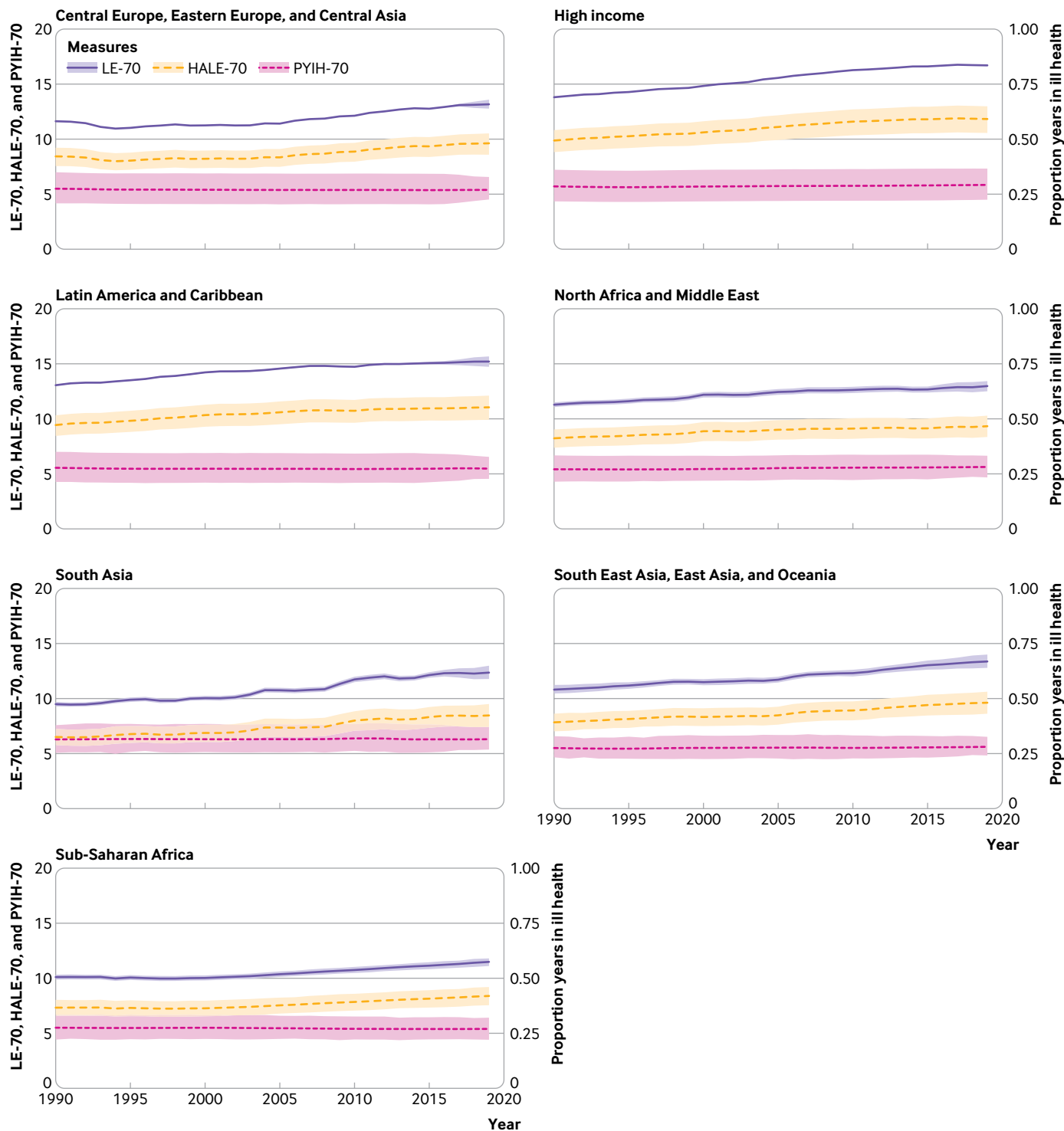


Fig 2 | Life expectancy at age 70 (LE-70), healthy life expectancy at age 70 (HALE-70), and proportion of life years spent in ill health at age 70 (PYIH-70) by location for both sexes, 1990-2019. Shaded sections indicate 95% uncertainty intervals. GBD=Global Burden of Diseases, Injuries, and Risk Factors Study

(−14.55%), and liver (−10.48%) all decreased from 1990 to 2019 in people aged ≥ 70 (data given in online supplementary material).

Globally, the top 5 level 3 causes of years lived with disability in people aged ≥ 70 included age related hearing loss, diabetes, low back pain, blindness and

vision loss, and chronic obstructive pulmonary disease (fig 6, supplementary figs 22 and 23 by country and sex). Observed years lived with disability due to chronic obstructive pulmonary disease were almost two times (observed to expected ratio 1.8) higher than expected levels worldwide. Among all 10 leading causes of years

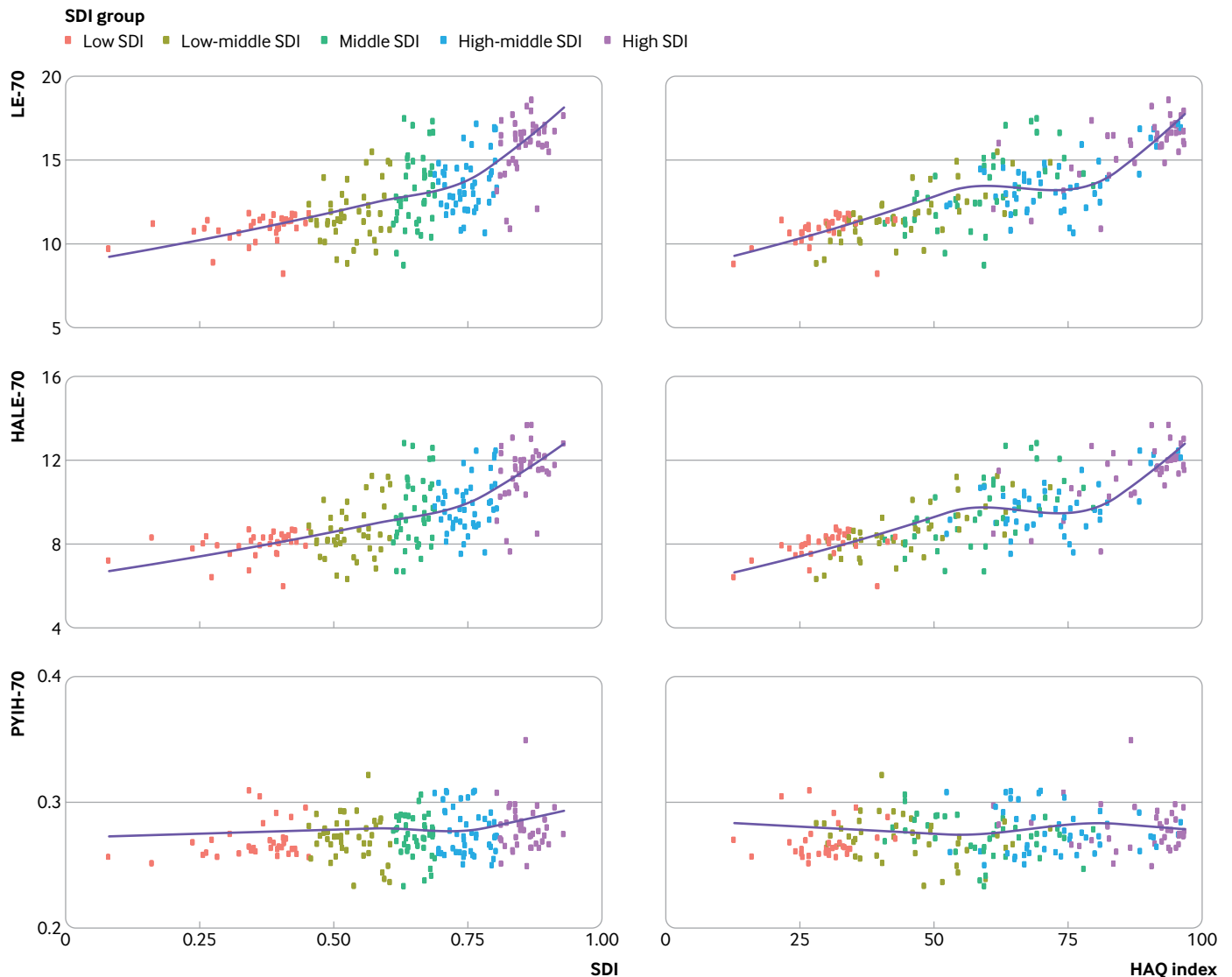


Fig 3 | Epidemiological transition between life expectancy at age 70 (LE-70), healthy life expectancy at age 70 (HALE-70), proportion of years spent in ill health at age 70 (PYIH-70), and sociodemographic index (SDI) and healthcare access and quality (HAQ) index for both sexes, 2019. Dots represent countries and different colour coding indicates SDI categorisation

lived with disability, observed estimates were almost equal (observed to expected ratio >0.9) or exceeded the levels expected based on SDI (fig 6). Leading causes of disability in older people were largely consistent across locations, but with variations in ranking. Age related hearing loss was the leading cause in 47 countries, while diabetes ranked first in 98 countries. Notably, Alzheimer's disease and other dementias was in the top five in 51 countries, osteoarthritis in 28 countries, oral disorders in 29 countries, and chronic obstructive pulmonary disease in 50 countries (supplementary figs 22 and 23).

Attributable burden and risk factor exposure trends

In 2019, 280 million disability adjusted life years (95% uncertainty interval 261.3 to 297.9), or 57.7% of the total, were attributable to risk factors in people aged ≥ 70 ; this includes 87.9 (79.4 to 95.8), 147.8 (134.8 to 163.4),

and 172.0 (155.4 to 189.3) million disability adjusted life years attributable to environmental, behavioural, and metabolic risks, respectively. This represents an increase in the total risk attributable disability adjusted life years from the estimated 165.3 million (157.8 to 172.5) in 1990, but a decrease in the proportion that were risk attributable in 1990 (61.9%). The top five risk factors in 2019 were high systolic blood pressure, high fasting plasma glucose, smoking, high low density lipoprotein cholesterol, and high body mass index. The only substantial change in ranking was a decline of 70.1% in burden attributable to household air pollution (data shown in online supplementary material).

A comparison of annualised rate of change in risk exposure measured by summary exposure values from 1990 to 2019 with total attributable disability adjusted life years in 2019 shows that the biggest risk factors for health loss were mainly those with the

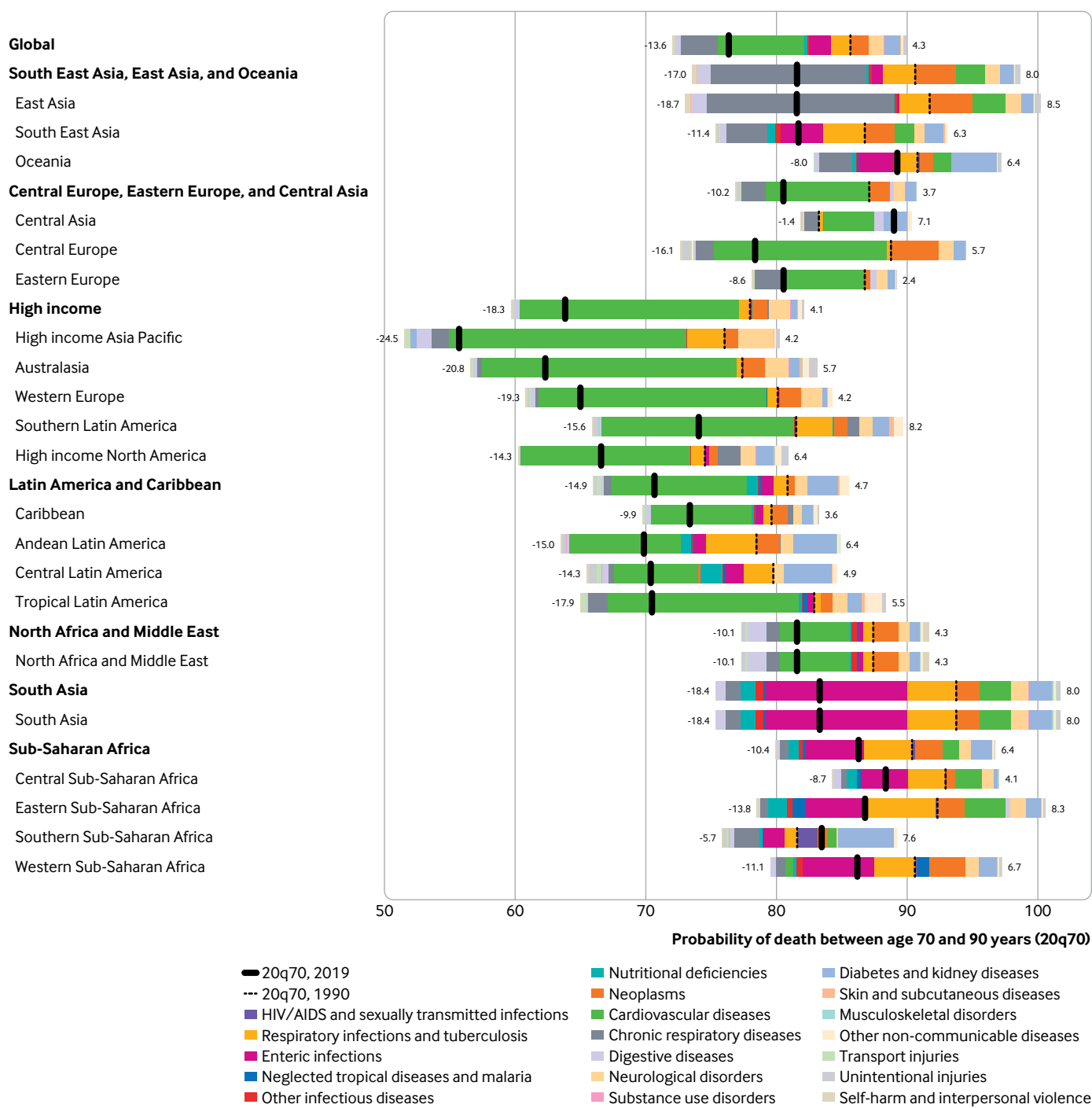


Fig 4 | Relation between level 2 causes of death and changes in probability of death between ages 70 and 90 years (20q70) for both sexes by location, 1990-2019. Different colour bars represent different causes of death. All causes to the right of the dotted black line increased from 1990 to 2019, and all those to the left decreased over the same time period. At the global level, the probability of death decreased mainly due to reductions in cardiovascular diseases, chronic respiratory diseases, respiratory infections and tuberculosis, and enteric infections (-13.6% in total), while the probability of death increased due to increases in neoplasms, neurological disorders, diabetes, and kidney diseases (+4.3% in total). 20q70=probability 'q' of death for a period of 20 years starting at age 70

largest cumulative improvements in exposure (fig 7, supplementary figs 24-36). Those with an annualised rate of change in summary exposure values of at least 2% decline and to which at least 100 000 disability adjusted life years globally are attributed include household air pollution, unsafe water, low dietary fibre,

unsafe sanitation, low vegetables, poor handwashing, child wasting, and child underweight (which includes protein energy malnutrition in adults as well), and occupational injuries and asthmagens. Notable differences existed among diverse sociodemographic levels and super regions (supplementary figs 24-36).

	1	2	3	4	5	6	7	8	9	10
Global	Ischaemic heart disease 0.81	Stroke 0.97	COPD 1.86	Alzheimer's disease 1.010	Lower respiratory infection 1.00	Lung cancer 1.12	Diabetes 0.82	Hypertensive heart disease 1.19	Chronic kidney disease 0.99	Colorectal cancer 0.83
Central Europe, Eastern Europe, and Central Asia	Ischaemic heart disease 2.11	Stroke 1.84	Alzheimer's disease 1.00	COPD 0.82	Colorectal cancer 1.02	Hypertensive heart disease 1.54	Lung cancer 0.86	Lower respiratory infection 0.48	Cardiomyopathy 2.37	Diabetes 0.61
Central Asia	Ischaemic heart disease 2.45	Stroke 1.64	COPD 1.40	Hypertensive heart disease 1.98	Alzheimer's disease 1.02	Cirrhosis 2.52	Diabetes 0.74	Lower respiratory infection 0.61	Lung cancer 0.85	Stomach cancer 1.29
Central Europe	Ischaemic heart disease 1.46	Stroke 1.04	Alzheimer's disease 1.04	Hypertensive heart disease 2.65	Lung cancer 1.23	Colorectal cancer 1.23	COPD 0.83	Cardiomyopathy 2.37	Lower respiratory infection 0.61	Diabetes 0.91
Eastern Europe	Ischaemic heart disease 2.49	Stroke 2.04	Alzheimer's disease 0.97	COPD 0.72	Colorectal cancer 0.90	Lung cancer 0.66	Stomach cancer 1.16	Hypertensive heart disease 0.73	Cardiomyopathy 1.79	Lower respiratory infection 0.32
High Income	Ischaemic heart disease 0.63	Stroke 0.67	Alzheimer's disease 1.05	COPD 1.10	Lung cancer 0.97	Lower respiratory infection 1.01	Chronic kidney disease 1.30	Colorectal cancer 0.79	Diabetes 0.87	Hypertensive heart disease 1.10
Australasia	Ischaemic heart disease 0.63	Stroke 0.61	Alzheimer's disease 1.03	COPD 1.10	Lung cancer 1.1	Colorectal cancer 1.19	Chronic kidney disease 1.19	Lower respiratory infection 0.56	Prostate cancer 0.93	Diabetes 0.91
High income Asia Pacific	Alzheimer's disease 1.25	Stroke 0.70	Ischaemic heart disease 0.34	Lower respiratory infection 1.43	Lung cancer 0.87	Colorectal cancer 0.72	Stomach cancer 1.89	Chronic kidney disease 1.05	COPD 0.52	Liver cancer 2.88
High income North America	Ischaemic heart disease 0.89	Stroke 0.63	COPD 1.59	Alzheimer's disease 0.97	Lung cancer 1.18	Chronic kidney disease 1.63	Lower respiratory infection 0.72	Colorectal cancer 0.64	Diabetes 1.11	Prostate cancer 0.78
Southern Latin America	Ischaemic heart disease 0.99	Lower respiratory infection 0.63	Stroke 0.55	COPD 1.10	Alzheimer's disease 1.1	Chronic kidney disease 1.80	Colorectal cancer 1.35	Hypertensive heart disease 1.21	Diabetes 0.90	Lung cancer 1.10
Western Europe	Ischaemic heart disease 0.64	Stroke 0.70	Alzheimer's disease 0.99	COPD 1.08	Lung cancer 0.89	Lower respiratory infection 0.87	Colorectal cancer 0.89	Hypertensive heart disease 1.18	Hypertensive heart disease 1.44	Prostate cancer 0.91
Latin America and Caribbean	Ischaemic heart disease 0.47	Stroke 0.43	Alzheimer's disease 1.04	Lower respiratory infection 1.31	COPD 1.12	Diabetes 1.15	Chronic kidney disease 1.40	Hypertensive heart disease 0.75	Prostate cancer 1.09	Cirrhosis 1.18
Andean Latin America	Ischaemic heart disease 0.37	Lower respiratory infection 2.26	Stroke 0.31	Chronic kidney disease 1.73	Alzheimer's disease 1.09	Diabetes 0.95	Diabetes 0.79	Stomach cancer 1.90	Cirrhosis 1.73	Prostate cancer 1.10
Caribbean	Ischaemic heart disease 0.71	Stroke 0.69	Lower respiratory infection 1.21	Diabetes 1.32	Alzheimer's disease 0.90	Prostate cancer 1.80	COPD 0.76	Chronic kidney disease 1.03	Hypertensive heart disease 1.11	Lung cancer 1.04
Central Latin America	Ischaemic heart disease 0.55	Stroke 0.34	Diabetes 1.37	Chronic kidney disease 1.30	COPD 1.27	Alzheimer's disease 1.49	Lower respiratory infection 0.75	Cirrhosis 1.49	Hypertensive heart disease 0.63	Prostate cancer 0.94
Tropical Latin America	Ischaemic heart disease 0.37	Stroke 0.50	Lower respiratory infection 1.69	Alzheimer's disease 1.09	COPD 1.24	Diabetes 0.98	Chronic kidney disease 0.90	Hypertensive heart disease 0.79	Prostate cancer 1.06	Lung cancer 0.87
North Africa and Middle East	Ischaemic heart disease 1.32	Stroke 0.91	Hypertensive heart disease 2.27	Alzheimer's disease 1.14	Chronic kidney disease 1.67	Chronic kidney disease 0.97	Cirrhosis 2.52	Diabetes 1.02	Diabetes 0.83	Lower respiratory infection 0.77
North Africa and Middle East	Ischaemic heart disease 1.32	Stroke 0.91	Hypertensive heart disease 2.27	Alzheimer's disease 1.14	Chronic kidney disease 1.67	COPD 1.67	Cirrhosis 2.52	Diabetes 1.02	Diabetes 0.83	Lower respiratory infection 0.77
South Asia	Ischaemic heart disease 0.76	COPD 2.84	Stroke 0.63	Diarrhoeal diseases 11.42	Lower respiratory infection 0.97	Diabetes 0.85	Tuberculosis 3.14	Falls 4.41	Alzheimer's disease 0.81	Asthma 2.23
South Asia	Ischaemic heart disease 0.76	COPD 2.84	Stroke 0.63	Diarrhoeal diseases 11.42	Lower respiratory infection 0.97	Diabetes 0.85	Tuberculosis 3.14	Falls 4.41	Alzheimer's disease 0.81	Asthma 2.23
South East Asia, East Asia, and Oceania	Stroke 1.39	Ischaemic heart disease 0.74	COPD 2.82	Lung cancer 1.85	Alzheimer's disease 1.01	Hypertensive heart disease 1.56	Lower respiratory infection 0.90	Stomach cancer 1.95	Diabetes 0.62	Chronic kidney disease 0.81
East Asia	Stroke 1.42	Ischaemic heart disease 0.77	COPD 3.17	Lung cancer 2.00	Alzheimer's disease 1.01	Hypertensive heart disease 1.65	Stomach cancer 1.95	Lower respiratory infection 0.66	Colorectal cancer 0.90	Esophageal cancer 5.18
Oceania	Ischaemic heart disease 1.08	Stroke 1.07	COPD 2.96	Diabetes 3.23	Asthma 4.24	Ischaemic heart disease 2.39	Lower respiratory infection 0.84	Hypertensive heart disease 1.10	Alzheimer's disease 0.92	Lung cancer 1.43
South East Asia	Stroke 1.27	Ischaemic heart disease 1.07	COPD 1.56	Lower respiratory infection 1.74	Diabetes 1.21	Alzheimer's disease 1.02	Chronic kidney disease 1.24	Hypertensive heart disease 1.24	Tuberculosis 1.68	Cirrhosis 1.88
Sub-Saharan Africa	Stroke 0.90	Ischaemic heart disease 0.71	Lower respiratory infection 1.58	Diarrhoeal diseases 1.72	Tuberculosis 1.84	Diabetes 1.28	Hypertensive heart disease 1.28	COPD 0.79	Alzheimer's disease 1.08	Chronic kidney disease 1.11
Central Sub-Saharan Africa	Stroke 0.99	Ischaemic heart disease 0.81	Lower respiratory infection 1.81	Tuberculosis 2.71	Hypertensive heart disease 2.07	COPD 1.15	Diarrhoeal diseases 1.73	Diabetes 1.10	Alzheimer's disease 1.11	Chronic kidney disease 0.97
Eastern Sub-Saharan Africa	Stroke 0.95	Ischaemic heart disease 0.66	Lower respiratory infection 1.42	Tuberculosis 1.69	Diarrhoeal diseases 1.41	Hypertensive heart disease 1.50	Diabetes 0.75	COPD 0.75	Cirrhosis 1.49	Alzheimer's disease 1.11
Southern Sub-Saharan Africa	Stroke 0.85	Ischaemic heart disease 0.55	Diabetes 2.50	Lower respiratory infection 2.51	COPD 1.37	Hypertensive heart disease 2.07	Chronic kidney disease 1.62	Alzheimer's disease 0.99	Diarrhoeal diseases 10.67	Tuberculosis 8.72
Western Sub-Saharan Africa	Ischaemic heart disease 0.79	Stroke 0.85	Lower respiratory infection 1.52	Diarrhoeal diseases 1.77	Malaria 17.64	Tuberculosis 1.54	Diabetes 1.11	Alzheimer's disease 1.08	Chronic kidney disease 1.10	COPD 0.62

Values represent ratio of observed to estimated deaths based on sociodemographic index rounded to two decimal places. Colour ranges calculated to place a roughly equal number of cells in each column

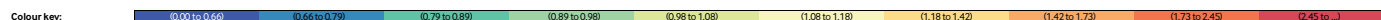


Fig 5 | Ten leading causes of total deaths with ratio of observed to expected deaths in 2019 by location for population aged ≥70, both sexes. Causes are ranked according to global estimates of deaths and colour coded based on ratio of observed to expected rates. Shades of blue represent lower observed deaths than expected rates based on sociodemographic index whereas red indicates observed deaths exceeded expected rates. Ratios are listed in each cell; ratios greater than one indicate that observed levels exceeded expected levels based on sociodemographic index. COPD=chronic obstructive pulmonary disease

Analysing common risks among men and women in the high SDI group, drug use, followed by low birth weight or short gestation, had the highest increase in summary exposure values and attributable disability adjusted life years. In comparison, the middle SDI group had the highest increases for high temperature (one of two climate indicators, the other being low temperature) and high body mass index. The low-middle and low SDI groups noted the highest annualised rate of change in parallel with attributable disability adjusted life years related to ambient particulate matter air pollution and high body mass index.

DCI for population aged ≥70

Between 1990 and 2019, data coverage for all risks and non-fatal outcomes in the population aged ≥70 remained at low levels compared with that for all ages (supplementary tables 9-12). Across GBD locations, between 1990 and 2005, and between 2005 and 2019, 87 countries increased data completeness for risk factors for older adults and 117 countries increased DCI percentage for all ages. Meanwhile, the DCI percentage for non-fatal outcomes in adults aged ≥70 increased in 57 countries, while the DCI percentage for all ages increased in 198 countries. Non-fatal DCI percentage for the population aged ≥70 decreased in 125 countries.

Analysing only risk factor data completeness between the same time periods and age groups showed that nine risk factors had 0% completeness for both periods among those aged ≥70 (supplementary table 10). For the entire period, all risk factors completeness for older adults was at an equal or lower level compared with that of all ages. Additionally, for all ages and those aged ≥70, data completeness decreased between 1990 and 2005, and between 2005 and 2019 for 16 and 32 risks, respectively. Traditionally high burden modifiable risks, including dietary risks, high cholesterol levels, and high fasting plasma glucose, had low to moderate data availability for the population aged ≥70 (DCI range 29%–63%; supplementary table 10). Similar patterns were noted for environmental and occupational risks. Furthermore, when we analysed completeness for non-fatal causes, we found that 52 non-fatal causes had zero coverage for both periods for the population aged ≥70, while 53 non-fatal causes had 100% completeness in all ages and the population aged ≥70.

Discussion

Life expectancy, fatal and non-fatal causes, and risk factor patterns

Adults aged ≥70 were more likely to live longer in 2019 than in 1990 in almost all countries. In the global

	1	2	3	4	5	6	7	8	9	10
Global	Age related hearing loss 1.09	Diabetes 0.94	Low back pain 0.96	Blindness and vision loss 1.30	COPD 1.74	Stroke 1.39	Alzheimer's disease 1.05	Falls 1.19	Osteoarthritis 1.04	Oral disorders 0.90
Central Europe, Eastern Europe, and Central Asia	Low back pain 1.19	Age related hearing loss 1.18	Diabetes 0.92	Alzheimer's disease 1.13	Blindness and vision loss 1.49	Stroke 1.18	Falls 1.07	Oral disorders 1.17	Osteoarthritis 0.98	Depressive disorders 1.14
Central Asia	Age related hearing loss 1.00	Low back pain 1.04	Diabetes 0.90	Blindness and vision loss 1.25	Oral disorders 1.30	Alzheimer's disease 1.14	Stroke 0.90	Depressive disorders 1.29	Osteoarthritis 0.99	COPD 1.01
Central Europe	Diabetes 1.32	Age related hearing loss 1.16	Low back pain 1.06	Falls 1.35	Alzheimer's disease 1.17	Stroke 1.33	Oral disorders 1.09	Blindness and vision loss 1.17	Osteoarthritis 0.75	COPD 0.89
Eastern Europe	Low back pain 1.29	Age related hearing loss 1.22	Blindness and vision loss 1.76	Alzheimer's disease 1.10	Osteoarthritis 1.13	Oral disorders 1.20	Stroke 1.12	Diabetes 0.65	Falls 0.90	Depressive disorders 1.25
High income	Low back pain 1.06	Age related hearing loss 1.13	Diabetes 1.20	Falls 0.97	COPD 1.26	Alzheimer's disease 1.09	Osteoarthritis 1.15	Stroke 1.07	Oral disorders 0.96	Other musculoskeletal 2.84
Australasia	Age related hearing loss 1.24	Falls 1.45	Low back pain 0.85	Diabetes 1.90	COPD 1.30	Osteoarthritis 1.37	Alzheimer's disease 1.02	Oral disorders 1.20	Other musculoskeletal 3.19	Atrial fibrillation 1.53
High income Asia Pacific	Age related hearing loss 1.26	Low back pain 1.03	Alzheimer's disease 1.20	Osteoarthritis 1.18	Stroke 1.54	Diabetes 0.87	Falls 0.60	Other musculoskeletal 3.41	COPD 0.70	Oral disorders 0.93
High income North America	Low back pain 1.23	Age related hearing loss 1.39	COPD 1.99	Diabetes 1.56	Falls 1.05	Osteoarthritis 1.29	Alzheimer's disease 1.13	Stroke 1.40	Other musculoskeletal 3.91	Atrial fibrillation 1.74
Southern Latin America	Age related hearing loss 1.05	Diabetes 0.95	Low back pain 0.81	Other musculoskeletal 5.99	Osteoarthritis 1.39	Alzheimer's disease 1.06	Oral disorders 0.95	Falls 1.00	COPD 1.00	Blindness and vision loss 0.68
Western Europe	Low back pain 0.99	Diabetes 1.18	Falls 1.12	Age related hearing loss 0.92	Alzheimer's disease 1.00	COPD 1.12	Osteoarthritis 1.03	Oral disorders 1.05	Depressive disorders 1.21	Blindness and vision loss 1.03
Latin America and Caribbean	Diabetes 1.20	Age related hearing loss 0.97	Blindness and vision loss 1.13	Low back pain 0.80	Oral disorders 1.20	Alzheimer's disease 0.98	Osteoarthritis 1.15	Other musculoskeletal 3.44	Falls 1.40	Depressive disorders 1.05
Andean Latin America	Age related hearing loss 1.05	Blindness and vision loss 1.27	Diabetes 0.88	Chronic kidney disease 1.42	Low back pain 0.77	Osteoarthritis 1.16	Alzheimer's disease 0.85	Other musculoskeletal 3.13	Depressive disorders 0.89	Falls 0.88
Caribbean	Diabetes 1.48	Age related hearing loss 1.10	Low back pain 0.80	Blindness and vision loss 1.00	Oral disorders 1.01	Falls 1.32	Osteoarthritis 1.01	Alzheimer's disease 0.81	Depressive disorders 1.26	Ischaemic heart disease 0.98
Central Latin America	Diabetes 1.44	Age related hearing loss 1.03	Blindness and vision loss 1.10	Low back pain 0.75	Other musculoskeletal 3.84	Osteoarthritis 1.30	Oral disorders 0.86	Alzheimer's disease 0.83	Depressive disorders 1.04	Chronic kidney disease 1.78
Tropical Latin America	Diabetes 0.98	Age related hearing loss 0.86	Blindness and vision loss 1.17	Oral disorders 1.43	Low back pain 0.85	Alzheimer's disease 1.13	Other musculoskeletal 3.52	Osteoarthritis 1.10	Falls 1.70	Depressive disorders 1.05
North Africa and Middle East	Diabetes 1.22	Age related hearing loss 1.05	Blindness and vision loss 1.49	Low back pain 0.99	Stroke 1.25	Alzheimer's disease 1.24	Oral disorders 1.09	COPD 1.50	Osteoarthritis 0.91	Chronic kidney disease 1.89
North Africa and Middle East	Diabetes 1.22	Age related hearing loss 1.05	Blindness and vision loss 1.49	Low back pain 0.99	Stroke 1.25	Alzheimer's disease 1.24	Oral disorders 1.09	COPD 1.50	Osteoarthritis 0.91	Chronic kidney disease 1.89
South Asia	Blindness and vision loss 1.57	COPD 3.62	Age related hearing loss 0.99	Diabetes 0.96	Low back pain 0.86	Falls 3.29	Dietary iron deficiency 3.85	Road injuries 2.95	Depressive disorders 1.31	Other musculoskeletal 2.41
South Asia	Blindness and vision loss 1.57	COPD 3.62	Age related hearing loss 0.99	Diabetes 0.96	Low back pain 0.86	Falls 3.29	Dietary iron deficiency 3.85	Road injuries 2.95	Depressive disorders 1.31	Other musculoskeletal 2.41
South East Asia, East Asia, and Oceania	Age related hearing loss 1.14	Stroke 1.86	Blindness and vision loss 1.34	COPD 2.40	Low back pain 0.85	Diabetes 0.64	Alzheimer's disease 1.13	Osteoarthritis 0.92	Oral disorders 0.82	Falls 1.20
East Asia	Age related hearing loss 1.19	Stroke 1.96	COPD 2.47	Blindness and vision loss 1.19	Low back pain 0.78	Alzheimer's disease 1.20	Diabetes 0.54	Osteoarthritis 0.98	Oral disorders 0.82	Falls 1.22
Oceania	Diabetes 1.70	Low back pain 1.26	Age related hearing loss 0.99	Blindness and vision loss 0.76	Stroke 1.52	COPD 1.79	Oral disorders 1.28	Alzheimer's disease 0.97	Osteoarthritis 0.82	Ischaemic heart disease 1.39
South East Asia	Blindness and vision loss 1.83	Diabetes 1.04	Age related hearing loss 0.99	Low back pain 1.14	Stroke 1.49	COPD 2.09	Alzheimer's disease 0.87	Oral disorders 0.83	Other musculoskeletal 2.25	Neck pain 2.09
Sub-Saharan Africa	Blindness and vision loss 1.09	Age related hearing loss 0.96	Diabetes 0.99	Low back pain 1.00	Depressive disorders 1.51	Stroke 0.96	Osteoarthritis 1.11	COPD 1.14	Alzheimer's disease 0.94	Road injuries 1.67
Central Sub-Saharan Africa	Age related hearing loss 0.96	Diabetes 1.16	Low back pain 1.02	Depressive disorders 1.47	Blindness and vision loss 0.61	COPD 1.41	Alzheimer's disease 1.25	Onchocerciasis 30.75	Stroke 0.92	Osteoarthritis 1.07
Eastern Sub-Saharan Africa	Blindness and vision loss 1.03	Age related hearing loss 0.96	Low back pain 1.00	Diabetes 0.85	Depressive disorders 1.52	Stroke 0.97	Osteoarthritis 1.10	Alzheimer's disease 1.03	COPD 0.90	Road injuries 1.55
Southern Sub-Saharan Africa	Diabetes 1.24	Age related hearing loss 1.09	Blindness and vision loss 1.36	Low back pain 0.87	COPD 2.11	Stroke 1.10	Depressive disorders 1.53	Osteoarthritis 1.11	Alzheimer's disease 0.92	Oral disorders 0.75
Western Sub-Saharan Africa	Blindness and vision loss 1.21	Age related hearing loss 0.93	Low back pain 1.04	Diabetes 0.95	Depressive disorders 1.51	Osteoarthritis 1.15	Stroke 0.90	Road injuries 1.96	COPD 1.01	Alzheimer's disease 0.81

Values shown in brackets represent ratio of observed YLDs to estimated YLDs based on sociodemographic index rounded to two decimal places. Colour ranges calculated to place a roughly equal number of cells in each column

Colour key: (0.00 to 0.86) (0.86 to 0.95) (0.95 to 1.00) (1.00 to 1.05) (1.05 to 1.13) (1.13 to 1.19) (1.19 to 1.26) (1.26 to 1.48) (1.48 to 1.90) (1.90 to ...)

Fig 6 | Ten leading causes of total years lived with disability (YLDs) with ratio of observed to expected YLDs in 2019 by location for population aged ≥ 70 , both sexes. Causes are ranked according to global estimates of YLDs and colour coded based on ratio of observed to expected rates. Shades of blue represent lower observed YLDs than expected rates based on sociodemographic index whereas red indicates observed YLDs exceeded expected rates. Ratios are listed in each cell; ratios greater than one indicate that observed levels exceeded expected levels based on sociodemographic index. COPD=chronic obstructive pulmonary disease

population aged ≥ 70 , an extension of life was recorded of almost two years in total (LE-70) or almost 1.5 years free of disease (HALE-70). Disease burden was closely associated with societal development and aggregate healthcare quality, but starting at the age of 70, relatively low regional variability was found for LE-70, which could be attributed to a lack of variation in SDI and HAQ index within regions. Women generally lived longer but had a higher proportion of those years spent in ill health.

Steady increases in LE-70 have been described even before 1990,³¹ with variation of life expectancy thought to be a complex function of age specific mortality, risk factor exposures, and biomedical advances.³² This supports our findings of low regional variability in life expectancy beyond aged 70. Further, healthy ageing trends are not random³³ because evidence exists that determinants as diverse as lifestyle and socioeconomic development have predictable effects on healthy ageing.³⁴ Our study showed widespread decreases in cardiovascular and chronic respiratory diseases, and in some cancers. Nonetheless, increases in deaths were found to be caused by neurological disorders, falls, and some cancer types that have not been historically targeted by prevention programmes. The fatal and non-fatal burden of injuries due to falls increased in several countries, suggesting that functional

loss will have a role in the burden of disease among older adults.³⁵ Interventions targeting diseases that progressively impair physical functionality³⁶ might be required to alter this pattern. The main disability drivers globally were disorders related to functional status (eg, Alzheimer's disease and other dementias, and stroke), conditions associated with longstanding pain (eg, low back pain, neck pain, osteoarthritis, road injuries), deficits in sensory organ functioning (eg, age related hearing loss, blindness and vision loss), and oral disorders. Alzheimer's disease and other dementias have an important role in people's functional status, and based on our analysis, are contributing to higher mortality and morbidity rates than expected among older adults, a fact that is also supported by the literature.^{37 38} Projections suggest that the older population is expected to exceed 20% of the global population by 2050.³⁹ This growing number of older people is likely to present a challenge in terms of health needs and care costs.⁴⁰

Disability burden and functional loss among older adults

Conditions limiting physical function, pain symptoms, and sensory organ deficits were the main drivers of morbidity among the older population. Importantly,

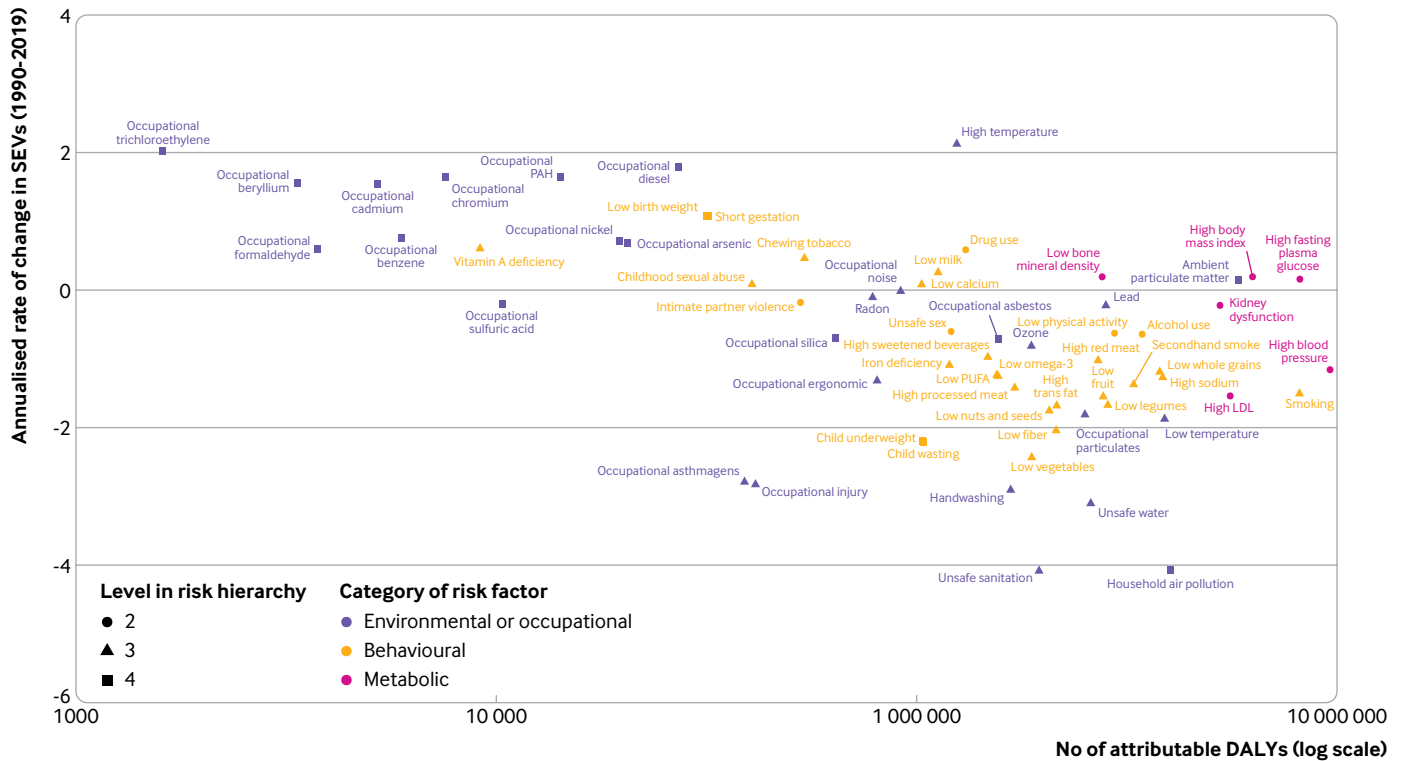


Fig 7 | Comparison of annualised rate of change in risk exposure measured by summary exposure values (SEVs) for population aged ≥ 70 (both sexes) from 1990 to 2019 with total attributable disability adjusted life years (DALYs) for all risk factors in 2019. The fraction of disability adjusted life years attributed to each risk factor is depicted in relation to their corresponding population summary exposure values in 2019. Risk factors are colour coded by environmental or occupational (purple), behavioural (yellow), or metabolic (pink) risk factors, and different levels of the risk hierarchy are indicated by different shapes. LDL=low density lipoprotein; PUFA=polyunsaturated fat

our global analysis showed that among the 10 leading causes of death and disability, four were the same: blindness, hearing loss, low back pain, respiratory disease, oral disorders (total tooth loss), and falls represent a group of causes that feature direct functional decline,⁴¹ while other causes of years lived with disability, such as diabetes, are indirectly related to disability and functional loss.^{7 42} Sex stratified analysis showed a similar pattern, with differentiating drivers being falls for older women and strokes for older men.^{43 44} This information could help public health policy makers implement new tailored programmes to control and prevent functional loss and disability progression among older people.

Before this study, information was limited as to whether today's older adults live extra years of life in better health than their ancestors³⁴ or whether there is support for the theories of equilibrium of morbidity and delayed ageing.^{45 46} Under the compression of morbidity scenario, increases in life expectancy are coupled with decreases in the proportion of life spent in ill health because of shifts in future disease patterns that delay disease onset. However, the expansion of morbidity scenario supports a life expectancy increase coupled with increases in life spent in ill health occurring due to advances in medicine, while disease patterns remain similar.^{47 48} Our findings of a strong association between higher SDI and HAQ index levels with LE-70

and HALE-70 and relatively stagnated trends in PYIH-70 were consistent with previous regional analyses.^{14 49} Some reported relations were not as strong for some measures of health (PYIH-70); this could be attributed to a relatively similar experience of ageing across the development spectrum, with accumulation of deficits proceeding as a function of biology more than environment. Additionally, summary measures of development and healthcare quality might not be as closely associated with healthy ageing as they are for health outcomes in younger populations. The above findings might also reflect that comparatively fewer data are available to quantify epidemiology in older adults.

Policy implications

The present findings have three main implications for health policy and data collection. Firstly, country specific benchmarks can be used to develop and implement health intervention programmes to address and reduce the burden of disability in older adults while tracking regional estimates.⁵⁰ These programmes need to account for the increase in healthcare spending due to population ageing, particularly relating to long term healthcare.⁵¹⁻⁵³ Without preemptive planning, even among socioeconomically developed countries, a projected lack of long term care services might overwhelm the hospital system.⁵⁴ Secondly, the cause

and risk specific insights from this analysis could help to draft policies focusing on prevention of functional loss and disability progression among older people, specifically targeting men and women, and different sociodemographic levels. Policy efforts to reduce exposure to smoking and ambient and household air pollution have paid dividends, and should continue and expand. With growing evidence showing that older people are particularly vulnerable to environmental risk factors,^{55 56} similar widespread efforts are needed to tackle increasing exposure to other risk factors, including the oncoming effects of climate change such as extreme weather events, natural disasters, and wildfires. While some accumulation of disease is related to altered biological metabolism and epigenetic signals,⁵⁷ other conditions are preventable. The degree of associated disability could be limited by a combination of healthy ageing surveillance at a population level and redevelopment of healthcare services towards sustainable development in a rapidly ageing society.^{58 59}

Thirdly, evaluation of data coverage showed that categorically there are fewer health data available relating to older adults. Specifically, the coverage of risk factor data for the population aged ≥ 70 decreased in almost 30% of the GBD locations, while since 1990 no information is available for nine risk factors in older adults. This comparative lack of data could represent an imminent threat and highlights the urgent need for surveillance mechanisms in locations with low coverage of risk factors and non-fatal disease burden data in older populations.⁶⁰

Because our analysis covers a period before the covid-19 pandemic, we were unable to analyse the effect of covid-19 on mortality. International studies indicate that most of the deaths have occurred in older adults, with a case fatality rate for the population aged ≥ 70 of over 10%, which could even increase to 30%.⁶¹ Hospital admissions and mortality rates for covid-19 are also strongly associated with older age.⁶² Covid-19 will probably be one of the top ranked causes of death and disability adjusted life years in people aged ≥ 70 for 2020, with studies from high income countries having consistently reported that older adults are disproportionately affected by the ongoing pandemic. Additionally, covid-19 might have long term health implications related to functional decline and health related quality of life among older people.⁶³ Although exploring the impacts of covid-19 is beyond the scope of this study, our analysis should serve as a baseline for evaluating the impacts in the coming years.

Strengths and limitations of this study

This research has several strengths. It has added knowledge about the burden of disease and disability in older adults by analysing data for 204 countries and territories. It has also evaluated health data coverage at global and regional levels for the population aged ≥ 70 . However, this analysis has several limitations. Firstly, because it is based on GBD 2019, it shares the overall limitations described in previous publications,²⁴⁻²⁶

including challenges in fully quantifying all sources of uncertainty, lags in data availability, and variation in coding practices and other biases. Secondly, overall input data were limited, especially in lower SDI settings. Thirdly, although we examined a number of associations between plausibly related factors such as SDI, conclusions cannot be drawn about causal relations. Fourthly, the GBD study treats conditions individually when determining mortality and morbidity estimates; however, because multimorbidity is highly prevalent in older populations, it is plausible that this approach leads to overestimation of total disability.⁶⁴ Therefore, individual cause risk might not be fully reflected in population level averages because when the cause manifests in people with a high burden, it could account for a higher proportion of ill health and premature mortality.

Conclusions

Globally adults aged ≥ 70 were found to live substantially longer in 2019 than in 1990, particularly owing to decreases in death due to cardiovascular diseases and chronic respiratory diseases. However, disability burden rates are following a stable pattern mostly attributable to functional decline, injuries due to falls, hearing loss, and back pain. Globally monitoring mortality and morbidity risk factors is crucial to sustain and advance research and health policy among older adults. Regions with lower sociodemographic development and healthcare quality performed at lower levels, highlighting the areas in greatest need. Our findings show we should develop and implement targeted strategies aimed at functional ability, sensory organ deficits, symptoms of pain, and unintentional falls. Programmes need to address country specific sociodemographic and cultural development because universal plans might be inefficient. Public health strategies will require a coherent ageing health policy, targeted data coverage, and consistent collaboration among stakeholders to succeed. The present estimates could serve as a healthy ageing benchmark for countries working to focus ageing policies on key risk factors and determinants, improve healthcare access and quality, and lower healthcare costs.

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Competing interests: All authors have completed the ICMJE uniform disclosure form at www.icmje.org/disclosure-of-interest/ and declare support from CHTF, the Bill and Melinda Gates Foundation, IPEP, Instituto de Salud Carlos III—Spain, and FEDER for the submitted work; no financial relationships with any organisations that might have an interest in the submitted work in the previous three years; no other relationships or activities that could appear to have influenced the submitted work.

Ethical approval: The GBD study's protocol has been approved by the research ethics board at the University of Washington. The GBD shall be conducted in full compliance with University of Washington policies and procedures, as well as applicable federal, state, and local laws.

Data sharing: Data of the GBD study are publicly available at <https://www.healthdata.org/results/data-visualizations>.

The corresponding author (NJK) affirms that the manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned (and, if relevant, registered) have been explained. The GBD study is compliant with the Guidelines for Accurate and Transparent Health Estimates Reporting (GATHER).

Dissemination to participants and related patient and public communities: We plan to disseminate these research findings to a wider community via press releases, featuring on the [healthdata.org](http://www.healthdata.org) website, via social media platforms, and presentation at international fora.

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Web appendix: Supplementary material

Web appendix: Acknowledgments and declarations

Supplementary Material (Appendix) for: Global, regional, and national burden of diseases and injuries for adults 70 years and older: systematic analysis for the Global Burden of Disease 2019 Study

This appendix provides specific methodological detail, supplemental figures, and more detailed results for “Global, regional, and national burden of diseases and injuries for adults 70 years and older: systematic analysis for the Global Burden of Disease 2019 Study.”

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GBD 2017 Ageing Collaborators

Stefanos Tyrovolas^{1 2 447}, Andy Stergachis^{4 5}, Varsha Sarah Krish⁶, Angela Y Chang⁷, Vegard Skirbekk⁸, Joseph L Dieleman^{6 9}, Somnath Chatterji¹⁰, Foad Abd-Allah¹¹, Mohammad Abdollahi^{12 13}, Aidin Abedi¹⁴, Hassan Abolhassani^{15 16}, Akine Eshete Abosetugn¹⁷, Lucas Guimarães Abreu¹⁸, Michael R M Abrigo¹⁹, Abdulaziz Khalid Abu Haimed²⁰, Maryam Adabi²¹, Oladimeji M Adebayo²², Isaac Akinkunmi Adedeji²³, Victor Adekanmbi²⁴, Olatunji O Adetokunboh^{25 26}, Davoud Adham²⁷, Shailesh M Advani^{28 29}, Mohsen Afarideh^{30 31}, Gina Agarwal³², Mohammad Aghaali³³, Seyed Mohammad Kazem Aghamir³⁴, Anurag Agrawal^{35 36}, Sohail Ahmad³⁷, Tauseef Ahmad³⁸, Keivan Ahmadi³⁹, Mehdi Ahmadi^{40 41}, Muktar Beshir Ahmed^{42 43}, Rufus Olusola Akinyemi^{44 45}, Ziyad Al-Aly^{46 47}, Khurshid Alam⁴⁸, Fahad Mashhour Alanezi⁴⁹, Turki M Alanzi⁵⁰, Jacqueline Elizabeth Alcalde-Rabanal⁵¹, Biresaw Wassihun Alemu^{52 53}, Samar Al-Hajj^{54 55}, Robert Kaba Alhassan⁵⁶, Saqib Ali⁵⁷, Gianfranco Alicandro⁵⁸, Mehran Alijanzadeh⁵⁹, Vahid Alipour^{60 61}, Syed Mohamed Aljunid^{62 63}, François Alla⁶⁴, Majid Abdulrahman Hamad Almadi^{65 66}, Amir Almasi-Hashiani⁶⁷, Abdulaziz M Almulhim⁶⁸, Rajaa M Al-Raddadi⁶⁹, Arya Aminorroaya^{70 71}, Fatemeh Amiri⁷², Arianna Maever L Amit^{73 74}, Dickson A Amugsi⁷⁵, Etsay Woldu Anbesu⁷⁶, Robert Ancuceanu⁷⁷, Deanna Anderlini^{78 79}, Tudorel Andrei⁸⁰, Catalina Liliana Andrei⁸¹, Sofia Androudi⁸², Mina Anjomshoa⁸³, Fereshteh Ansari^{84 85}, Alireza Ansari-Moghaddam⁸⁶, Carl Abelardo T Antonio^{87 88}, Benny Antony⁸⁹, Davood Anvari^{90 91}, Razique Anwer⁹², Jalal Arabloo⁹³, Morteza Arab-Zozani⁹³, Johan Ärnlov^{94 95}, Malke Asaad⁹⁶, Mehran Asadi-Aliabadi⁹⁷, Ali A Asadi-Pooya^{98 99}, Maha Moh'd Wahbi Atout¹⁰⁰, Marcel Ausloos^{101 80}, Floriane Ausloos¹⁰², Beatriz Paulina Ayala Quintanilla¹⁰³, Getinet Ayano¹⁰⁴, Martin Amogre Ayanore¹⁰⁵, Yared Asmare Aynalem¹⁰⁶, Samad Azari¹⁰⁷, Zelalem Nigussie Azene¹⁰⁷, Ebrahim Babaei⁹⁷, Ashish D Badiye¹⁰⁸, Arun Balachandran^{109 110}, Maciej Banach^{111 112}, Srikanta K Banerjee¹¹³, Palash Chandra Banik¹¹⁴, Suzanne Lyn Barker-Collo¹¹⁵, Sanjay Basu^{116 117}, Bernhard T Baune^{118 119}, Mohsen Bayati¹²⁰, Bayisa Abdissa Baye¹²¹, Neeraj Bedi^{122 123}, Ettore Beghi¹²⁴, Yannick Béjot^{125 126}, Michelle L Bell¹²⁷, Isabela M Bensenor¹²⁸, Akshaya Srikanth Bhagavathula^{129 130}, Pankaj Bhardwaj^{131 132}, Kritika Bhattacharyya^{133 134}, Suraj Bhattarai¹³⁵, Zulfiqar A Bhutta^{136 137}, Sadia Bibi¹³⁸, Ali Bijani¹³⁹, Boris Bikbov¹⁴⁰, Antonio Biondi¹⁴¹, Binyam Minuye Birihane^{142 143}, Atanu Biswas¹⁴⁴, Tone Bjørge^{145 146}, Somayeh Bohloulou¹⁴⁷, Srinivasa Rao Rao Bolla¹⁴⁸, Archith Bloor¹⁴⁹, Soufiane Boufous¹⁵⁰, Dejana Braithwaite²⁹, Hermann Brenner¹⁵¹, Andrew M Briggs¹⁵², Nikolay Ivanovich Briko¹⁵³, Gabrielle B Britton^{154 155}, Sharath Burugina Nagaraja¹⁵⁶, Reinhard Busse¹⁵⁷, Zahid A Butt^{158 159}, Florentino Luciano Caetano dos Santos¹⁶⁰, Luis Alberto Cámara^{161 162}, Josip Car^{163 164}, Rosario Cárdenas¹⁶⁵, Giulia Carreras¹⁶⁶, Juan J Carrero¹⁶⁷, Felix Carvalho¹⁶⁸, Joao Mauricio Castaldelli-Maia¹⁶⁹, Carlos A Castañeda-Orjuela^{170 171}, Giulio Castelpietra^{172 173}, Franz Castro¹⁵⁵, Ester Cerin^{174 175}, Muge Cevik^{176 177}, Joht Singh Chandan¹⁷⁸, Alex R Chang¹⁷⁹, Jaykaran Charan¹⁸⁰, Vijay Kumar Chattu¹⁸¹, Pankaj Chaturvedi^{182 183}, Sarika Chaturvedi¹⁸⁴, Prachi P Chavan¹⁸⁵, Simiao Chen¹⁸⁶, Nicolas Cherbuin¹⁸⁷, Ken Lee Chin^{188 189}, Daniel Youngwhan Cho¹⁹⁰, Mohiuddin Ahsanul Kabir Chowdhury^{191 192}, Dinh-Toi Chu¹⁹³, Sheng-Chia Chung^{194 195}, Michael T Chung¹⁹⁶, Liliana G Ciobanu^{197 198}, Vera Marisa Costa¹⁶⁸, Ewerton Cousin¹⁹⁹, Michael H Criqui²⁰⁰, Marita Cross²⁰¹, Saad M A Dahlawi²⁰², Giovanni Damiani^{203 204}, Lalit Dandona^{205 6 206}, Rakhi Dandona^{205 6 9}, Parnaz Daneshpajouhnejad^{207 208}, Jai K Das²⁰⁹, Rajat Das Gupta^{192 210}, Claudio Alberto Dávila-Cervantes²¹¹, Kairat Davletov²¹², Farah Deeba²¹³, Diego De Leo²¹⁴, Edgar Denova-Gutiérrez²¹⁵, Nikolaos Dervenis^{216 217}, Rupak Desai²¹⁸, Samath Dhamminda Dharmaratne^{219 9 6}, Govinda Prasad Dhungana²²⁰, Mostafa Dianatinasab^{221 222}, Diana Dias da Silva²²³, Daniel Diaz^{224 225}, Martin Dichgans²²⁶, Shirin Djalalinia²²⁷, Klara Dokova²²⁸, Fariba Dorostkar²²⁹, Leila Doshmangir²³⁰, Bruce B Duncan¹⁹⁹, Andre Rodrigues Duraes^{231 232}, Arielle Wilder Eagan^{233 234}, Mohammad Ebrahimi Kalan²³⁵, David Edvardsson^{236 237}, Andem Effiong²³⁸, Joshua R Ehrlich^{239 240}, Islam Y Elgendy^{241 242}, Shaimaa I El-Jaafary¹¹, Iman El Sayed²⁴³, Maysaa El Sayed Zaki²⁴⁴, Maha El Tantawi²⁴⁵, Babak Eshtrati⁹⁷, Khalil Eskandari^{246 247}, Sharareh Eskandarieh²⁴⁸, Saman Esmaeilnejad^{249 250}, Atkilt Esaiyas Etilso²⁵¹, Pawan Sirwan Faris^{252 253}, Andre Faro²⁵⁴, Farshad Farzadfar⁷⁰, Mehdi Fazlzadeh^{255 256}, Valery L Feigin^{257 6 258}, Seyed-Mohammad Fereshtehnejad^{94 259}, Eduarda Fernandes²⁶⁰, Pietro Ferrara²⁶¹, Manuela L Ferreira²⁶², Irina Filip^{263 264}, Florian Fischer²⁶⁵, James L Fisher²⁶⁶, Nataliya A Foigt²⁶⁷,

Morenike Oluwatoyin Folayan²⁶⁸, Artem Alekseevich Fomenkov²⁶⁹, Masoud Foroutan²⁷⁰, Richard Charles Franklin²⁷¹, Marisa Freitas²⁶⁰, Mohamed M Gad^{272 273}, Silvano Gallus²⁷⁴, Amiran Gamkrelidze²⁷⁵, Abadi Kahu Gebre^{276 277}, Leake G Gebremeskel^{278 279}, Fatemeh Ghaffarifar²⁸⁰, Mansour Ghafourifard²⁸¹, Mahsa Ghajarzadeh²⁸², Reza Ghanei Gheshlagh²⁸³, Ahmad Ghashghae^{60 284}, Nermin Ghith²⁸⁵, Asadollah Gholamian^{286 287}, Tiffany K Gill¹⁹⁷, Richard F Gillum^{288 289}, Iago Giné-Vázquez^{290 2}, Giorgia Giussani²⁹¹, Mustefa Glagn²⁹², Elena V Gnedovskaya²⁹³, Myron Anthony Godinho²⁹⁴, Salime Goharinezhad⁹⁷, Sameer Vali Gopalani^{295 296}, Giuseppe Gorini²⁹⁷, Alessandra C Goulart^{298 128}, Michal Grivna^{299 300}, Harish Chander Gugnani^{301 302}, Rafael Alves Guimarães³⁰³, Yuming Guo^{188 304}, Rahul Gupta^{305 306}, Reyna Alma Gutiérrez³⁰⁷, Abdul Hafiz^{308 309}, Arvin Haj-Mirzaian^{310 311}, Arya Haj-Mirzaian³¹², Randah R Hamadeh³¹³, Samer Hamidi³¹⁴, Graeme J Hankey^{315 316}, Hamidreza Haririan³¹⁷, Josep Maria Haro^{318 319}, Ahmed I Hasaballah³²⁰, Maryam Hashemian^{321 322}, Abdiwahab Hashi³²³, Shoaib Hassan^{324 325}, Amr Hassan¹¹, Soheil Hassanipour^{326 327}, Simon I Hay^{6 9}, Khezari Hayat^{328 329}, Reza Heidari-Soureshjani³³⁰, Delia Hendrie¹⁰⁴, Claudiu Herteliu^{80 331}, Hung Chak Ho³³², Chi Linh Hoang³³³, Ramesh Holla³³⁴, Praveen Hoogar³³⁵, Naznin Hossain³³⁶, Mostafa Hosseini^{337 338}, Mehdi Hosseinzadeh^{339 340}, Mihaela Hostiuc³⁴¹, Sorin Hostiuc^{342 343}, Mowafa Househ³⁴⁴, Mohamed Hsairi³⁴⁵, Guoqing Hu³⁴⁶, Ayesha Humayun³⁴⁷, Bing-Fang Hwang³⁴⁸, Ivo Iavicoli³⁴⁹, Segun Emmanuel Ibitoye³⁵⁰, Olayinka Stephen Ilesanmi^{351 352}, Irena M Ilic³⁵³, Milena D Ilic³⁵⁴, Leeberk Raja Inbaraj³⁵⁵, Usman Iqbal³⁵⁶, Seyed Sina Naghibi Irvani³⁵⁷, Md.Mohaimenul Islam³⁵⁸, Hiroyasu Iso³⁵⁹, Rebecca Q Ivers³⁶⁰, Chinwe Juliana Iwu^{361 26}, Chidozie C D Iwu³⁶², Jalil Jaafari³⁶³, Mohammad Ali Jahani¹³⁹, Mihajlo Jakovljevic^{364 365}, Farzad Jalilian³⁶⁶, Hosna Janjani^{256 367}, Manthan Dilipkumar Janodia³⁶⁸, Tahereh Javaheri³⁶⁹, Ensiyeh Jenabi³⁷⁰, Ravi Prakash Jha^{371 372}, John S Ji^{373 374}, Oommen John^{375 376}, Jost B Jonas^{377 378}, Jacek Jerzy Jozwiak³⁷⁹, Mikko Jürisson³⁸⁰, Ali Kabir³⁸¹, Zubair Kabir³⁸², Rizwan Kalani³⁸³, Rohollah Kalhor^{384 385}, Tanuj Kanchan³⁸⁶, Neeti Kapoor¹⁰⁸, Behzad Karami Matin³⁸⁷, André Karch³⁸⁸, Ayele Semachew Kasa³⁸⁹, Gbenga A Kayode^{390 391}, Ali Kazemi Karyani³⁸⁷, Yousef Saleh Khader³⁹², Nauman Khalid³⁹³, Mohammad Khamarnia³⁹⁴, Maseer Khan³⁹⁵, Ejaz Ahmad Khan³⁹⁶, Khaled Khatab^{397 398}, Mahalaqua Nazli Khatib³⁹⁹, Maryam Khayamzadeh^{400 401}, Habibolah Khazaie⁴⁰², Abdullah T Khoja^{403 404}, Young-Eun Kim⁴⁰⁵, Yun Jin Kim⁴⁰⁶, Ruth W Kimokoti⁴⁰⁷, Sezer Kisa⁴⁰⁸, Adnan Kisa^{409 410}, Mika Kivimäki^{411 412}, Cameron J Kneib¹⁹⁰, Sonali Kochhar^{4 413}, Ali Koolivand⁴¹⁴, Jacek A Kopec^{415 416}, Anirudh Kotlo⁴¹⁷, Ai Koyanagi^{418 419}, Kewal Krishan⁴²⁰, Barthelemy Kuate Defo^{421 422}, G Anil Kumar²⁰⁵, Nithin Kumar⁴²³, Manasi Kumar^{424 425}, Om P Kurmi^{426 427}, Dian Kusuma^{428 429}, Ben Lacey^{430 431}, Dharmesh Kumar Lal²⁰⁵, Ratilal Laloo⁴³², Tea Lallukka⁴¹², Jennifer O Lam⁴³³, Faris Hasan Lami⁴³⁴, Iván Landires^{435 436}, Van Charles Lansingh^{437 438}, Anders O Larsson^{439 440}, Savita Lasrado⁴⁴¹, Paolo Lauriola⁴⁴², Carlo La Vecchia⁴⁴³, Janet L Leasher⁴⁴⁴, Georgy Lebedev^{445 446}, Paul H Lee⁴⁴⁷, Shaun Wen Huey Lee^{448 449}, James Leigh⁴⁵⁰, Matilde Leonardi⁴⁵¹, Andrew S Levey^{452 453}, Miriam Levi^{454 455}, Shanshan Li⁴⁵⁶, Shai Linn⁴⁵⁷, Xuefeng Liu⁴⁵⁸, Alan D Lopez⁴⁵⁹, Platon D Lopukhov¹⁵³, Stefan Lorkowski^{460 461}, Paulo A Lotufo⁴⁶², Rafael Lozano^{6 9}, Alessandra Lugo²⁷⁴, Raimundas Lunevicius^{463 464}, Mohammed Madadin⁴⁶⁵, Ralph Maddison⁴⁶⁶, Phetole Walter Mahasha⁴⁶⁷, Morteza Mahmoudi⁴⁶⁸, Azeem Majeed¹⁶⁴, Shokofeh Maleki⁴⁶⁹, Afshin Maleki⁴⁷⁰, Reza Malekzadeh^{322 471}, Deborah Carvalho Malta⁴⁷², Abdullah A Mamun⁴⁷³, Navid Manafi^{474 475}, Fariborz Mansour-Ghanaei^{326 327}, Borhan Mansouri⁴⁷⁶, Mohammad Ali Mansournia³³⁷, Santi Martini^{477 478}, Francisco Rogerlândio Martins-Melo⁴⁷⁹, Seyedeh Zahra Masoumi⁴⁸⁰, João Massano^{481 482}, Pallab K Maulik^{483 376}, Mohsen Mazidi⁴⁸⁴, John J McGrath^{485 486}, Martin McKee⁴⁸⁷, Man Mohan Mehndiratta^{488 489}, Fereshteh Mehri⁴⁹⁰, Fabiola Mejia-Rodriguez²¹⁵, Walter Mendoza⁴⁹¹, Ritesh G Menezes⁴⁹², George A Mensah^{493 494}, Alibek Mereke^{495 212}, Tuomo J Meretoja^{496 497}, Atte Meretoja^{498 499}, Tomislav Mestrovic^{500 501}, Tomasz Miazgowski⁵⁰², Irmina Maria Michalek⁵⁰³, Ted R Miller^{504 104}, Edward J Mills⁵⁰⁵, Andreea Mirica⁸⁰, Erkin M Mirrakhimov^{506 507}, Hamed Mirzaei⁵⁰⁸, Maryam Mirzaei⁵⁰⁹, Mehdi Mirzaei-Alavijeh³⁶⁶, Philip B Mitchell⁵¹⁰, Babak Moazen^{186 511}, Masoud Moghadaszadeh^{512 513}, Efat Mohamadi⁵¹⁴, Yousef Mohammad⁵¹⁵, Dara K Mohammad^{516 517}, Shadieh Mohammadi^{470 518}, Abdollah Mohammadian-Hafshejani⁵¹⁹, Shafiu Mohammed^{520 186}, Ali H Mokdad^{6 9}, Alex Molassiotis⁴⁴⁷, Natalie C Momen⁴⁸⁶, Stefania Mondello⁵²¹, Masoud Moradi³⁸⁷, Maziar Moradi-Lakeh⁹⁷, Farhad Moradpour⁵²², Rahmatollah Moradzadeh⁶⁷, Paula Moraga⁵²³, Lidia Morawska⁵²⁴, Rintaro Mori^{525 526}, Seyyed Meysam

Mousavi⁵²⁷, Amin Mousavi Khaneghah⁵²⁸, Ulrich Otto Mueller^{529 530}, Satinath Mukhopadhyay⁵³¹, Moses K Muriithi⁵³², Mehdi Naderi⁴⁶⁹, Ahamarshan Jayaraman Nagarajan^{533 534}, Behshad Naghshtabrizi⁵³⁵, Mukhammad David Naimzada^{536 537}, Farid Najafi^{538 387}, Jobert Richie Nansseu^{539 540}, Rawlance Ndejjo⁵⁴¹, Ionut Nego^{542 543}, Ruxandra Irina Nego^{544 545}, Subas Neupane⁵⁴⁶, Georges Nguefack-Tsague⁵⁴⁰, Josephine W Ngunjiri⁵⁴⁷, Cuong Tat Nguyen⁵⁴⁸, Huong Lan Thi Nguyen⁵⁴⁸, Rajan Nikbakhsh³¹¹, Chukwudi A Nnaji^{361 549}, Marzieh Nojomi^{97 550}, Shuhei Nomura^{551 552}, Bo Norrving⁵⁵³, Jean Jacques Noubiap⁵⁵⁴, Christoph Nowak⁵⁵⁵, Virginia Nunez-Samudio^{556 557}, Felix Akpojene Ogbo⁵⁵⁸, In-Hwan Oh⁵⁵⁹, Morteza Oladnabi⁵⁶⁰, Andrew T Olagunju^{561 562}, Jacob Olusegun Olusanya⁵⁶³, Bolajoko Olubukunola Olusanya⁵⁶³, Muktar Omer Omer³²³, Obinna E Onwujekwe⁵⁶⁴, Sergej M Ostojic⁵⁶⁵, Adrian Oțoiu⁸⁰, Nikita Otstavnov⁵³⁶, Stanislav S Otstavnov^{536 566}, Mayowa O Owolabi^{567 568}, Mahesh P A⁵⁶⁹, Jagadish Rao Padubidri⁵⁷⁰, Songhomitra Panda-Jonas⁵⁷¹, Anamika Pandey⁵⁷², Carlo Irwin Able Panelo⁵⁷³, Deepak Kumar Pasupula⁵⁷⁴, Hamidreza Pazoki Toroudi^{575 576}, Jonathan Pearson-Stuttard¹¹⁷, Amy E Peden^{360 577}, Veincent Christian Filipino Pepito⁵⁷⁸, Emmanuel K Peprah⁵⁷⁹, Jeevan Pereira⁵⁸⁰, Konrad Pesudovs⁵⁸¹, Hai Quang Pham⁵⁴⁸, Michael R Phillips^{582 583}, Thomas Pilgrim⁵⁸⁴, Marina Pinheiro⁵⁸⁵, Michael A Piradov²⁵⁸, Meghdad Pirsaeheb³⁸⁷, Roman V Polibin¹⁵³, Suzanne Polinder⁵⁸⁶, Maarten J Postma^{587 588}, Hadi Pourjafar^{589 590}, Akram Pourshams³²², Sergio I Prada^{591 592}, Sanjay Prakash⁵⁹³, Dimas Ria Angga Pribadi⁵⁹⁴, Elisabetta Pupillo¹²⁴, Zahiruddin Quazi Syed⁵⁹⁵, Navid Rabiee⁵⁹⁶, Amir Radfar⁵⁹⁷, Ata Rafiee⁵⁹⁸, Alberto Raggi⁴⁵¹, Fakhre Rahim^{599 600}, Vafa Rahimi-Movaghar⁶⁰¹, Mohammad Hifz Ur Rahman⁶⁰², Muhammad Aziz Rahman^{603 236}, Kiana Ramezanzadeh⁶⁰⁴, Chhabi Lal Ranabhat^{605 606}, Annemarei Ranta^{607 608}, Sowmya J Rao⁶⁰⁹, Vahid Rashedi⁶¹⁰, Prateek Rastogi⁶¹¹, Priya Rathi³³⁴, Salman Rawaf^{164 612}, David Laith Rawaf^{613 614}, Lal Rawaf⁶¹⁵, Reza Rawassizadeh⁶¹⁶, Andre M N Renzaho^{617 618}, Bhageerathy Reshmi^{619 620}, Serge Resnikoff^{581 621}, Nima Rezaei^{16 622}, Negar Rezaei^{70 31}, Aziz Rezapour⁶⁰, Seyed Mohammad Riahi⁶²³, Daniela Ribeiro⁶²⁴, Ana Isabel Ribeiro⁶²⁵, Jennifer Rickard^{626 627}, Leonardo Roever⁶²⁸, Michele Romoli^{629 630}, Dietrich Rothenbacher⁶³¹, Enrico Rubagotti⁶³², Susan Fred Rumisha^{633 634}, Seyedmohammad Saadatagah⁶³⁵, Siamak Sabour⁶³⁶, Perminder S Sachdev^{637 638}, Masoumeh Sadeghi⁶³⁹, Ehsan Sadeghi³⁸⁷, Sahar Saeedi Moghaddam⁷⁰, Rajesh Sagar⁶⁴⁰, Mohammad Ali Sahraian²⁴⁸, S. Mohammad Sajadi^{641 642}, Nasir Salam⁶⁴³, Marwa Rashad Salem⁶⁴⁴, Hamideh Salimzadeh³²², Omar Mukhtar Salman⁶⁴⁵, Abdallah M Samy⁶⁴⁶, Juan Sanabria^{647 648}, Lidia Sanchez Riera^{649 262}, Itamar S Santos^{128 298}, Milena M Santric-Milicevic^{353 650}, Sivan Yegnanarayana Iyer Saraswathy^{651 652}, Arash Sarveazad⁶⁵³, Brijesh Sathian^{654 655}, Thirunavukkarasu Sathish⁶⁵⁶, Davide Sattin⁴⁵¹, Silvia Schiavolin⁴⁵¹, Maria Inês Schmidt¹⁹⁹, Aletta Elisabeth Schutte^{360 657}, David C Schwebel⁶⁵⁸, Falk Schwendicke⁶⁵⁹, Subramanian Senthilkumaran⁶⁶⁰, Sadaf G Sepanlou^{322 471}, Feng Sha⁶⁶¹, Omid Shafaat^{312 662}, Saeed Shahabi⁶⁶³, Amira A Shaheen⁶⁶⁴, Masood Ali Shaikh⁶⁶⁵, Marina Shakhnazarova⁶⁶⁶, Mehran Shams-Beyranvand⁶⁶⁷, Mohammad Bagher Shamsi⁵⁰⁹, Morteza Shamsizadeh⁶⁶⁸, Kiomars Sharafi³⁸⁷, B Suresh Kumar Shetty⁶¹¹, Kenji Shibuya⁶⁶⁹, Wondimeneh Shibabaw Shiferaw¹⁰⁶, Mika Shigematsu⁶⁷⁰, Jae Il Shin⁶⁷¹, Rahman Shiri⁶⁷², Reza Shirkoobi^{673 674}, Kerem Shuval⁴⁵⁷, Inga Dora Sigfusdottir^{675 676}, Rannveig Sigurvinsdottir⁶⁷⁵, João Pedro Silva¹⁶⁸, Biagio Simonetti^{677 678}, Jasvinder A Singh^{679 680}, Pushpendra Singh⁶⁸¹, Ambrish Singh⁸⁹, Dharendra Narain Sinha^{682 683}, Søren T Skou^{684 685}, Valentin Yurievich Skryabin⁶⁸⁶, Emma U R Smith^{687 688}, Mohammad Reza Sobhiyeh⁶⁸⁹, Amin Soheili⁶⁹⁰, Shahin Soltani³⁸⁷, Joan B Soriano^{691 692}, Ireneous N Soyiri⁶⁹³, Emma Elizabeth Spurlock⁶, Chandrashekhar T Sreeramareddy⁶⁹⁴, Dan J Stein⁶⁹⁵, Leo Stockfelt⁶⁹⁶, Mark A Stokes⁶⁹⁷, Saverio Stranges^{698 699}, Jacob L Stubbs⁷⁰⁰, Agus Sudaryanto⁷⁰¹, Mu'awiyah Babale Sufiyan⁷⁰², Hafiz Ansar Rasul Suleria⁷⁰³, Rizwan Suliankatchi Abdulkader^{704 705}, Gerhard Sulo⁷⁰⁶, Rafael Tabarés-Seisdedos^{707 708}, Takahiro Tabuchi⁷⁰⁹, Biruk Wogayehu Taddele⁷¹⁰, Amir Taherkhani⁷¹¹, Masih Tajdini⁷¹, Md Ismail Tareque⁷¹², Yonas Getaye Tefera⁷¹³, Mohamad-Hani Temsah⁷¹⁴, Zemenu Tadesse Tessema⁷¹⁵, Kavumpurathu Raman Thankappan⁷¹⁶, Rekha Thapar⁴²³, Amanda G Thrift⁷¹⁷, Mariya Vladimirovna Titova^{718 719}, Hamid Reza Tohidinik^{720 337}, Marcello Tonelli⁷²¹, Mathilde Touvier^{722 723}, Marcos Roberto Tovani-Palone^{724 725}, Bach Xuan Tran⁷²⁶, Ravensara S Travillian⁶, Alexander C Tsai^{727 728}, Aristidis Tsatsakis⁷²⁹, Riaz Uddin^{730 731}, Saif Ullah¹³⁸, Chukwuma David Umeokonkwo⁷³², Bhaskaran Unnikrishnan⁷³³, Marco Vacante¹⁴¹, Pascual R Valdez^{734 735}, Aaron van Donkelaar^{736 737}, Santosh Varughese⁷³⁸, Tommi Juhani Vasankari⁷³⁹, Yasser

Vasseghian³³⁹, Yousef Veisani⁷⁴⁰, Narayanaswamy Venketasubramanian^{741 742}, Francesco S Violante^{743 744}, Vasily Vlassov⁷⁴⁵, Yasir Waheed⁷⁴⁶, Yanzhong Wang⁷⁴⁷, Fang Wang⁷⁴⁸, Yuan-Pang Wang¹⁶⁹, Jingkai Wei⁷⁴⁹, Robert G Weintraub^{750 751}, Jordan Weiss⁷⁵², Ronny Westerman⁷⁵³, Taweewat Wiangkham⁷⁵⁴, Charles D A Wolfe^{747 755}, Ai-Min Wu⁷⁵⁶, Seyed Hossein Yahyazadeh Jabbari⁷⁵⁷, Kazumasa Yamagishi^{758 759}, Yuichiro Yano⁷⁶⁰, Sanni Yaya^{761 762}, Vahid Yazdi-Feyzabadi^{763 764}, Yordanos Gizachew Yeshitila⁷⁶⁵, Mohammed Zewdu Yimmer⁷⁶⁶, Paul Yip^{767 768}, Naohiro Yonemoto^{769 770}, Seok-Jun Yoon⁴⁰⁵, Mustafa Z Younis^{771 772}, Zabihollah Yousefi⁷⁷³, Taraneh Yousefinezhadi⁷⁷⁴, Chuanhua Yu^{775 776}, Yong Yu⁷⁷⁷, Hasan Yusefzadeh⁷⁷⁸, Syed Saoud Zaidi⁷⁷⁹, Sojib Bin Zaman^{780 191}, Maryam Zamanian⁶⁷, Hadi Zarafshan⁷⁸¹, Mikhail Sergeevich Zastrozhin^{782 783}, Zhi-Jiang Zhang⁷⁸⁴, Jianrong Zhang^{785 786}, Yunquan Zhang^{787 788}, Xiu-Ju George Zhao^{789 748}, Cong Zhu⁷⁹⁰, Georgios A Kotsakis^{*3 4}, and Nicholas J Kassebaum^{* & 4 6 9 791}.

%First author

***Co-senior authors**

&Corresponding author

- 1 St. John of God Health Park, San Juan de Dios Sanitary Park, Barcelona, Spain.
- 2 Biomedical Research Networking Center for Mental Health Network (CiberSAM), Madrid, Spain.
- 3 Department of Periodontics, University of Texas Health Science Center at San Antonio, San Antonio, TX, USA.
- 4 Department of Global Health, University of Washington, Seattle, WA, USA.
- 5 Department of Pharmacy, University of Washington, Seattle, WA, USA.
- 6 Institute for Health Metrics and Evaluation, University of Washington, Seattle, WA, USA.
- 7 University of Washington, Seattle, WA, USA.
- 8 Centre for Fertility and Health, Norwegian Institute of Public Health, Oslo, Norway.
- 9 Department of Health Metrics Sciences, School of Medicine, University of Washington, Seattle, WA, USA.
- 10 Division of Data, Analytics and Delivery for Impact, World Health Organization , Geneva, Switzerland.
- 11 Department of Neurology, Cairo University, Cairo, Egypt.
- 12 The Institute of Pharmaceutical Sciences (TIPS), Tehran University of Medical Sciences, Tehran, Iran.
- 13 School of Pharmacy, Tehran University of Medical Sciences, Tehran, Iran.
- 14 Department of Orthopaedic Surgery, University of Southern California, Los Angeles, CA, USA.
- 15 Department of Laboratory Medicine, Karolinska University Hospital, Huddinge, Sweden.
- 16 Research Center for Immunodeficiencies, Tehran University of Medical Sciences, Tehran, Iran.
- 17 Department of Public Health, Debre Berhan University, Debre Brehan, Ethiopia.
- 18 Department of Pediatric Dentistry, Federal University of Minas Gerais, Belo Horizonte, Brazil.
- 19 Department of Research, Philippine Institute for Development Studies, Quezon City, Philippines.
- 20 Internal Medicine Department, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia.
- 21 Hamadan University of Medical Sciences, Hamadan, Iran.
- 22 College of Medicine, University College Hospital, Ibadan, Ibadan, Nigeria.
- 23 Department of Sociology, Olabisi Onabanjo University, Ago-Iwoye, Nigeria.
- 24 Department of Population Health Sciences, King's College London, London, England.
- 25 Centre of Excellence for Epidemiological Modelling and Analysis, Stellenbosch University, Stellenbosch, South Africa.

- 26 Department of Global Health, Stellenbosch University, Cape Town, South Africa.
- 27 School of Health, Ardabil University of Medical Science, Ardabil, Iran.
- 28 Social Behavioral Research Branch, National Institute of Health, Bethesda, MD, USA.
- 29 Division of Hematology and Oncology, Georgetown University, Washington, DC, USA.
- 30 Department of Dermatology, Mayo Clinic, Rochester, MN, USA.
- 31 Endocrinology and Metabolism Research Center, Tehran University of Medical Sciences, Tehran, Iran.
- 32 Department of Family Medicine, McMaster University, Hamilton, ON, Canada.
- 33 Department of Epidemiology and Biostatistics, Qom University of Medical Sciences, Qom, Iran.
- 34 Urology Research Center, Tehran University of Medical Sciences, Tehran, Iran.
- 35 Institute of Genomics and Integrative Biology, Council of Scientific & Industrial Research, Delhi, India.
- 36 Department of Internal Medicine, Baylor College of Medicine, Houston, TX, USA.
- 37 Faculty of Pharmacy, MAHSA University, Kuala Langat, Malaysia.
- 38 Department of Epidemiology and Health Statistics, Southeast University, Nanjing, China.
- 39 Lincoln Medical School, Universities of Nottingham & Lincoln, Lincoln, UK.
- 40 Environmental Technologies Research Center, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.
- 41 Department of Environmental Health Engineering, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.
- 42 Department of Epidemiology, Jimma University, Jimma, Ethiopia.
- 43 Australian Center for Precision Health, University of South Australia, Adelaide, SA, Australia.
- 44 Institute for Advanced Medical Research and Training, University of Ibadan, Ibadan, Nigeria.
- 45 Institute of Neuroscience, Newcastle University, Newcastle upon Tyne, UK.
- 46 John T. Milliken Department of Internal Medicine, Washington University in St. Louis, St. Louis, MO, USA.
- 47 Clinical Epidemiology Center, Department of Veterans Affairs, St Louis, MO, USA.
- 48 Murdoch Business School, Murdoch University, Perth, WA, Australia.
- 49 Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia.
- 50 Health Information Management and Technology Department, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia.
- 51 Center for Health System Research, National Institute of Public Health, Cuernavaca, Mexico.
- 52 College of Medicine and Health Science, Arba Minch University, Arba Minch, Ethiopia.
- 53 Department of Midwifery, Arba Minch University, Injbara, Ethiopia.
- 54 Faculty of Health Sciences, Health Management and Policy, American University of Beirut, Beirut, Lebanon.
- 55 British Columbia Injury Research Prevention Unit, British Columbia Children's Hospital Research Institute, Vancouver, BC, Canada.
- 56 Institute of Health Research, University of Health and Allied Sciences, Ho, Ghana.
- 57 Department of Information Systems, Sultan Qaboos University, Muscat, Oman.
- 58 Directorate for Social Statistics and Population Census, Italian National Institute of Statistics, Rome, Italy.

- 59 Social Determinants of Health Research Center, Qazvin University of Medical Sciences, Qazvin, Iran.
- 60 Health Management and Economics Research Center, Iran University of Medical Sciences, Tehran, Iran.
- 61 Department of Health Economics, Iran University of Medical Sciences, Tehran, Iran.
- 62 Department of Health Policy and Management, Kuwait University, Safat, Kuwait.
- 63 International Centre for Casemix and Clinical Coding, National University of Malaysia, Bandar Tun Razak, Malaysia.
- 64 Bordeaux School of Public Health, University of Bordeaux, Bordeaux, France.
- 65 College of Medicine, King Saud University, Riyadh, Saudi Arabia.
- 66 Division of Gastroenterology & Hepatology, McGill University, Montreal, QC, Canada.
- 67 Department of Epidemiology, Arak University of Medical Sciences, Arak, Iran.
- 68 College of Medicine, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia.
- 69 Department of Community Medicine, King Abdulaziz University, Jeddah, Saudi Arabia.
- 70 Non-communicable Diseases Research Center, Tehran University of Medical Sciences, Tehran, Iran.
- 71 Tehran Heart Center, Tehran University of Medical Sciences, Tehran, Iran.
- 72 Department of Radiology and Nuclear Medicine, Kermanshah University of Medical Sciences, Kermanshah, Iran.
- 73 Department of Epidemiology and Biostatistics, University of the Philippines Manila, Manila, Philippines.
- 74 School of Public Health, Johns Hopkins University, Baltimore, MD, USA.
- 75 Maternal and Child Wellbeing Unit, African Population and Health Research Center, Nairobi, Kenya.
- 76 Department of Public Health, Samara University, Samara, Ethiopia.
- 77 Department of Pharmacy, Carol Davila University of Medicine and Pharmacy, Bucharest, Romania.
- 78 Centre for Sensorimotor Performance, The University of Queensland, Brisbane, Australia.
- 79 Neurology Department, Royal Brisbane and Women's Hospital, Brisbane, QLD, Australia.
- 80 Department of Statistics and Econometrics, Bucharest University of Economic Studies, Bucharest, Romania.
- 81 Department of Cardiology, Carol Davila University of Medicine and Pharmacy, Bucharest, Romania.
- 82 Department of Medicine, University of Thessaly, Volos, Greece.
- 83 Social Determinants of Health Research Center, Rafsanjan University of Medical Sciences, Rafsanjan, Iran.
- 84 Research Center for Evidence Based Medicine, Tabriz University of Medical Sciences, Tabriz, Iran.
- 85 Razi Vaccine and Serum Research Institute, Agricultural Research, Education, and Extension Organization (AREEO), Tehran, Iran.
- 86 Department of Epidemiology and Biostatistics, Zahedan University of Medical Sciences, Zahedan, Iran.
- 87 Department of Health Policy and Administration, University of the Philippines Manila, Manila, Philippines.

- 88 Department of Applied Social Sciences, Hong Kong Polytechnic University, Hong Kong, China.
- 89 Menzies Institute for Medical Research, University of Tasmania, Hobart, TAS, Australia.
- 90 Department of Parasitology, Mazandaran University of Medical Sciences, Sari, Iran.
- 91 Department of Parasitology, Iranshahr University of Medical Sciences, Iranshahr, Iran.
- 92 Department of Pathology, Imam Mohammad Ibn Saud Islamic University, Riyadh, Saudi Arabia.
- 93 Social Determinants of Health Research Center, Birjand University of Medical Sciences, Birjand, Iran.
- 94 Department of Neurobiology, Care Sciences and Society, Karolinska Institutet, Stockholm, Sweden.
- 95 School of Health and Social Studies, Dalarna University, Falun, Sweden.
- 96 Department of Plastic Surgery, University of Texas, Houston, TX, USA.
- 97 Preventive Medicine and Public Health Research Center, Iran University of Medical Sciences, Tehran, Iran.
- 98 Epilepsy Research Center, Shiraz University of Medical Sciences, Shiraz, Iran.
- 99 Department of Neurology, Thomas Jefferson University, Philadelphia, PA, USA.
- 100 Faculty of Nursing, Philadelphia University, Amman, Jordan.
- 101 School of Business, University of Leicester, Leicester, UK.
- 102 Gastro-enterology Department, University of Liège, Liège, Belgium.
- 103 The Judith Lumley Centre, La Trobe University, Melbourne, VIC, Australia.
- 104 School of Public Health, Curtin University, Perth, WA, Australia.
- 105 Department of Health Policy Planning and Management, University of Health and Allied Sciences, Ho, Ghana.
- 106 Department of Nursing, Debre Berhan University, Debre Berhan, Ethiopia.
- 107 Department of Reproductive Health, University of Gondar, Gondar, Ethiopia.
- 108 Department of Forensic Science, Government Institute of Forensic Science, Nagpur, India.
- 109 Department of Demography, University of Groningen, Groningen, Netherlands.
- 110 Population Research Centre, Institute for Social and Economic Change, Bengaluru, India.
- 111 Department of Hypertension, Medical University of Lodz, Lodz, Poland.
- 112 Polish Mothers' Memorial Hospital Research Institute, Lodz, Poland.
- 113 School of Health Sciences, Walden University, Minneapolis, MN, USA.
- 114 Department of Non-communicable Diseases, Bangladesh University of Health Sciences, Dhaka, Bangladesh.
- 115 School of Psychology, University of Auckland, Auckland, New Zealand.
- 116 Center for Primary Care, Harvard University, Boston, MA, USA.
- 117 School of Public Health, Imperial College London, London, UK.
- 118 Department of Psychiatry, University of Münster, Münster, Germany.
- 119 Department of Psychiatry, Melbourne Medical School, Melbourne, Australia.
- 120 Health Human Resources Research Center, Shiraz University of Medical Sciences, Shiraz, Iran.
- 121 Department of Public Health, Ambo University, Ambo, Ethiopia.
- 122 Department of Community Medicine, Gandhi Medical College Bhopal, Bhopal, India.
- 123 Jazan University, Jazan, Saudi Arabia.
- 124 Department of Neuroscience, Mario Negri Institute for Pharmacological Research, Milan, Italy.

- 125 Department of Neurology, University Hospital of Dijon, Dijon, France.
- 126 Dijon Stroke Registry - UFR Sciences Santé, University of Burgundy, Dijon, France.
- 127 School of the Environment, Yale University, New Haven, CT, USA.
- 128 Department of Internal Medicine, University of São Paulo, São Paulo, Brazil.
- 129 Department of Internal Medicine, United Arab Emirates University, Al Ain, United Arab Emirates.
- 130 Department of Social and Clinical Pharmacy, Charles University, Prague, Czech Republic.
- 131 Department of Community Medicine and Family Medicine, All India Institute of Medical Sciences, Jodhpur, India.
- 132 School of Public Health, All India Institute of Medical Sciences, Jodhpur, India.
- 133 Department of Statistical and Computational Genomics, National Institute of Biomedical Genomics, Kalyani, India.
- 134 Department of Statistics, University of Calcutta, Kolkata, India.
- 135 Department of Global Health, Global Institute for Interdisciplinary Studies, Kathmandu, Nepal.
- 136 Centre for Global Child Health, University of Toronto, Toronto, ON, Canada.
- 137 Centre of Excellence in Women & Child Health, Aga Khan University, Karachi, Pakistan.
- 138 Institute of Soil and Environmental Sciences, University of Agriculture, Faisalabad, Faisalabad, Pakistan.
- 139 Social Determinants of Health Research Center, Babol University of Medical Sciences, Babol, Iran.
- 140 Mario Negri Institute for Pharmacological Research, Ranica, Italy.
- 141 Department of General Surgery and Medical-Surgical Specialties, University of Catania, Catania, Italy.
- 142 Ethiopian Public Health Institute, Addis Ababa, Ethiopia.
- 143 Department of Nursing, Debre Tabor University, Debretabor, Ethiopia.
- 144 Department of Neurology, Institute of Post-Graduate Medical Education and Research and Seth Sukhlal Karnani Memorial Hospital, Kolkata, India.
- 145 Department of Global Public Health and Primary Care, University of Bergen, Bergen, Norway.
- 146 Cancer Registry of Norway, Oslo, Norway.
- 147 Department of Veterinary Medicine, Islamic Azad University, Kermanshah, Iran.
- 148 Department of Biomedical Sciences, Nazarbayev University, Nur-Sultan City, Kazakhstan.
- 149 Department of Internal Medicine, Manipal Academy of Higher Education, Mangalore, India.
- 150 Transport and Road Safety (TARS) Research Centre, University of New South Wales, Sydney, NSW, Australia.
- 151 Division of Clinical Epidemiology and Aging Research, German Cancer Research Center, Heidelberg, Germany.
- 152 School of Physiotherapy and Exercise Science, Curtin University, Perth, WA, Australia.
- 153 Department of Epidemiology and Evidence-Based Medicine, I.M. Sechenov First Moscow State Medical University, Moscow, Russia.
- 154 Neuroscience Unit, Institute for Scientific Research and High Technology Services, Panama City, Panama.
- 155 Gorgas Memorial Institute for Health Studies, Panama City, Panama.
- 156 Department of Community Medicine, Employee State Insurance Post Graduate Institute of Medical Sciences and Research, Bangalore, India.
- 157 Department of Health Care Management, Technical University of Berlin, Berlin, Germany.

158 School of Public Health and Health Systems, University of Waterloo, Waterloo, ON, Canada.
159 Al Shifa School of Public Health, Al Shifa Trust Eye Hospital, Rawalpindi, Pakistan.
160 Institute of Microengineering, Federal Polytechnic School of Lausanne, Lausanne, Switzerland.
161 Internal Medicine Department, Hospital Italiano de Buenos Aires, Buenos Aires, Argentina.
162 Board of Directors, Argentine Society of Medicine, Buenos Aires, Argentina.
163 Centre for Population Health Sciences, Nanyang Technological University, Singapore, Singapore.
164 Department of Primary Care and Public Health, Imperial College London, London, UK.
165 Department of Health Care, Metropolitan Autonomous University, Mexico City, Mexico.
166 Institute for Cancer Research, Prevention and Clinical Network, Florence, Italy.
167 Department of Medical Epidemiology and Biostatistics, Karolinska Institutet, Stockholm, Sweden.
168 Research Unit on Applied Molecular Biosciences (UCIBIO), University of Porto, Porto, Portugal.
169 Department of Psychiatry, University of São Paulo, São Paulo, Brazil.
170 Colombian National Health Observatory, National Institute of Health, Bogota, Colombia.
171 Epidemiology and Public Health Evaluation Group, National University of Colombia, Bogota, Colombia.
172 Department of Medicine, University of Udine, Udine, Italy.
173 Department of Mental Health, Healthcare Agency 'Friuli Occidentale', Pordenone, Italy.
174 Mary MacKillop Institute for Health Research, Australian Catholic University, Melbourne, VIC, Australia.
175 School of Public Health, University of Hong Kong, Hong Kong, China.
176 Infection and Global Health Research, University of St Andrews, St Andrews, UK.
177 Regional Infectious Diseases Unit, NHS National Services Scotland, Edinburgh, UK.
178 Institute of Applied Health Research, University of Birmingham, Birmingham, UK.
179 Kidney Health Research Institute, Geisinger Health System, Danville, PA, USA.
180 Department of Pharmacology, All India Institute of Medical Sciences, Jodhpur, India.
181 Department of Medicine, University of Toronto, Toronto, ON, Canada.
182 Center for Cancer Epidemiology, Tata Memorial Hospital, Navi Mumbai, India.
183 Department of Head Neck Surgery, Tata Memorial Hospital, Mumbai, India.
184 Research Department, Dr. D. Y. Patil University, Pune, India.
185 Department of Epidemiology and Environmental Health, University at Buffalo, Buffalo, TN, USA.
186 Heidelberg Institute of Global Health (HIGH), Heidelberg University, Heidelberg, Germany.
187 Research School of Population Health, Australian National University, Canberra, ACT, Australia.
188 Department of Epidemiology and Preventive Medicine, Monash University, Melbourne, VIC, Australia.
189 Melbourne Medical School, University of Melbourne, Parkville, VIC, Australia.
190 Division of Plastic Surgery, University of Washington, Seattle, WA, USA.
191 Maternal and Child Health Division, International Centre for Diarrhoeal Disease Research, Bangladesh, Dhaka, Bangladesh.
192 Department of Epidemiology and Biostatistics, University of South Carolina, Columbia, SC, USA.
193 Faculty of Biology, Hanoi National University of Education, Hanoi, Vietnam.
194 Department of Health Informatics, University College London, London, UK.
195 Health Data Research UK, London, UK.

- 196 Department of Otolaryngology, Wayne State University, Detroit, MI, USA.
- 197 Adelaide Medical School, University of Adelaide, Adelaide, SA, Australia.
- 198 School of Pharmacy and Medical Sciences, University of South Australia, Adelaide, SA, Australia.
- 199 Postgraduate Program in Epidemiology, Federal University of Rio Grande do Sul, Porto Alegre, Brazil.
- 200 Department of Family Medicine and Public Health, University of California San Diego, La Jolla, CA, USA.
- 201 Faculty of Medicine and Health, University of Sydney, Sydney, Australia.
- 202 Environmental Health Department, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia.
- 203 Clinical Dermatology, IRCCS Istituto Ortopedico Galeazzi, University of Milan, Milan, Italy.
- 204 Department of Dermatology, Case Western Reserve University, Cleveland, OH, USA.
- 205 Public Health Foundation of India, Gurugram, India.
- 206 Indian Council of Medical Research, New Delhi, India.
- 207 Department of Pathology, Johns Hopkins University School of Medicine, Baltimore, MD, USA.
- 208 Department of Pathology, Isfahan University of Medical Sciences, Isfahan, Iran.
- 209 Division of Women and Child Health, Aga Khan University, Karachi, Pakistan.
- 210 James P Grant School of Public Health, BRAC University, Dhaka, Bangladesh.
- 211 Department of Population and Development, Latin American Faculty of Social Sciences Mexico, Mexico City, Mexico.
- 212 Health Research Institute, Al Farabi Kazakh National University, Almaty, Kazakhstan.
- 213 Centre for Interdisciplinary Research in Basic Sciences, Jamia Millia Islamia, Delhi, India.
- 214 Australian Institute for Suicide Research and Prevention, Griffith University, Mount Gravatt, QLD, Australia.
- 215 Center for Nutrition and Health Research, National Institute of Public Health, Cuernavaca, Mexico.
- 216 St Paul's Eye Unit, Royal Liverpool University Hospital, Liverpool, UK.
- 217 Department of Ophthalmology, Aristotle University of Thessaloniki, Thessaloniki, Greece.
- 218 Division of Cardiology, Atlanta Veterans Affairs Medical Center, Decatur, GA, USA.
- 219 Department of Community Medicine, University of Peradeniya, Peradeniya, Sri Lanka.
- 220 Department of Microbiology, Far Western University, Mahendranagar, Nepal.
- 221 Department of Epidemiology and Biostatistics, Shahroud University of Medical Sciences, Shahroud, Iran.
- 222 Department of Epidemiology, Shiraz University of Medical Sciences, Shiraz, Iran.
- 223 Laboratory of Toxicology, University of Porto, Porto, Portugal.
- 224 Center of Complexity Sciences, National Autonomous University of Mexico, Mexico City, Mexico.
- 225 Faculty of Veterinary Medicine and Zootechnics, Autonomous University of Sinaloa, Culiacan Rosales, Mexico.
- 226 Institute for Stroke and Dementia Research, Ludwig Maximilians University, Munich, Germany.
- 227 Development of Research and Technology Center, Ministry of Health and Medical Education, Tehran, Iran.
- 228 Department of Social Medicine and Health Care Organisation, Medical University of Varna, Varna, Bulgaria.

- 229 Department of Medical Laboratory Sciences, Iran University of Medical Sciences, Tehran, Iran.
- 230 Department of Health Policy and Management, Tabriz University of Medical Sciences, Tabriz, Iran.
- 231 School of Medicine, Federal University of Bahia, Salvador, Brazil.
- 232 Department of Internal Medicine, Escola Bahiana de Medicina e Saúde Pública (Bahiana School of Medicine and Public Health), Salvador, Brazil.
- 233 Department of Global Health and Social Medicine, Harvard University, Boston, MA, USA.
- 234 Department of Social Services, Tufts Medical Center, Boston, MA, USA.
- 235 Department of Epidemiology, Florida International University, Miami, FL, USA.
- 236 School of Nursing and Midwifery, La Trobe University, Melbourne, VIC, Australia.
- 237 Department of Nursing, Umeå University, Umea, Sweden.
- 238 Centre for Clinical Epidemiology and Biostatistics, University of Newcastle, Newcastle, NSW, Australia.
- 239 Department of Ophthalmology and Visual Sciences, University of Michigan, Ann Arbor, MI, USA.
- 240 Institute for Health Care Policy and Innovation, University of Michigan, Ann Arbor, MI, USA.
- 241 Division of Cardiology, Massachusetts General Hospital, Boston, MA, USA.
- 242 Division of Cardiology, Harvard University, Boston, MA, USA.
- 243 Biomedical Informatics and Medical Statistics Department, Alexandria University, Alexandria, Egypt.
- 244 Department of Clinical Pathology, Mansoura University, Mansoura, Egypt.
- 245 Pediatric Dentistry and Dental Public Health Department, Alexandria University, Alexandria, Egypt.
- 246 Department of Medicinal Chemistry, Kerman University of Medical Sciences, Kerman, Iran.
- 247 Pharmaceutics Research Center, Kerman University of Medical Sciences, Kerman, Iran.
- 248 Multiple Sclerosis Research Center, Tehran University of Medical Sciences, Tehran, Iran.
- 249 Department of Physiology, Tarbiat Modares University, Tehran, Iran.
- 250 Tehran Medical Sciences Branch, Islamic Azad University, Tehran, Iran.
- 251 Unit of Medical Physiology, Hawassa University, Hawassa, Ethiopia.
- 252 Department of Biology and Biotechnology 'Lazzaro Spallanzani', University of Pavia, Pavia, Italy.
- 253 Department of Biology, Cihan University-Erbil, Erbil, Iraq.
- 254 Department of Psychology, Federal University of Sergipe, São Cristóvão, Brazil.
- 255 Department of Environmental Health Engineering, Ardabil University of Medical Science, Ardabil, Iran.
- 256 Department of Environmental Health Engineering, Tehran University of Medical Sciences, Tehran, Iran.
- 257 National Institute for Stroke and Applied Neurosciences, Auckland University of Technology, Auckland, New Zealand.
- 258 Research Center of Neurology, Moscow, Russia.
- 259 Division of Neurology, University of Ottawa, Ottawa, ON, Canada.
- 260 Associated Laboratory for Green Chemistry (LAQV), University of Porto, Porto, Portugal.
- 261 Research Center on Public Health, University of Milan Bicocca, Monza, Italy.
- 262 Institute of Bone and Joint Research (IBJR), University of Sydney, Sydney, NSW, Australia.
- 263 Psychiatry Department, Kaiser Permanente, Fontana, CA, USA.
- 264 School of Health Sciences, A.T. Still University, Mesa, AZ, USA.

- 265 Institute of Gerontological Health Services and Nursing Research, Ravensburg-Weingarten University of Applied Sciences, Weingarten, Germany.
- 266 James Cancer Hospital, Ohio State University, Columbus, OH, USA.
- 267 Institute of Gerontology, National Academy of Medical Sciences of Ukraine, Kyiv, Ukraine.
- 268 Department of Child Dental Health, Obafemi Awolowo University, Ile-Ife, Nigeria.
- 269 Department of Cell Biology and Biotechnology, Timiryazev Institute of Plant Physiology, Moscow, Russia.
- 270 Department of Medical Parasitology, Abadan Faculty of Medical Sciences, Abadan, Iran.
- 271 School of Public Health, Medical, and Veterinary Sciences, James Cook University, Douglas, QLD, Australia.
- 272 Department of Cardiovascular Medicine, Cleveland Clinic, Cleveland, OH, USA.
- 273 Gillings School of Global Public Health, University of North Carolina Chapel Hill, Chapel Hill, NC, USA.
- 274 Department of Environmental Health Sciences, Mario Negri Institute for Pharmacological Research, Milan, Italy.
- 275 National Center for Disease Control and Public Health, Tbilisi, Georgia.
- 276 School of Pharmacy, Mekelle University, Mekelle, Ethiopia.
- 277 School of Medical and Health Sciences, Edith Cowan University, Perth, Australia.
- 278 School of Pharmacy, Aksum University, Aksum, Ethiopia.
- 279 Department of Pharmacy, Mekelle University, Mekelle, Ethiopia.
- 280 Department of Parasitology and Entomology, Tarbiat Modares University, Tehran, Iran.
- 281 Department of Medical Surgical Nursing, Tabriz University of Medical Sciences, Tabriz, Iran.
- 282 Department of Neurology, Tehran University of Medical Sciences, Tehran, Iran.
- 283 Faculty of Nursing and Midwifery, Kurdistan University of Medical Sciences, Sanandaj, Iran.
- 284 Student Research Committee, Iran University of Medical Sciences, Tehran, Iran.
- 285 Research Group for Genomic Epidemiology, Technical University of Denmark, Copenhagen, Denmark.
- 286 Young Researchers and Elite Club, Islamic Azad University, Rasht, Iran.
- 287 Department of Biology, Islamic Azad University, Tehran, Iran.
- 288 Division of General Internal Medicine, Howard University, Washington, DC, USA.
- 289 Department of Community and Family Medicine, Howard University, Washington, DC, USA.
- 290 Research, Innovation and Teaching Unit, San Juan de Dios Sanitary Park, Sant Boi de Llobregat, Spain.
- 291 Laboratory of Neurological Disorders, Mario Negri Institute for Pharmacological Research, Milan, Italy.
- 292 Department of Public Health, Arba Minch University, Arba Minch, Ethiopia.
- 293 Third Department of Neurology, Research Center of Neurology, Moscow, Russia.
- 294 School of Public Health and Community Medicine, University of New South Wales, Kensington, NSW, Australia.
- 295 Hudson College of Public Health, University of Oklahoma Health Sciences Center, Oklahoma City, OK, USA.
- 296 Department of Health and Social Affairs, Government of the Federated States of Micronesia, Palikir, Federated States of Micronesia.

- 297 Oncological Network, Prevention and Research Institute, Institute for Cancer Research, Prevention and Clinical Network, Florence, Italy.
- 298 Center for Clinical and Epidemiological Research, University of São Paulo, São Paulo, Brazil.
- 299 Institute of Public Health Department, United Arab Emirates University, Al Ain, United Arab Emirates.
- 300 Department of Public Health and Preventive Medicine, Charles University, Prague, Czech Republic.
- 301 Department of Microbiology, Saint James School of Medicine, The Valley, Anguilla.
- 302 Department of Epidemiology, Saint James School of Medicine, The Valley, Anguilla.
- 303 Institute of Tropical Pathology and Public Health (IPTSP), Federal University of Goiás, Goiânia, Brazil.
- 304 Department of Epidemiology, Binzhou Medical University, Yantai City, China.
- 305 Medical Resources Department, March of Dimes, Arlington, VA, USA.
- 306 Department of Health Policy, Management and Leadership, West Virginia University School of Public Health, Morgantown, WV.
- 307 Department of Epidemiology and Psychosocial Research, Ramón de la Fuente Muñiz National Institute of Psychiatry, Mexico City, Mexico.
- 308 College of Medicine, Umm Al Qura University, Makkah, Saudi Arabia.
- 309 MSc Epidemiology Programme, London School of Hygiene & Tropical Medicine, London, UK.
- 310 Department of Pharmacology, Tehran University of Medical Sciences, Tehran, Iran.
- 311 Obesity Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
- 312 Department of Radiology and Radiological Science, Johns Hopkins University, Baltimore, MD, USA.
- 313 Department of Family and Community Medicine, Arabian Gulf University, Manama, Bahrain.
- 314 School of Health and Environmental Studies, Hamdan Bin Mohammed Smart University, Dubai, United Arab Emirates.
- 315 Medical School, University of Western Australia, Perth, WA, Australia.
- 316 Department of Neurology, Sir Charles Gairdner Hospital, Perth, WA, Australia.
- 317 Tabriz University of Medical Sciences, Tabriz, Iran.
- 318 Research Unit, University of Barcelona, Sant Boi de Llobregat, Barcelona, Spain.
- 319 Biomedical Research Networking Center for Mental Health Network (CiberSAM), Barcelona, Spain.
- 320 Department of Zoology and Entomology, Al Azhar University, Cairo, Egypt.
- 321 Biology Department, Utica College, Utica, NY, USA.
- 322 Digestive Diseases Research Institute, Tehran University of Medical Sciences, Tehran, Iran.
- 323 Department of Public Health, Jijiga University, Jijiga, Ethiopia.
- 324 Center for International Health (CIH), University of Bergen, Bergen, Norway.
- 325 Bergen Center for Ethics and Priority Setting (BCEPS), University of Bergen, Bergen, Norway.
- 326 Gastrointestinal and Liver Diseases Research Center, Guilan University of Medical Sciences, Rasht, Iran.
- 327 Caspian Digestive Disease Research Center, Guilan University of Medical Sciences, Rasht, Iran.
- 328 Institute of Pharmaceutical Sciences, University of Veterinary and Animal Sciences, Lahore, Pakistan.

- 329 Department of Pharmacy Administration and Clinical Pharmacy, Xian Jiaotong University, Xian, China.
- 330 School of Nursing and Midwifery, Tehran University of Medical Sciences, Tehran, Iran.
- 331 School of Business, London South Bank University, London, UK.
- 332 Department of Urban Planning and Design, University of Hong Kong, Hong Kong, China.
- 333 Center of Excellence in Behavioral Medicine, Nguyen Tat Thanh University, Ho Chi Minh City, Vietnam.
- 334 Kasturba Medical College, Manipal Academy of Higher Education, Manipal, India.
- 335 Centre for Bio Cultural Studies (CBiCS), Manipal Academy of Higher Education, Manipal, India.
- 336 Department of Pharmacology, Bangladesh Industrial Gases Limited, Tangail, Bangladesh.
- 337 Department of Epidemiology and Biostatistics, Tehran University of Medical Sciences, Tehran, Iran.
- 338 Pediatric Chronic Kidney Disease Research Center, Tehran University of Medical Sciences, Tehran, Iran.
- 339 Institute of Research and Development, Duy Tan University, Da Nang, Vietnam.
- 340 Department of Computer Science, University of Human Development, Sulaymaniyah, Iraq.
- 341 Department of Internal Medicine, Carol Davila University of Medicine and Pharmacy, Bucharest, Romania.
- 342 Department of Legal Medicine and Bioethics, Carol Davila University of Medicine and Pharmacy, Bucharest, Romania.
- 343 Clinical Legal Medicine Department, National Institute of Legal Medicine Mina Minovici, Bucharest, Romania.
- 344 College of Science and Engineering, Hamad Bin Khalifa University, Doha, Qatar.
- 345 Faculty of Medicine of Tunis, University Tunis El Manar, Tunis, Tunisia.
- 346 Department of Epidemiology and Health Statistics, Central South University, Changsha, China.
- 347 Department of Public Health and Community Medicine, Shaikh Khalifa Bin Zayed Al-Nahyan Medical College, Lahore, Pakistan.
- 348 Department of Occupational Safety and Health, China Medical University, Taichung, Taiwan.
- 349 Department of Public Health, University of Naples Federico II, Naples, Italy.
- 350 Department of Health Promotion and Education, University of Ibadan, Ibadan, Nigeria.
- 351 Department of Community Medicine, University of Ibadan, Ibadan, Nigeria.
- 352 Department of Community Medicine, University College Hospital, Ibadan, Ibadan, Nigeria.
- 353 Faculty of Medicine, University of Belgrade, Belgrade, Serbia.
- 354 Department of Epidemiology, University of Kragujevac, Kragujevac, Serbia.
- 355 Division of Community Health and Family Medicine, Bangalore Baptist Hospital, Bangalore, India.
- 356 College of Public Health, Taipei Medical University, Taipei, Taiwan.
- 357 Research Institute for Endocrine Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
- 358 Graduate Institute of Biomedical Informatics, Taipei Medical University, Taipei, Taiwan.
- 359 Department of Social Medicine, Osaka University, Suita-city, Japan.
- 360 School of Public Health and Community Medicine, University of New South Wales, Sydney, NSW, Australia.
- 361 South African Medical Research Council, Cape Town, South Africa.

- 362 Department of Biochemistry and Microbiology, University of Fort Hare, Alice, South Africa.
- 363 Department of Environmental Health Engineering, Guilan University of Medical Sciences, Rasht, Iran.
- 364 N.A. Semashko Department of Public Health and Healthcare, I.M. Sechenov First Moscow State Medical University, Moscow, Russia.
- 365 Department of Global Health, Economics and Policy, University of Kragujevac, Kragujevac, Serbia.
- 366 Social Development and Health Promotion Research Center, Kermanshah University of Medical Sciences, Kermanshah, Iran.
- 367 Kermanshah University of Medical Sciences, Kermanshah, Iran.
- 368 Manipal College of Pharmaceutical Sciences, Manipal Academy of Higher Education, Manipal, India.
- 369 Health Informatic Lab, Boston University, Boston, MA, USA.
- 370 Autism Spectrum Disorders Research Center, Hamadan University of Medical Sciences, Hamadan, Iran.
- 371 Department of Community Medicine, Dr. Baba Saheb Ambedkar Medical College & Hospital, Delhi, India.
- 372 Department of Community Medicine, Banaras Hindu University, Varanasi, India.
- 373 Environmental Research Center, Duke Kunshan University, Kunshan, China.
- 374 Nicholas School of the Environment, Duke University, Durham, NC, USA.
- 375 Renal and Cardiovascular Division, The George Institute for Global Health, New Delhi, India.
- 376 School of Medicine, University of New South Wales, Sydney, NSW, Australia.
- 377 Department of Ophthalmology, Heidelberg University, Mannheim, Germany.
- 378 Beijing Institute of Ophthalmology, Beijing Tongren Hospital, Beijing, China.
- 379 Department of Family Medicine and Public Health, University of Opole, Opole, Poland.
- 380 Institute of Family Medicine and Public Health, University of Tartu, Tartu, Estonia.
- 381 Minimally Invasive Surgery Research Center, Iran University of Medical Sciences, Tehran, Iran.
- 382 School of Public Health, University College Cork, Cork, Ireland.
- 383 Department of Neurology, University of Washington, Seattle, WA, USA.
- 384 Institute for Prevention of Non-communicable Diseases, Qazvin University of Medical Sciences, Qazvin, Iran.
- 385 Health Services Management Department, Qazvin University of Medical Sciences, Qazvin, Iran.
- 386 Department of Forensic Medicine and Toxicology, All India Institute of Medical Sciences, Jodhpur, India.
- 387 Research Center for Environmental Determinants of Health, Kermanshah University of Medical Sciences, Kermanshah, Iran.
- 388 Institute for Epidemiology and Social Medicine, University of Münster, Münster, Germany.
- 389 Department of Adult Health Nursing, Bahir Dar University, Bahir Dar, Ethiopia.
- 390 International Research Center of Excellence, Institute of Human Virology Nigeria, Abuja, Nigeria.
- 391 Julius Centre for Health Sciences and Primary Care, Utrecht University, Utrecht, Netherlands.
- 392 Department of Public Health, Jordan University of Science and Technology, Irbid, Jordan.
- 393 School of Food and Agricultural Sciences, University of Management and Technology, Lahore, Pakistan.
- 394 Health Promotion Research Center, Zahedan University of Medical Sciences, Zahedan, Iran.

395 Epidemiology Department, Jazan University, Jazan, Saudi Arabia.
396 Department of Epidemiology and Biostatistics, Health Services Academy, Islamabad, Pakistan.
397 Faculty of Health and Wellbeing, Sheffield Hallam University, Sheffield, UK.
398 College of Arts and Sciences, Ohio University, Zanesville, OH, USA.
399 Center of Global Evidence Synthesis Initiative, Datta Meghe Institute of Medical Sciences, Wardha, India.
400 Shahid Beheshti University of Medical Sciences, Tehran, Iran.
401 The Iranian Academy of Medical Sciences, Tehran, Iran.
402 Department of Psychiatry, Kermanshah University of Medical Sciences, Kermanshah, Iran.
403 Department of Public Health, Imam Mohammad Ibn Saud Islamic University, Riyadh, Saudi Arabia.
404 Department of Health Policy and Management, Johns Hopkins University, Baltimore, MD, USA.
405 Department of Preventive Medicine, Korea University, Seoul, South Korea.
406 School of Traditional Chinese Medicine, Xiamen University Malaysia, Sepang, Malaysia.
407 Department of Nutrition, Simmons University, Boston, MA, USA.
408 Department of Nursing and Health Promotion, Oslo Metropolitan University, Oslo, Norway.
409 School of Health Sciences, Kristiania University College, Oslo, Norway.
410 Global Community Health and Behavioral Sciences, Tulane University, New Orleans, LA, USA.
411 Department of Epidemiology and Public Health, University College London, London, UK.
412 Department of Public Health, University of Helsinki, Helsinki, Finland.
413 Global Healthcare Consulting, New Delhi, India.
414 Department of Environmental Health Engineering, Arak University of Medical Sciences, Arak, Iran.
415 School of Population and Public Health, University of British Columbia, Vancouver, BC, Canada.
416 Arthritis Research Canada, Richmond, BC, Canada.
417 Global Health Department, Vancouver Virology Centre, Vancouver, BC, Canada.
418 Biomedical Research Networking Center for Mental Health Network (CiberSAM), San Juan de Dios Sanitary Park, Sant Boi de Llobregat, Spain.
419 Catalan Institution for Research and Advanced Studies (ICREA), Barcelona, Spain.
420 Department of Anthropology, Panjab University, Chandigarh, India.
421 Department of Demography, University of Montreal, Montreal, QC, Canada.
422 Department of Social and Preventive Medicine, University of Montreal, Montreal, QC, Canada.
423 Department of Community Medicine, Manipal Academy of Higher Education, Mangalore, India.
424 Department of Psychiatry, University of Nairobi, Nairobi, Kenya.
425 Division of Psychology and Language Sciences, University College London, London, UK.
426 Department of Medicine, McMaster University, Hamilton, ON, Canada.
427 Institute of Occupational and Environmental Medicine, University of Birmingham, Birmingham, UK.
428 Imperial College Business School, Imperial College London, London, UK.
429 Faculty of Public Health, University of Indonesia, Depok, Indonesia.
430 Nuffield Department of Population Health, University of Oxford, Oxford, UK.
431 National Institute for Health Research (NIHR) Oxford Biomedical Research Centre, Oxford, UK.
432 School of Dentistry, The University of Queensland, Brisbane, QLD, Australia.
433 Division of Research, Kaiser Permanente, Oakland, CA, USA.

434 Department of Community and Family Medicine, University of Baghdad, Baghdad, Iraq.
435 Unit of Genetics and Public Health, Institute of Medical Sciences, Las Tablas, Panama.
436 Ministry of Health, Herrera, Panama.
437 HelpMeSee, New York, NY, USA.
438 General Director, Mexican Institute of Ophthalmology, Queretaro, Mexico.
439 Department of Medical Sciences, Uppsala University, Uppsala, Sweden.
440 Department of Clinical Chemistry and Pharmacology, Uppsala University Hospital, Uppsala, Sweden.
441 Department of Otorhinolaryngology, Father Muller Medical College, Mangalore, India.
442 Institute of Clinical Physiology, National Research Council, Pisa, Italy.
443 Department of Clinical Sciences and Community Health, University of Milan, Milan, Italy.
444 College of Optometry, Nova Southeastern University, Fort Lauderdale, FL, USA.
445 Department of Information and Internet Technologies, I.M. Sechenov First Moscow State Medical University, Moscow, Russia.
446 Federal Research Institute for Health Organization and Informatics of the Ministry of Health (FRIHOI) , Moscow, Russia.
447 School of Nursing, Hong Kong Polytechnic University, Hong Kong, China.
448 School of Pharmacy, Monash University, Bandar Sunway, Malaysia.
449 School of Pharmacy, Taylor’s University Lakeside Campus, Subang Jaya, Malaysia.
450 Asbestos Diseases Research Institute, University of Sydney, Sydney, NSW, Australia.
451 Neurology, Public Health and Disability Unit, Carlo Besta Neurological Institute IRCCS, Milan, Italy.
452 Division of Nephrology, Tufts Medical Center, Boston, MA, USA.
453 School of Medicine, Tufts University, Boston, MA, USA.
454 Department of Prevention, USL Tuscany Center, Firenze, Italy.
455 Department of Health Sciences, University of Florence, Florence, Italy.
456 School of Public Health and Preventive Medicine, Monash University, Melbourne, VIC, Australia.
457 School of Public Health, University of Haifa, Haifa, Israel.
458 Department of Systems, Populations, and Leadership, University of Michigan, Ann Arbor, MI, USA.
459 School of Population and Global Health, University of Melbourne, Melbourne, VIC, Australia.
460 Institute of Nutritional Sciences, Friedrich Schiller University Jena, Jena, Germany.
461 Competence Cluster for Nutrition and Cardiovascular Health (nutriCARD), Jena, Germany.
462 Department of Medicine, University of São Paulo, São Paulo, Brazil.
463 Department of General Surgery, Liverpool University Hospitals NHS Foundation Trust, Liverpool, UK.
464 Department of Surgery, University of Liverpool, Liverpool, UK.
465 Pathology Department, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia.
466 Institute for Physical Activity and Nutrition, Deakin University, Burwood, VIC, Australia.
467 Grants, Innovation and Product Development Unit, South African Medical Research Council, Cape Town, South Africa.
468 Radiology and Precision Health Program, Michigan State University, East Lansing, MI, USA.
469 Clinical Research Development Center, Kermanshah University of Medical Sciences, Kermanshah, Iran.

470 Environmental Health Research Center, Kurdistan University of Medical Sciences, Sanandaj, Iran.
471 Non-communicable Disease Research Center, Shiraz University of Medical Sciences, Shiraz, Iran.
472 Department of Maternal and Child Nursing and Public Health, Federal University of Minas Gerais, Belo Horizonte, Brazil.
473 Institute for Social Science Research, The University of Queensland, Indooroopilly, QLD, Australia.
474 School of Medicine, Iran University of Medical Sciences, Tehran, Iran.
475 School of Medicine, University of Manitoba, Winnipeg, MB, Canada.
476 Substance Abuse Prevention Research Center, Kermanshah University of Medical Sciences, Kermanshah, Iran.
477 Faculty of Public Health, Universitas Airlangga (Airlangga University), Surabaya, Indonesia.
478 Indonesian Public Health Association, Surabaya, Indonesia.
479 Campus Caucaia, Federal Institute of Education, Science and Technology of Ceará, Caucaia, Brazil.
480 Department of Midwifery, Hamadan University of Medical Sciences, Hamadan, Iran.
481 Department of Neurology, University Hospital Center de Sao Joao, Porto, Portugal.
482 Department of Clinical Neurosciences and Mental Health, University of Porto, Porto, Portugal.
483 Research Division, The George Institute for Global Health, New Delhi, India.
484 Department of Twin Research and Genetic Epidemiology, King's College London, London, UK.
485 Queensland Brain Institute, The University of Queensland, Brisbane, QLD, Australia.
486 National Centre for Register-based Research, Aarhus University, Aarhus, Denmark.
487 Department of Health Services Research and Policy, London School of Hygiene & Tropical Medicine, London, UK.
488 Neurology Department, Janakpuri Super Specialty Hospital Society, New Delhi, India.
489 Department of Neurology, Govind Ballabh Institute of Medical Education and Research, New Delhi, India.
490 Nutrition Health Research Center, Iran University of Medical Sciences, Hamadan, Iran.
491 Peru Country Office, United Nations Population Fund (UNFPA), Lima, Peru.
492 Forensic Medicine Division, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia.
493 Center for Translation Research and Implementation Science, National Institutes of Health, Bethesda, MD, USA.
494 Department of Medicine, University of Cape Town, Cape Town, South Africa.
495 Department of Cardiovascular Surgery, Asfendiyarov Kazakh National Medical University, Almaty, Kazakhstan.
496 Breast Surgery Unit, Helsinki University Hospital, Helsinki, Finland.
497 University of Helsinki, Helsinki, Finland.
498 Neurology Unit, Helsinki University Hospital, Helsinki, Finland.
499 School of Health Sciences, University of Melbourne, Parkville, VIC, Australia.
500 Clinical Microbiology and Parasitology Unit, Dr. Zora Profozic Polyclinic, Zagreb, Croatia.
501 University Centre Varazdin, University North, Varazdin, Croatia.
502 Department of Propedeutics of Internal Diseases & Arterial Hypertension, Pomeranian Medical University, Szczecin, Poland.
503 Woman-Mother-Child Department, Lausanne University Hospital, Lausanne, Switzerland.
504 Pacific Institute for Research & Evaluation, Calverton, MD, USA.

- 505 Department of Health Research Methods, Evidence and Impact, McMaster University, Hamilton, ON, Canada.
- 506 Internal Medicine Programme, Kyrgyz State Medical Academy, Bishkek, Kyrgyzstan.
- 507 Department of Atherosclerosis and Coronary Heart Disease, National Center of Cardiology and Internal Disease, Bishkek, Kyrgyzstan.
- 508 Research Center for Biochemistry and Nutrition in Metabolic Diseases, Kashan University of Medical Sciences, Kashan, Iran.
- 509 Department of Sports Medicine and Rehabilitation, Kermanshah University of Medical Sciences, Kermanshah, Iran.
- 510 School of Psychiatry, University of New South Wales, Sydney, NSW, Australia.
- 511 Institute of Addiction Research (ISFF), Frankfurt University of Applied Sciences, Frankfurt, Germany.
- 512 Biotechnology Research Center, Tabriz University of Medical Sciences, Tabriz, Iran.
- 513 Molecular Medicine Research Center, Tabriz University of Medical Sciences, Tabriz, Iran.
- 514 Health Equity Research Center, Tehran University of Medical Sciences, Tehran, Iran.
- 515 Internal Medicine Department, King Saud University, Riyadh, Saudi Arabia.
- 516 Department of Forestry, Salahaddin University-Erbil, Erbil, Iraq.
- 517 Department of Medicine-Huddinge, Karolinska Institutet, Stockholm, Sweden.
- 518 Research Institute for Health Development, Kurdistan University of Medical Sciences, Sanandaj City, Iran.
- 519 Department of Epidemiology and Biostatistics, Shahrekord University of Medical Sciences, Shahrekord, Iran.
- 520 Health Systems and Policy Research Unit, Ahmadu Bello University, Zaria, Nigeria.
- 521 Department of Biomedical and Dental Sciences and Morphofunctional Imaging, Messina University, Messina, Italy.
- 522 Social Determinants of Health Research Center, Kurdistan University of Medical Sciences, Sanandaj, Iran.
- 523 Department of Mathematical Sciences, University of Bath, Bath, UK.
- 524 International Laboratory for Air Quality and Health, Queensland University of Technology, Brisbane, QLD, Australia.
- 525 Graduate School of Medicine, Kyoto University, Kyoto, Japan.
- 526 Asia-Pacific Regional Office, United Nations Population Fund (UNFPA), Bangkok, Thailand.
- 527 Department of Health Policy, Management, and Economics, Tehran University of Medical Sciences, Tehran, Iran.
- 528 Department of Food Science, University of Campinas (Unicamp), Campinas, Brazil.
- 529 Federal Institute for Population Research, Wiesbaden, Germany.
- 530 Center for Population and Health, Wiesbaden, Germany.
- 531 Department of Endocrinology & Metabolism, Institute of Post-Graduate Medical Education and Research and Seth Sukhlal Karnani Memorial Hospital, Kolkata, India.
- 532 School of Economics, University of Nairobi, Nairobi, Kenya.
- 533 Research and Analytics Department, Initiative for Financing Health and Human Development, Chennai, India.
- 534 Department of Research and Analytics, Bioinsilico Technologies, Chennai, India.

- 535 Department of Cardiology, Hamedan University of Medical Sciences, Hamadan, Iran.
- 536 Laboratory of Public Health Indicators Analysis and Health Digitalization, Moscow Institute of Physics and Technology, Dolgoprudny, Russia.
- 537 Experimental Surgery and Oncology Laboratory, Kursk State Medical University, Kursk, Russia.
- 538 Department of Epidemiology and Biostatistics, Kermanshah University of Medical Sciences, Kermanshah, Iran.
- 539 Department for the Control of Disease, Epidemics, and Pandemics, Ministry of Public Health, Yaoundé, Cameroon.
- 540 Department of Public Health, University of Yaoundé I, Yaoundé, Cameroon.
- 541 Department of Disease Control and Environmental Health, Makerere University, Kampala, Uganda.
- 542 Department of General Surgery, Carol Davila University of Medicine and Pharmacy, Bucharest, Romania.
- 543 Department of General Surgery, Emergency Hospital of Bucharest, Bucharest, Romania.
- 544 Department of Anatomy and Embryology, Carol Davila University of Medicine and Pharmacy, Bucharest, Romania.
- 545 Cardio-Aid, Bucharest, Romania.
- 546 Department of Health Sciences, University of Tampere, Tampere, Finland.
- 547 Department of Biological Sciences, University of Embu, Embu, Kenya.
- 548 Institute for Global Health Innovations, Duy Tan University, Hanoi, Vietnam.
- 549 School of Public Health and Family Medicine, University of Cape Town, Cape Town, South Africa.
- 550 Department of Community and Family Medicine, Iran University of Medical Sciences, Tehran, Iran.
- 551 Department of Health Policy and Management, Keio University, Tokyo, Japan.
- 552 Department of Global Health Policy, University of Tokyo, Tokyo, Japan.
- 553 Department of Clinical Sciences, Lund University, Lund, Sweden.
- 554 Centre for Heart Rhythm Disorders, University of Adelaide, Adelaide, SA, Australia.
- 555 Department of Neurobiology, Care Sciences and Society, Karolinska Institutet, Huddinge, Sweden.
- 556 Unit of Microbiology and Public Health, Institute of Medical Sciences, Las Tablas, Panama.
- 557 Department of Public Health, Ministry of Health, Herrera, Panama.
- 558 Translational Health Research Institute, Western Sydney University, Sydney, NSW, Australia.
- 559 Department of Preventive Medicine, Kyung Hee University, Dongdaemun-gu, South Korea.
- 560 Gorgan Congenital Malformations Research Center, Golestan University of Medical Sciences, Gorgan, Iran.
- 561 Department of Psychiatry and Behavioural Neurosciences, McMaster University, Hamilton, ON, Canada.
- 562 Department of Psychiatry, University of Lagos, Lagos, Nigeria.
- 563 Centre for Healthy Start Initiative, Lagos, Nigeria.
- 564 Department of Pharmacology and Therapeutics, University of Nigeria Nsukka, Enugu, Nigeria.
- 565 Department of Biomedical Sciences, University of Novi Sad, Novi Sad, Serbia.
- 566 Department of Project Management, National Research University Higher School of Economics, Moscow, Russia.
- 567 Department of Medicine, University of Ibadan, Ibadan, Nigeria.

- 568 Department of Medicine, University College Hospital, Ibadan, Ibadan, Nigeria.
- 569 Department of Respiratory Medicine, Jagadguru Sri Shivarathreeswara Academy of Health Education and Research, Mysore, India.
- 570 Department of Forensic Medicine, Manipal Academy of Higher Education, Mangalore, India.
- 571 Department of Ophthalmology, Heidelberg University, Heidelberg, Germany.
- 572 Department of Research, Public Health Foundation of India, Gurugram, India.
- 573 Department of Clinical Epidemiology, University of the Philippines Manila, Manila, Philippines.
- 574 Division of General Internal Medicine, University of Pittsburgh Medical Center, Pittsburgh, PA, USA.
- 575 Department of Physiology, Iran University of Medical Sciences, Tehran, Iran.
- 576 Physiology Research Center, Iran University of Medical Sciences, Tehran, Iran.
- 577 School of Public Health, Medical, and Veterinary Sciences, James Cook University, Townsville, NSW, Australia.
- 578 Center for Research and Innovation, Ateneo De Manila University, Pasig City, Philippines.
- 579 School of Global Public Health, New York University, New York, NY, USA.
- 580 Department of Orthopedics, Yenepoya Medical College, Mangalore, India.
- 581 School of Optometry and Vision Science, University of New South Wales, Sydney, NSW, Australia.
- 582 Shanghai Mental Health Center, Shanghai Jiao Tong University, Shanghai, China.
- 583 Department of Psychiatry, Columbia University, New York City, NY, USA.
- 584 Department of Cardiology, University of Bern, Bern, Switzerland.
- 585 Department of Chemistry, University of Porto, Porto, Portugal.
- 586 Department of Public Health, Erasmus University Medical Center, Rotterdam, Netherlands.
- 587 University Medical Center Groningen, University of Groningen, Groningen, Netherlands.
- 588 School of Economics and Business, University of Groningen, Groningen, Netherlands.
- 589 Department of Nutrition and Food Sciences, Maragheh University of Medical Sciences, Maragheh, Iran.
- 590 Dietary Supplements and Probiotic Research Center, Alborz University of Medical Sciences, Karaj, Iran.
- 591 Clinical Research Center, Fundación Valle del Lili, Cali, Colombia.
- 592 Center for Studies in Social Protection and Health Economics, ICESI University, Cali, Colombia.
- 593 Department of Neurology, Smt. B.K.S. Medical Institute and Research Center, Vadodara, India.
- 594 Health Sciences Department, Muhammadiyah University of Surakarta, Sukoharjo, Indonesia.
- 595 Department of Community Medicine, Datta Meghe Institute of Medical Sciences, Wardha, India.
- 596 Department of Chemistry, Sharif University of Technology, Tehran, Iran.
- 597 College of Medicine, University of Central Florida, Orlando, FL, USA.
- 598 Department of Medicine, University of Alberta, Edmonton, AB, Canada.
- 599 Thalassemia and Hemoglobinopathy Research Center, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.
- 600 Metabolomics and Genomics Research Center, Tehran University of Medical Sciences, Tehran, Iran.
- 601 Sina Trauma and Surgery Research Center, Tehran University of Medical Sciences, Tehran, Iran.
- 602 Department of Community Medicine, Maharishi Markandeshwar Institute of Medical Sciences & Research, Ambala, India.

- 603 School of Nursing and Healthcare Professions, Federation University Australia, Berwick, VIC, Australia.
- 604 Department of Pharmacology, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
- 605 Research Department, Policy Research Institute, Kathmandu, Nepal.
- 606 Health and Public Policy Department, Global Center for Research and Development, Kathmandu, Nepal.
- 607 Department of Medicine, University of Otago, Wellington, New Zealand.
- 608 Department of Neurology, Capital & Coast District Health Board, Wellington, New Zealand.
- 609 Department of Oral Pathology, Srinivas Institute of Dental Sciences, Mangalore, India.
- 610 Tehran Institute of Psychiatry, Iran University of Medical Sciences, Tehran, Iran.
- 611 Department of Forensic Medicine and Toxicology, Manipal Academy of Higher Education, Mangalore, India.
- 612 Academic Public Health England, Public Health England, London, UK.
- 613 WHO Collaborating Centre for Public Health Education and Training, Imperial College London, London, UK.
- 614 University College London Hospitals, London, UK.
- 615 School of Health, Medical and Applied Sciences, CQ University, Sydney, NSW, Australia.
- 616 Department of Computer Science, Boston University, Boston, MA, USA.
- 617 School of Social Sciences and Psychology, Western Sydney University, Penrith, NSW, Australia.
- 618 Translational Health Research Institute, Western Sydney University, Penrith, NSW, Australia.
- 619 Department of Health Information Management, Manipal Academy of Higher Education, Manipal, India.
- 620 Manipal Academy of Higher Education, Manipal, India.
- 621 Brien Holden Vision Institute, Sydney, Australia.
- 622 Network of Immunity in Infection, Malignancy and Autoimmunity (NIIMA), Universal Scientific Education and Research Network (USERN), Tehran, Iran.
- 623 Cardiovascular Diseases Research Center, Birjand University of Medical Sciences, Birjand, Iran.
- 624 Department of Chemical Sciences, University of Porto, Porto, Portugal.
- 625 Epidemiology Research Unit Institute of Public Health (EPIUnit-ISPUP), University of Porto, Porto, Portugal.
- 626 Department of Surgery, University of Minnesota, Minneapolis, MN, USA.
- 627 Department of Surgery, University Teaching Hospital of Kigali, Kigali, Rwanda.
- 628 Department of Clinical Research, Federal University of Uberlândia, Uberlândia, Brazil.
- 629 Department of Neuroscience, University of Perugia, Perugia, Italy.
- 630 Department of Neurology, Rimini 'Infermi' Hospital - AUSL Romagna, Rimini, Italy.
- 631 Institute of Epidemiology and Medical Biometry, Ulm University, Ulm, Germany.
- 632 Agrosavia, Palmira, Colombia.
- 633 Malaria Atlas Project, University of Oxford, Oxford, UK.
- 634 Department of Health Statistics, National Institute for Medical Research, Dar es Salaam, Tanzania.
- 635 Department of Cardiovascular Medicine, Mayo Clinic, Rochester, MN, USA.
- 636 Department of Epidemiology, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
- 637 School of Psychiatry, University of New South Wales, Kensington, NSW, Australia.
- 638 Neuropsychiatric Institute, Prince of Wales Hospital, Randwick, NSW, Australia.

639 Cardiac Rehabilitation Research Center, Isfahan University of Medical Sciences, Isfahan, Iran.
640 Department of Psychiatry, All India Institute of Medical Sciences, New Delhi, India.
641 Department of Phytochemistry, Soran University, Soran, Iraq.
642 Department of Nutrition, Cihan University-Erbil, Kurdistan Region, Iraq.
643 Department of Microbiology, Central University of Punjab, Bathinda, India.
644 Department of Public Health and Community Medicine, Cairo University, Giza, Egypt.
645 Department of Global Health and Development, London School of Hygiene & Tropical Medicine, London, UK.
646 Department of Entomology, Ain Shams University, Cairo, Egypt.
647 Department of Surgery, Marshall University, Huntington, WV, USA.
648 Department of Nutrition and Preventive Medicine, Case Western Reserve University, Cleveland, OH, USA.
649 Rheumatology Department, University Hospitals Bristol NHS Foundation Trust, Bristol, UK.
650 School of Public Health and Health Management, University of Belgrade, Belgrade, Serbia.
651 Department of Community Medicine, PSG Institute of Medical Sciences and Research, Coimbatore, India.
652 PSG-FAIMER South Asia Regional Institute, Coimbatore, India.
653 Colorectal Research Center, Iran University of Medical Sciences, Tehran, Iran.
654 Department of Geriatrics and Long Term Care, Hamad Medical Corporation, Doha, Qatar.
655 Faculty of Health & Social Sciences, Bournemouth University, Bournemouth, UK.
656 Population Health Research Institute, McMaster University, Hamilton, ON, Canada.
657 The George Institute for Global Health, Sydney, NSW, Australia.
658 Department of Psychology, University of Alabama at Birmingham, Birmingham, AL, USA.
659 Oral Diagnosis, Digital Health and Health Services Research, Charité University Medical Center Berlin, Berlin, Germany.
660 Emergency Department, Manian Medical Centre, Erode, India.
661 Center for Biomedical Information Technology, Shenzhen Institutes of Advanced Technology, Shenzhen, China.
662 Department of Radiology and Interventional Neuroradiology, Isfahan University of Medical Sciences, Isfahan, Iran.
663 Health Policy Research Center, Shiraz University of Medical Sciences, Shiraz, Iran.
664 Public Health Division, An-Najah National University, Nablus, Palestine.
665 Independent Consultant, Karachi, Pakistan.
666 National Centre for Disease Control (NCDC), Tbilisi, Georgia.
667 School of Medicine, Alborz University of Medical Sciences, Karaj, Iran.
668 Faculty of Caring Science, Work Life, and Social Welfare, University of Borås, Borås, Sweden.
669 Institute for Population Health, King's College London, London, UK.
670 National Institute of Infectious Diseases, Tokyo, Japan.
671 College of Medicine, Yonsei University, Seoul, South Korea.
672 Finnish Institute of Occupational Health, Helsinki, Finland.
673 Cancer Research Institute, Tehran University of Medical Sciences, Tehran, Iran.
674 Cancer Biology Research Center, Tehran University of Medical Sciences, Tehran, Iran.

- 675 Department of Psychology, Reykjavik University, Reykjavik, Iceland.
- 676 Department of Health and Behavior Studies, Columbia University, New York, NY, USA.
- 677 Department of Law, Economics, Management and Quantitative Methods, University of Sannio, Benevento, Italy.
- 678 WSB University in Gdańsk, Gdansk, Poland.
- 679 School of Medicine, University of Alabama at Birmingham, Birmingham, AL, USA.
- 680 Medicine Service, US Department of Veterans Affairs (VA), Birmingham, AL, USA.
- 681 Department of Humanities and Social Sciences, Indian Institute of Technology, Roorkee, Roorkee, India.
- 682 Department of Epidemiology, School of Preventive Oncology, Patna, India.
- 683 Department of Epidemiology, Healis Sekhsaria Institute for Public Health, Mumbai, India.
- 684 Department of Sports Science and Clinical Biomechanics, University of Southern Denmark, Odense, Denmark.
- 685 Department of Physiotherapy and Occupational Therapy, Næstved-Slagelse-Ringsted Hospitals, Slagelse, Denmark.
- 686 Department No.16, Moscow Research and Practical Centre on Addictions, Moscow, Russia.
- 687 Institute of Bone and Joint Research (IBJR), University of Sydney, St Leonards, NSW, Australia.
- 688 Australian New Zealand Clinical Trials Registry (ANZCTR), NHMRC Clinical Trials Centre, University of Sydney, Camperdown, NSW, Australia.
- 689 Department of Vascular and Endovascular Surgery, Kermanshah University of Medical Sciences, Kermanshah, Iran.
- 690 Nursing Care Research Center, Semnan University of Medical Sciences, Semnan, Iran.
- 691 Hospital Universitario de La Princesa (Princess University Hospital), Autonomous University of Madrid, Madrid, Spain.
- 692 Centro de Investigación Biomédica en Red Enfermedades Respiratorias (CIBERES-Center for Biomedical Research in Respiratory Diseases Network), Madrid, Spain.
- 693 Hull York Medical School, University of Hull, Hull City, UK.
- 694 Division of Community Medicine, International Medical University, Kuala Lumpur, Malaysia.
- 695 Risk and Resilience in Mental Disorders Unit, South African Medical Research Council, Cape Town, South Africa.
- 696 Occupational and Environmental Medicine Department, University of Gothenburg, Gothenburg, Sweden.
- 697 Department of Psychology, Deakin University, Burwood, VIC, Australia.
- 698 Department of Epidemiology & Biostatistics, The University of Western Ontario, London, ON, Canada.
- 699 Department of Population Health, Luxembourg Institute of Health, Strassen, Luxembourg.
- 700 Department of Psychiatry, University of British Columbia, Vancouver, BC, Canada.
- 701 Nursing Department, Muhammadiyah University of Surakarta, Surakarta, Indonesia.
- 702 Department of Community Medicine, Ahmadu Bello University, Zaria, Nigeria.
- 703 Department of Agriculture and Food Systems, University of Melbourne, Melbourne, VIC, Australia.
- 704 Department of Statistics, Manonmaniam Sundaranar University, Abishekapatti, Tirunelveli, India.
- 705 National Institute of Epidemiology, Indian Council of Medical Research, Chennai, India.

706 Norwegian Institute of Public Health, Bergen, Norway.
707 Department of Medicine, University of Valencia, Valencia, Spain.
708 Carlos III Health Institute, Biomedical Research Networking Center for Mental Health Network (CiberSAM), Madrid, Spain.
709 Cancer Control Center, Osaka International Cancer Institute, Osaka, Japan.
710 Department of Pharmacy, Arbaminch College of Health Sciences, Arbaminch, Ethiopia.
711 Research Center for Molecular Medicine, Hamadan University of Medical Sciences, Hamadan, Iran.
712 Department of Population Science and Human Resource Development, University of Rajshahi, Rajshahi, Bangladesh.
713 Department of Clinical Pharmacy, University of Gondar, Gondar, Ethiopia.
714 Pediatric Intensive Care Unit, King Saud University, Riyadh, Saudi Arabia.
715 Department of Epidemiology and Biostatistics, University of Gondar, Gondar, Ethiopia.
716 Department of Public Health and Community Medicine, Central University of Kerala, Kasaragod, India.
717 Department of Medicine, Monash University, Melbourne, VIC, Australia.
718 K.A. Timiryazev Institute of Plant Physiology, Russian Academy of Sciences, Moscow, Russia.
719 Laboratory of Public Health Indicators Analysis and Health Digitalization, Moscow Institute of Physics and Technology, Moscow, Russia.
720 HIV/STI Surveillance Research Center, and WHO Collaborating Center for HIV Surveillance, Kerman University of Medical Sciences, Kerman, Iran.
721 Department of Medicine, University of Calgary, Calgary, AB, Canada.
722 Nutritional Epidemiology Research Team (EREN), National Institute for Health and Medical Research (INSERM), Paris, France.
723 Health, Medicine and Human Biology, Sorbonne Paris Nord University, Bobigny, France.
724 Department of Pathology and Legal Medicine, University of São Paulo, Ribeirão Preto, Brazil.
725 Modestum LTD, London, UK.
726 Department of Health Economics, Hanoi Medical University, Hanoi, Vietnam.
727 Department of Psychiatry, Massachusetts General Hospital, Boston, MA, USA.
728 Mbarara University of Science and Technology, Mbarara, Uganda.
729 Department of Medicine, University of Crete, Heraklion, Greece.
730 Institute for Physical Activity and Nutrition, Deakin University, Melbourne, QLD, Australia.
731 School of Health and Rehabilitation Sciences, The University of Queensland, Brisbane, Australia.
732 Department of Community Medicine, Alex Ekwueme Federal University Teaching Hospital Abakaliki, Abakaliki, Nigeria.
733 Kasturba Medical College, Manipal Academy of Higher Education, Mangalore, India.
734 Argentine Society of Medicine, Buenos Aires, Argentina.
735 Velez Sarsfield Hospital, Buenos Aires, Argentina.
736 Department of Physics and Atmospheric Science, Dalhousie University, Halifax, NS, Canada.
737 Department of Energy, Environmental and Chemical Engineering, Washington University in St. Louis, St. Louis, MO, USA.
738 Department of Nephrology, Christian Medical College and Hospital (CMC), Vellore, India.
739 UKK Institute, Tampere, Finland.

- 740 Psychosocial Injuries Research Center, Ilam University of Medical Sciences, Ilam, Iran.
- 741 Raffles Neuroscience Centre, Raffles Hospital, Singapore, Singapore.
- 742 Yong Loo Lin School of Medicine, National University of Singapore, Singapore, Singapore.
- 743 Department of Medical and Surgical Sciences, University of Bologna, Bologna, Italy.
- 744 Occupational Health Unit, Sant'Orsola Malpighi Hospital, Bologna, Italy.
- 745 Department of Health Care Administration and Economics, National Research University Higher School of Economics, Moscow, Russia.
- 746 Foundation University Medical College, Foundation University Islamabad, Islamabad, Pakistan.
- 747 School of Population Health and Environmental Sciences, King's College London, London, UK.
- 748 School of Health Sciences, Wuhan University, Wuhan, China.
- 749 Department of Epidemiology and Biostatistics, George Washington University, Washington, DC, USA.
- 750 Cardiology Department, Royal Children's Hospital, Melbourne, VIC, Australia.
- 751 Critical Care and Neurosciences, Murdoch Childrens Research Institute, Melbourne, VIC, Australia.
- 752 Department of Demography, University of California Berkeley, Berkley, CA, USA.
- 753 Competence Center of Mortality-Follow-Up of the German National Cohort, Federal Institute for Population Research, Wiesbaden, Germany.
- 754 Department of Physical Therapy, Naresuan University, Phitsanulok, Thailand.
- 755 National Institute for Health Research (NIHR) Biomedical Research Centre, Guy's and St.Thomas' Hospital and Kings College London, London, UK.
- 756 Department of Orthopaedics, Wenzhou Medical University, Wenzhou, China.
- 757 Clinical Cancer Research Center, Milad General Hospital, Tehran, Iran.
- 758 Research and Development Center for Health Services, University of Tsukuba, Tsukuba, Japan.
- 759 Graduate School of Medicine, Osaka University, Suita, Japan.
- 760 Department of Family Medicine and Community Health, Duke University, Durham, NC, USA.
- 761 School of International Development and Global Studies, University of Ottawa, Ottawa, ON, Canada.
- 762 The George Institute for Global Health, University of Oxford, Oxford, UK.
- 763 Health Services Management Research Center, Kerman University of Medical Sciences, Kerman, Iran.
- 764 Department of Health Management, Policy, and Economics, Kerman University of Medical Sciences, Kerman, Iran.
- 765 Department of Nursing, Arba Minch University, Arba Minch, Ethiopia.
- 766 Department of Anatomy, Mekelle University, Mekelle, Ethiopia.
- 767 Centre for Suicide Research and Prevention, University of Hong Kong, Hong Kong, China.
- 768 Department of Social Work and Social Administration, University of Hong Kong, Hong Kong, China.
- 769 Department of Neuropsychopharmacology, National Center of Neurology and Psychiatry, Kodaira, Japan.
- 770 Department of Public Health, Juntendo University, Tokyo, Japan.
- 771 Department of Health Policy and Management, Jackson State University, Jackson, MS, USA.
- 772 School of Medicine, Tsinghua University, Beijing, China.

- 773 Department of Environmental Health, Mazandaran University of Medical Sciences, Sari, Iran.
- 774 Injury Prevention and Safety Promotion Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
- 775 Department of Epidemiology and Biostatistics, Wuhan University, Wuhan, China.
- 776 Global Health Institute, Wuhan University, Wuhan, China.
- 777 School of Public Health and Management, Hubei University of Medicine, Shiyan, China.
- 778 Department of Healthcare Management and Economics, Urmia University of Medical Science, Urmia, Iran.
- 779 Department of Pharmaceutics, Dow University of Health Sciences, Karachi, Pakistan.
- 780 The School of Clinical Sciences at Monash Health, Monash University, Melbourne, VIC, Australia.
- 781 Psychiatry and Psychology Research Center, Tehran University of Medical Sciences, Tehran, Iran.
- 782 Laboratory of Genetics and Genomics, Moscow Research and Practical Centre on Addictions, Moscow, Russia.
- 783 Addictology Department, Russian Medical Academy of Continuous Professional Education, Moscow, Russia.
- 784 School of Medicine, Wuhan University, Wuhan, China.
- 785 Department of General Practice, University of Melbourne, Melbourne, Australia.
- 786 Victorian Comprehensive Cancer Centre, Melbourne, Australia.
- 787 School of Public Health, Wuhan University of Science and Technology, Wuhan, China.
- 788 Hubei Province Key Laboratory of Occupational Hazard Identification and Control, Wuhan University of Science and Technology, Wuhan, China.
- 789 School of Biology and Pharmaceutical Engineering, Wuhan Polytechnic University, Wuhan, China.
- 790 Department of Epidemiology, Human Genetics, and Environmental Sciences, University of Texas Health Science Center at Houston, Houston, TX, USA.
- 791 Department of Anesthesiology & Pain Medicine, University of Washington, Seattle, WA, USA.

Global Burden of Disease overview

GATHER statement

This study is in compliance with the Guidelines for Accurate and Transparent Health Estimates Reporting (GATHER) statement. The GBD 2019 capstone papers¹⁻³ and their respective supplementary documents contain the general methods, data sources, model selection information, performance and limitation information for the GBD 2019 analyses including detailed GATHER documentation. Supplementary table 1 contains GATHER compliance information for this publication.

GBD cause list and location hierarchy

The GBD cause list can be found in the supplementary table 2, consisting of a hierarchy that is mutually exclusive and collectively exhaustive. The GBD location hierarchy, including levels, for GBD superregions, regions, countries and sub-country analysis is presented in supplementary table 3. Details on the overall GBD 1990–2019 cause list have been documented and can be found elsewhere^{1,3}. This paper uses the same cause list in the population aged 70 years and older.

Socio-demographic Index (SDI)

The Socio-demographic Index (SDI) is a composite indicator of development status initially constructed for

GBD 2015 whose components are strongly correlated with health outcomes. SDI in GBD 2019 incorporated changes that replaced the total fertility rate (TRF) component with the total fertility rate (TFU25) in females under the age of 25 years from previous GBD cycles. Specific SDI methodology information is described elsewhere.⁴

Data sources

A complete list of sources used in the GBD 2019 analyses is available from the GBD 2019 DataInput Sources Tool (<http://ghdx.healthdata.org/gbd-2019/data-input-sources>).

Mortality and death cause-specific estimation process for those over 70 years old

Mortality and death cause estimates for the population aged 70 years and older had followed the standard procedure methodology of GBD 2019 and were generated using Cause of Death Ensemble modelling (CODEm). The CODEm approach has been described elsewhere^{1,3}.

The cause of death (CoD) database contains seven types of data sources: vital registration (VR), verbal autopsy (VA), cancer registry (CR), police records, sibling history, surveillance, and survey/census. When all the types of data are collected in various formats, then the input data are standardised to run through central CoD machinery to then to be uploaded to the database. A specific tool has been developed through GBD called age-sex splitting, that takes aggregated age groups, and likewise the “both sexes combined” grouping, and divides them into what their constituent age groups would likely have been using respective cause-specific and country-specific age distributions. This allows the GBD study to include age categories from early neonatal (0-6 days) to the age group of 95 years and older. This calculation formula is described in detailed elsewhere.^{1,3}

For certain causes of death, mortality rates reported in vital registration systems are impossible to reconcile with observed trends in disease prevalence and excess mortality. These include dementia, Parkinson’s disease, and atrial fibrillation and flutter. It is well known that dementias and Parkinson’s disease are highly prevalent in the older population, starting mildly even from the age of 70.^{5,1} GBD 2017 as well as 2019 made an effort to calculate the known bias regarding these causes of death data by detecting the proportion of deaths that had to be assigned to these causes, and after that, to assess the GBD causes and garbage codes to which these kind of deaths were inaccurately assigned. As described in the past GBD methodologies (GBD 2017 and 2015),^{1,6} the aforementioned causes of death were processed in CODCorrect in a manner that inappropriately led to changes in mortality estimates for causes that were not related to dementia, Parkinson’s, and atrial fibrillation and flutter. In GBD 2016, a huge literature review⁷ was applied to assess the causes of death mostly related to Parkinson’s and Alzheimer’s diseases, helping in further CodCorrect adjustments, while in GBD 2017 and 2019 a more refined process, even further limiting bias, was used.^{1,5} The current study, by applying this miscoding correction for the aforementioned diseases, is calibrating the mortality rates for those 70 years and older with the minimum possible bias.

Non-fatal modelling methods for those 70 years and older

Non-fatal estimates for the population aged 70 years and older were modelled using the DisMod-MR 2.1 tool. Morbidity modelling methods used in the same manner as described in detail in the GBD 2019 methodology have been documented elsewhere.^{2,8}

A group of behavioural, environmental and occupational, and metabolic risks that contribute to disease burden were evaluated in GBD 2019. The same group of risk factors was used in the current analysis to identify those that are closely related to the ageing population. The methodology regarding risk factor estimation and evaluation is described in detail elsewhere.^{2,4}

Healthcare Access and Quality (HAQ) Index

The HAQ Index in GBD 2016 used 32 causes for which death should not occur in the presence of effective care to approximate personal health-care access and quality by location and over time. A risk-standardised cause-specific death methodology due to non-cancers by location-year, replaced the local combined exposure of environmental and behavioural risks with the global level of exposure applied, to isolate potential effects of personal health-care access and quality from underlying risk factor patterns. Each cause transformed to a scale of 0–100, with 0 as the first percentile (worst) observed between 1990 and 2016, and 100 as the 99th percentile (best); these thresholds were set at the country level, and then applied to subnational locations. The rest of the HAQ Index methodology is described in detail elsewhere.⁹

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Figure S1. Global population change by age group for both sexes combined (top panel), population percentage change during the same period (upper middle panel), rate of change in years lived with disability (YLDs; lower middle panel), and rate of change in All-cause mortality (bottom panel) between 1990 and 2019 in Low Socio-demographic Index (SDI) regions.

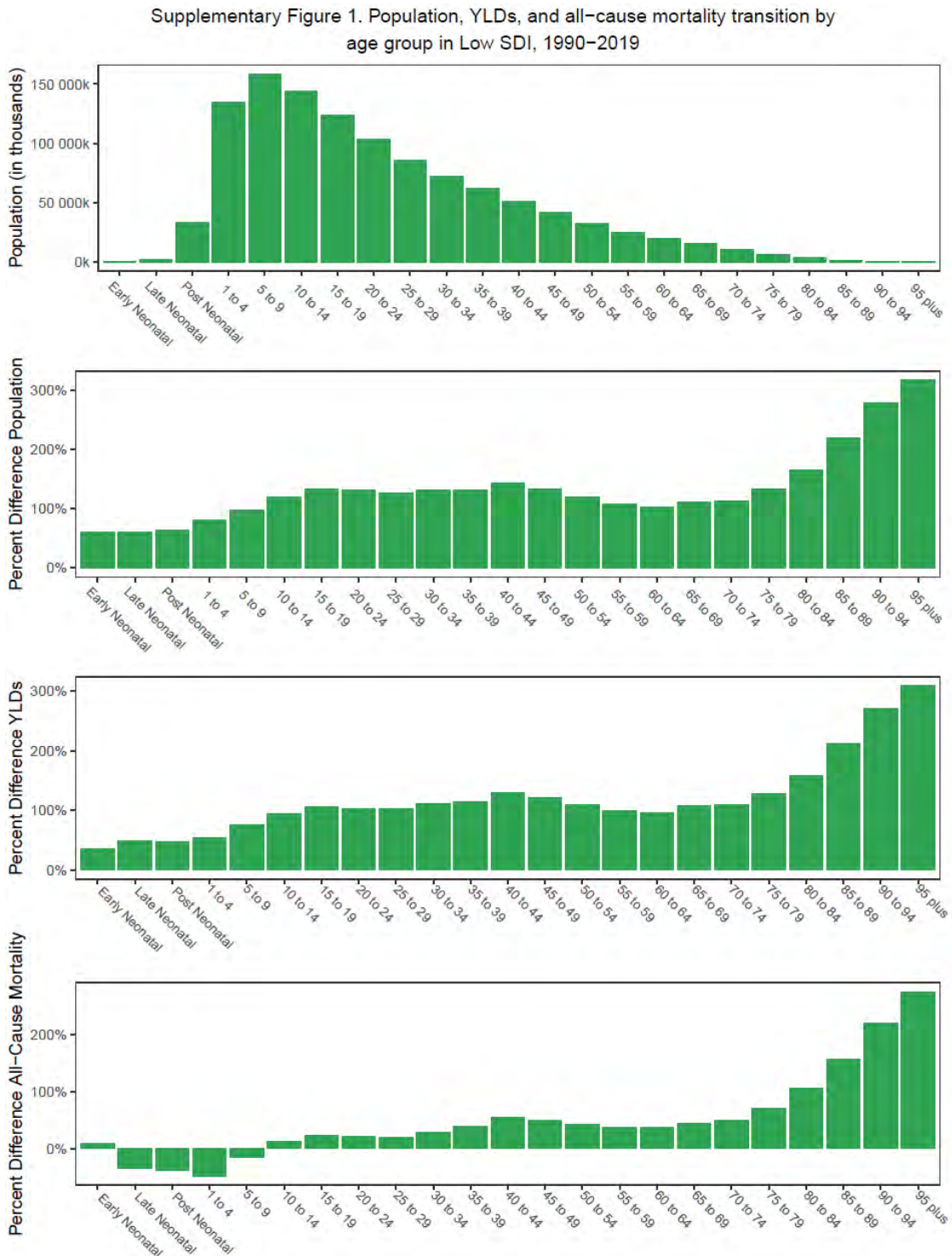


Figure S2. Global population change by age group for both sexes combined (top panel), population percentage change during the same period (upper middle panel), rate of change in years lived with disability (YLDs; lower middle panel), and rate of change in All-cause mortality (bottom panel) between 1990 and 2019 in Low-middle Socio-demographic Index (SDI) regions.

Supplementary Figure 2. Population, YLDs, and all-cause mortality transition by age group in Low-middle SDI, 1990–2019

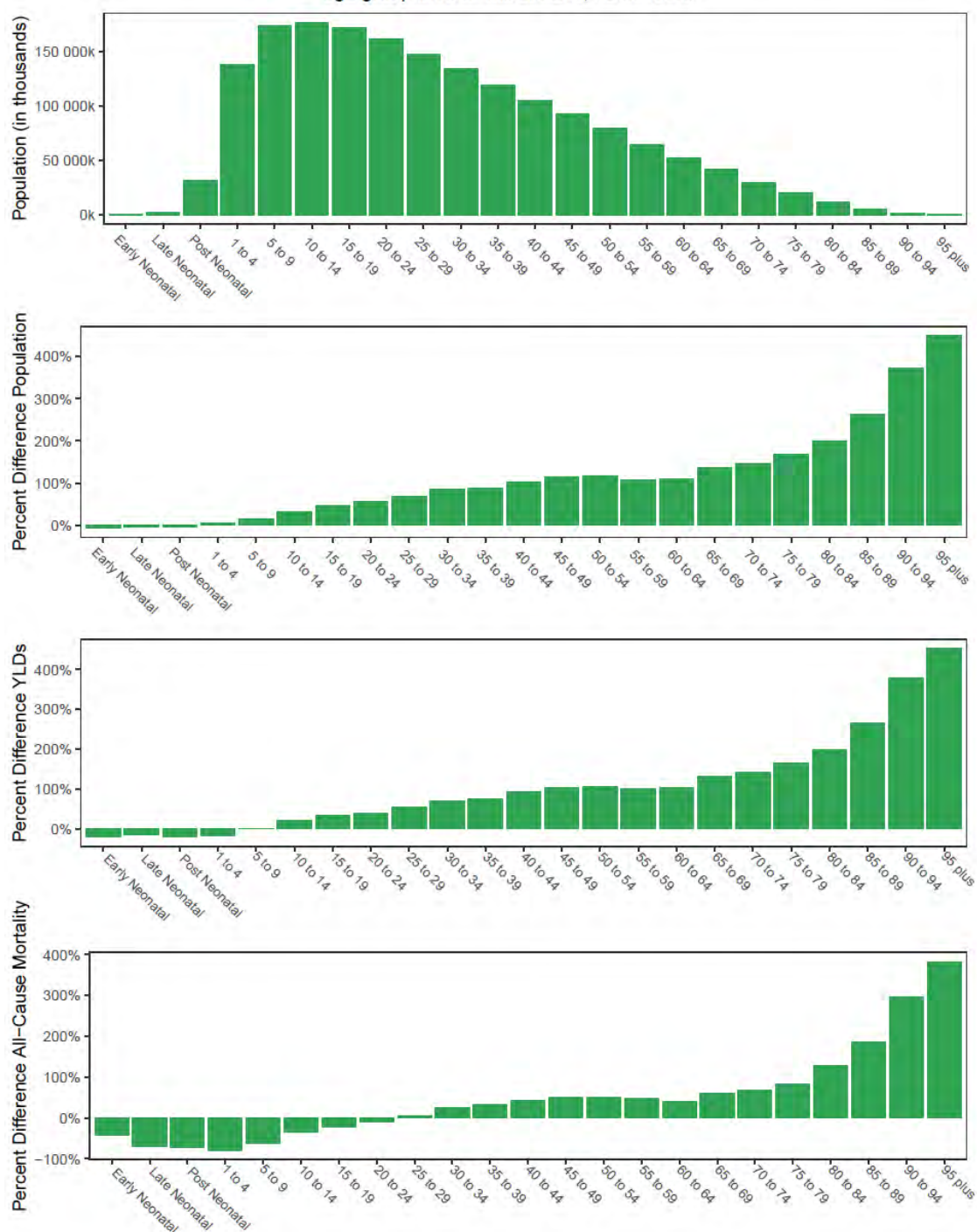


Figure S3. Global population change by age group for both sexes combined (top panel), population percentage change during the same period (upper middle panel), rate of change in years lived with disability (YLDs; lower middle panel), and rate of change in All-cause mortality (bottom panel) between 1990 and 2019 in Middle Socio-demographic Index (SDI) regions.

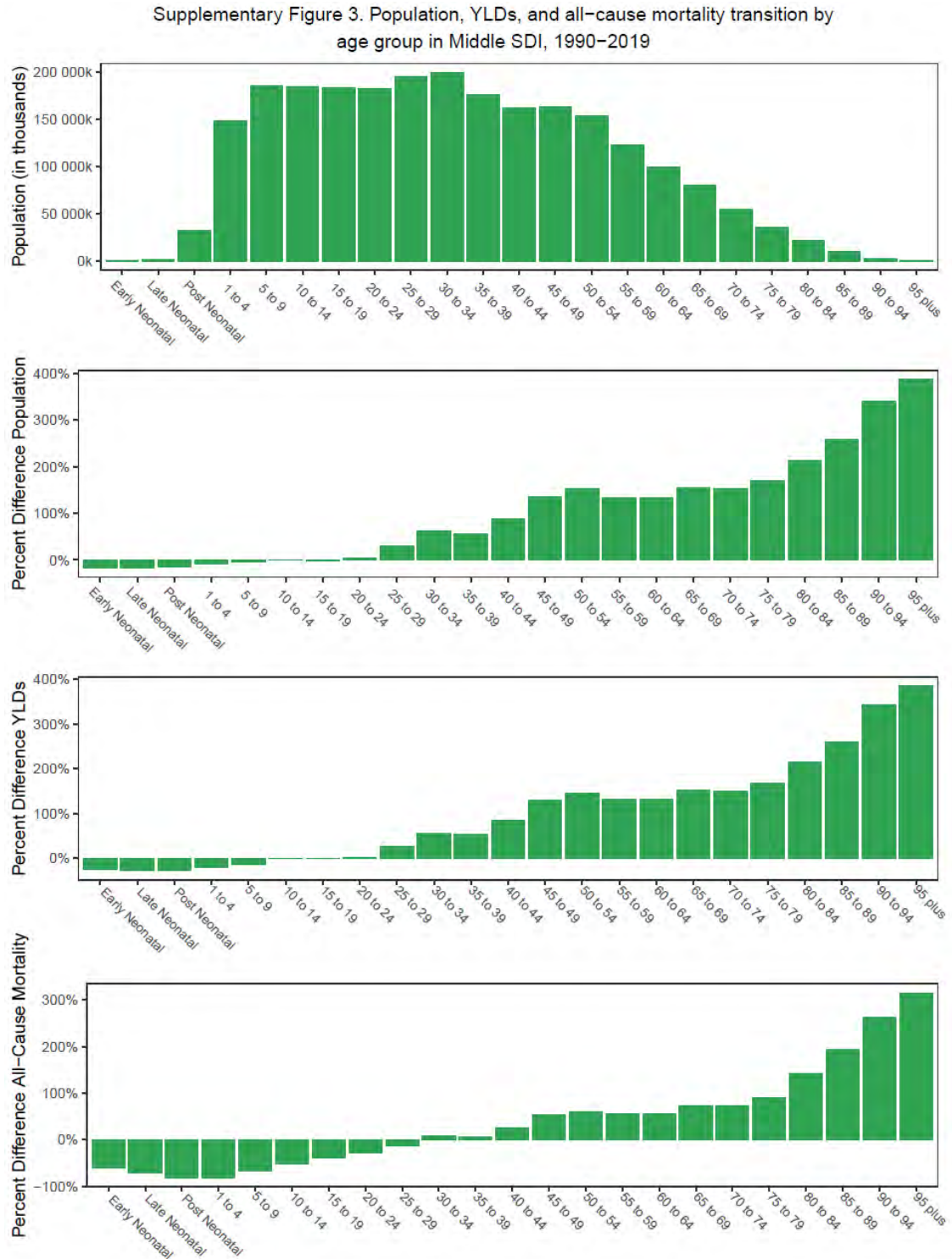


Figure S4. Global population change by age group for both sexes combined (top panel), population percentage change during the same period (upper middle panel), rate of change in years lived with disability (YLDs; lower middle panel), and rate of change in All-cause mortality (bottom panel) between 1990 and 2019 in High-middle Socio-demographic Index (SDI) regions.

Supplementary Figure 4. Population, YLDs, and all-cause mortality transition by age group in High-middle SDI, 1990–2019

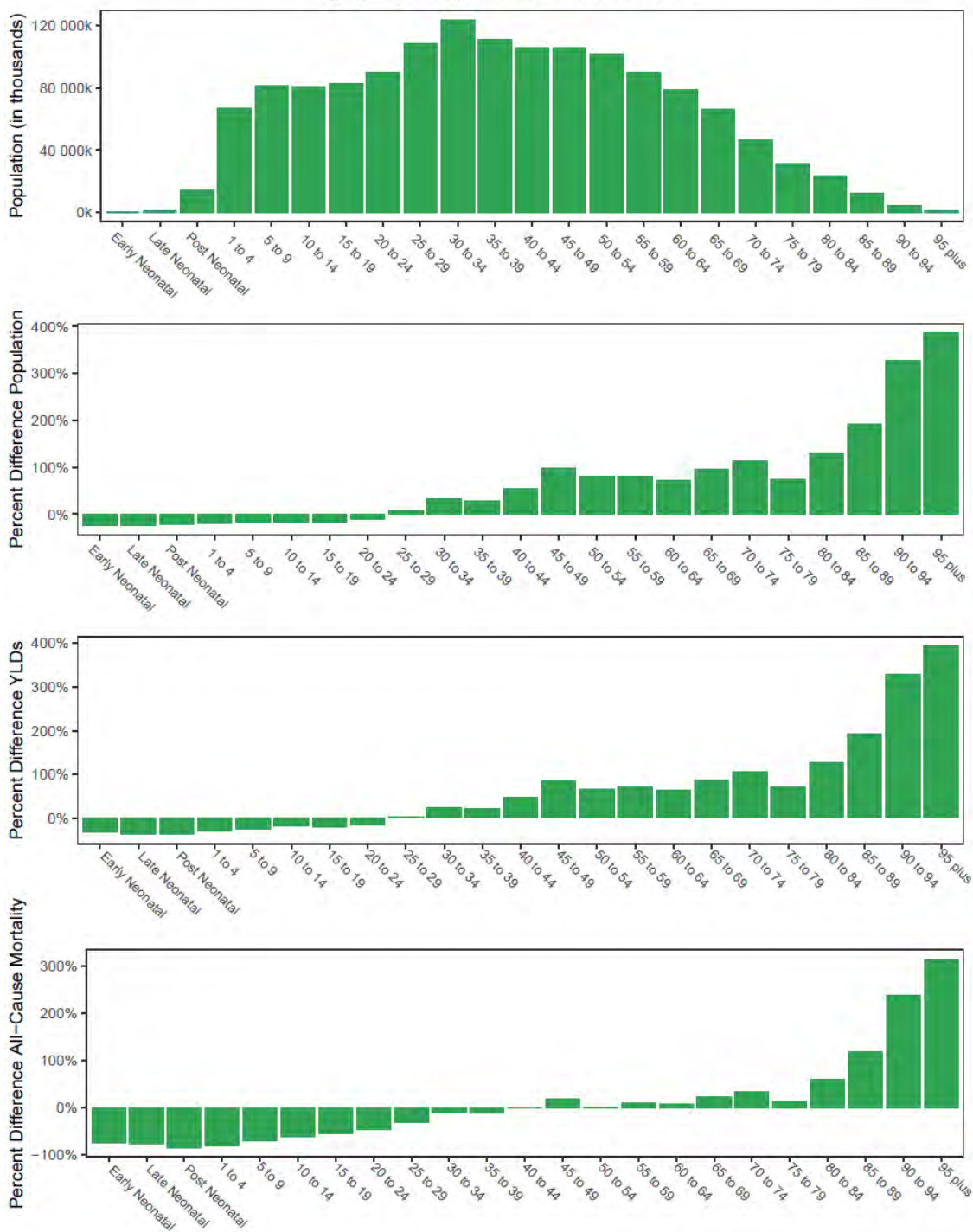


Figure S5. Global population change by age group for both sexes combined (top panel), population percentage change during the same period (upper middle panel), rate of change in years lived with disability (YLDs; lower middle panel), and rate of change in All-cause mortality (bottom panel) between 1990 and 2019 in High Socio-demographic Index (SDI) regions.

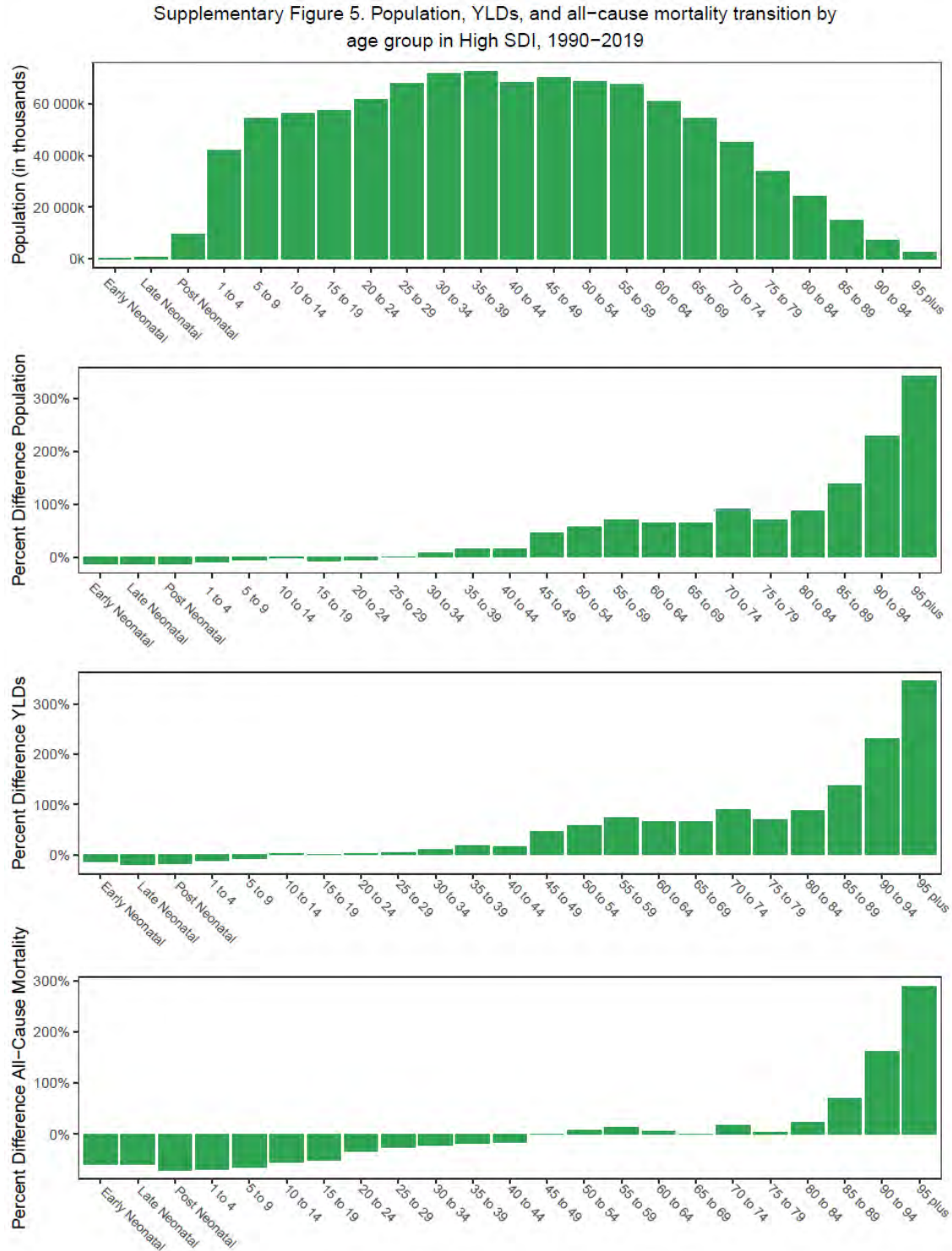


Figure S6. Global population change by age group for both sexes combined (top panel), population percentage change during the same period (upper middle panel), rate of change in years lived with disability (YLDs; lower middle panel), and rate of change in All-cause mortality (bottom panel) between 1990 and 2019 in the Central Europe, Eastern Europe and Central Asia GBD super-region.

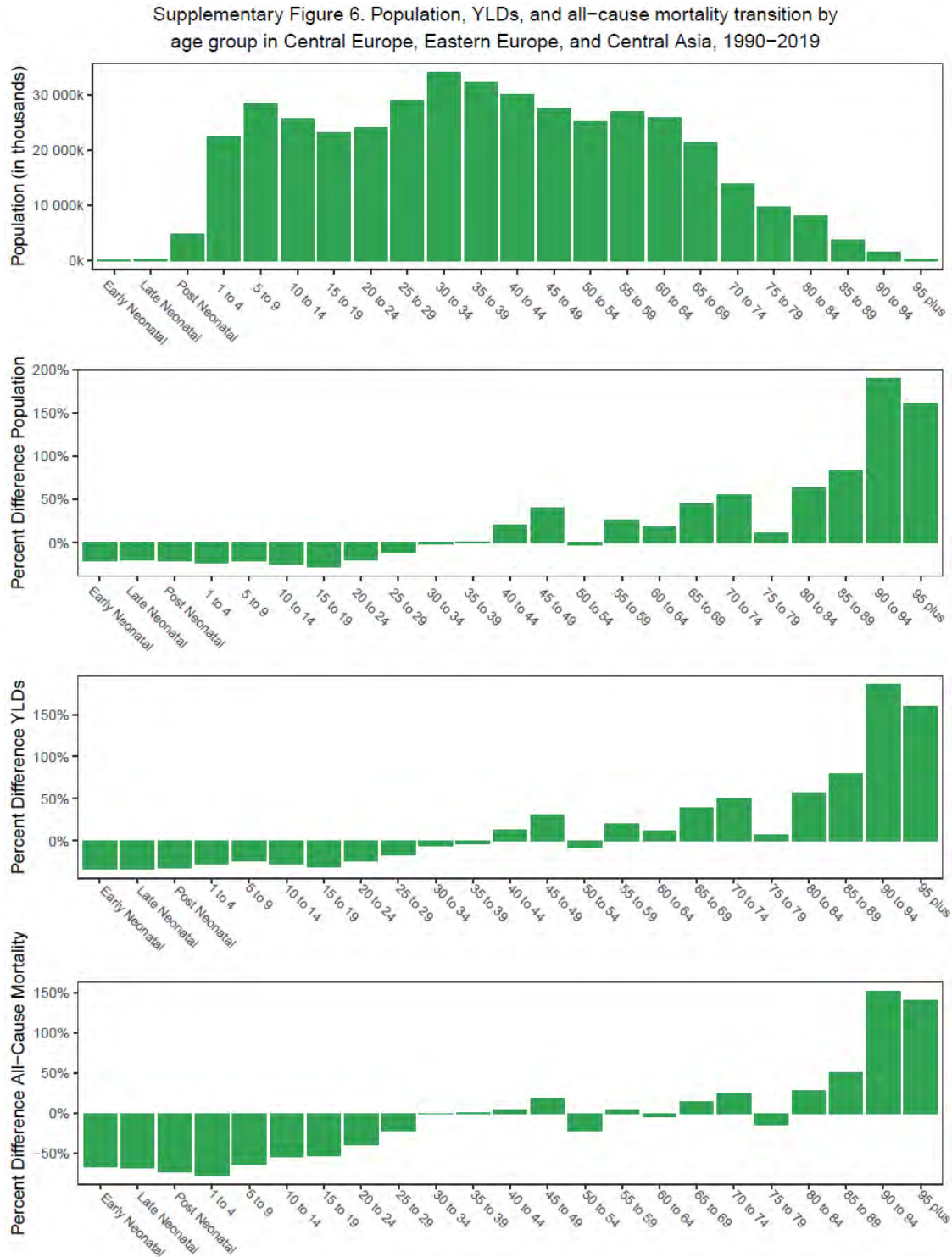


Figure S7. Global population change by age group for both sexes combined (top panel), population percentage change during the same period (upper middle panel), rate of change in years lived with disability (YLDs; lower middle panel), and rate of change in All-cause mortality (bottom panel) between 1990 and 2019 in the High-income GBD super-region.

Supplementary Figure 7. Population, YLDs, and all-cause mortality transition by age group in High-income, 1990-2019

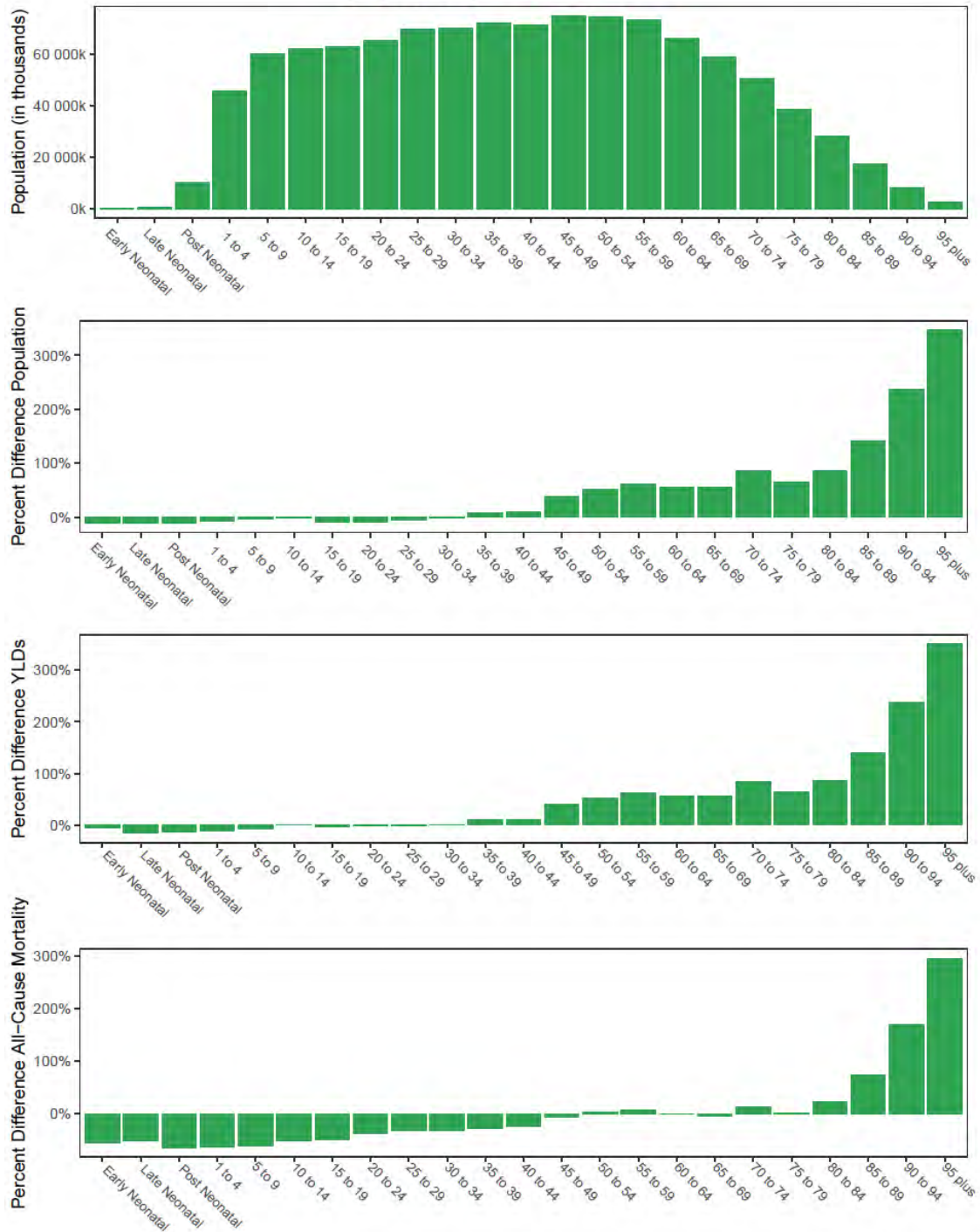


Figure S8. Global population change by age group for both sexes combined (top panel), population percentage change during the same period (upper middle panel), rate of change in years lived with disability (YLDs; lower middle panel), and rate of change in All-cause mortality (bottom panel) between 1990 and 2019 in the Latin America and Caribbean GBD super-region.

Supplementary Figure 8. Population, YLDs, and all-cause mortality transition by age group in Latin America and Caribbean, 1990–2019

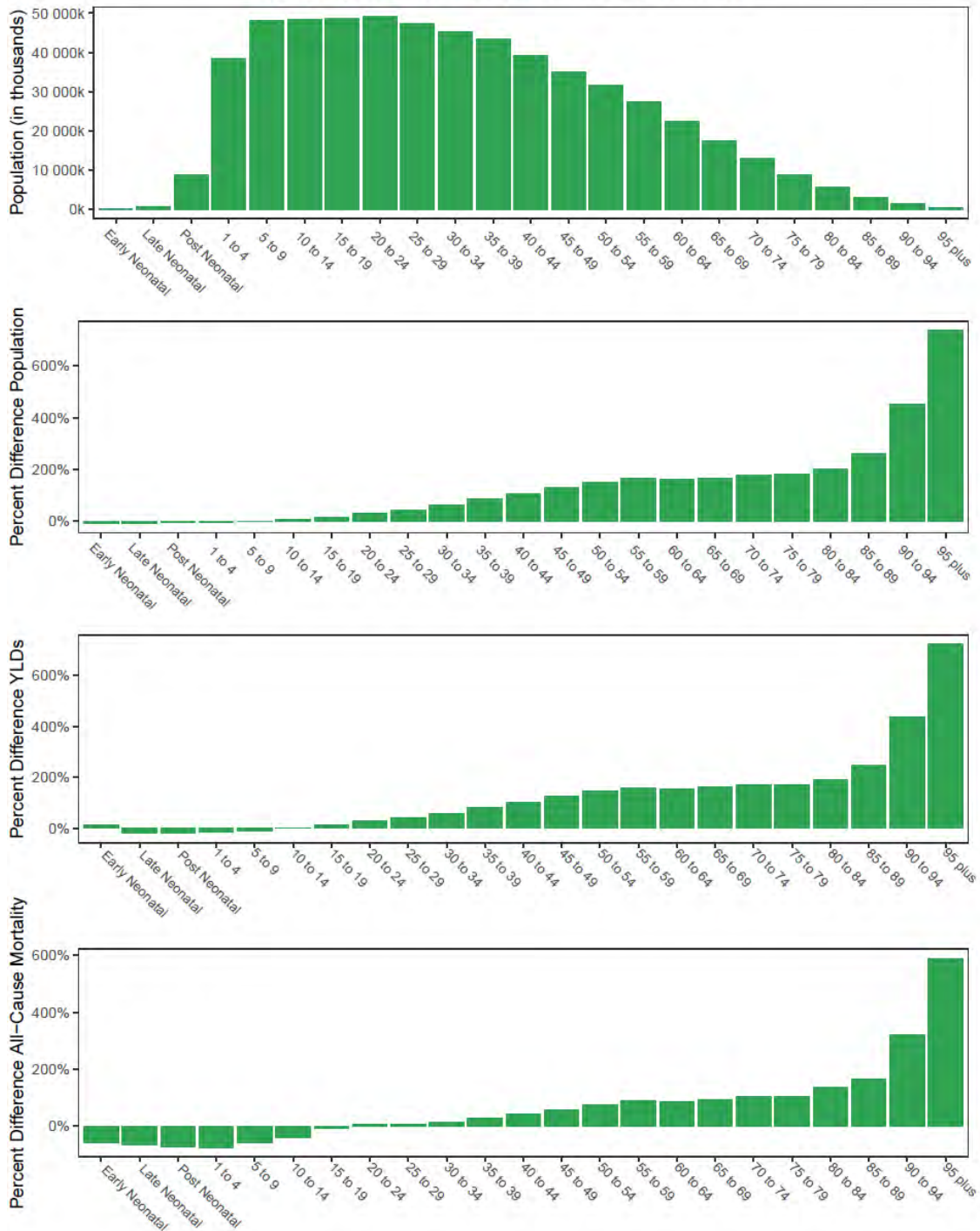


Figure S9. Global population change by age group for both sexes combined (top panel), population percentage change during the same period (upper middle panel), rate of change in years lived with disability (YLDs; lower middle panel), and rate of change in All-cause mortality (bottom panel) between 1990 and 2019 in the North Africa and Middle East super-region.

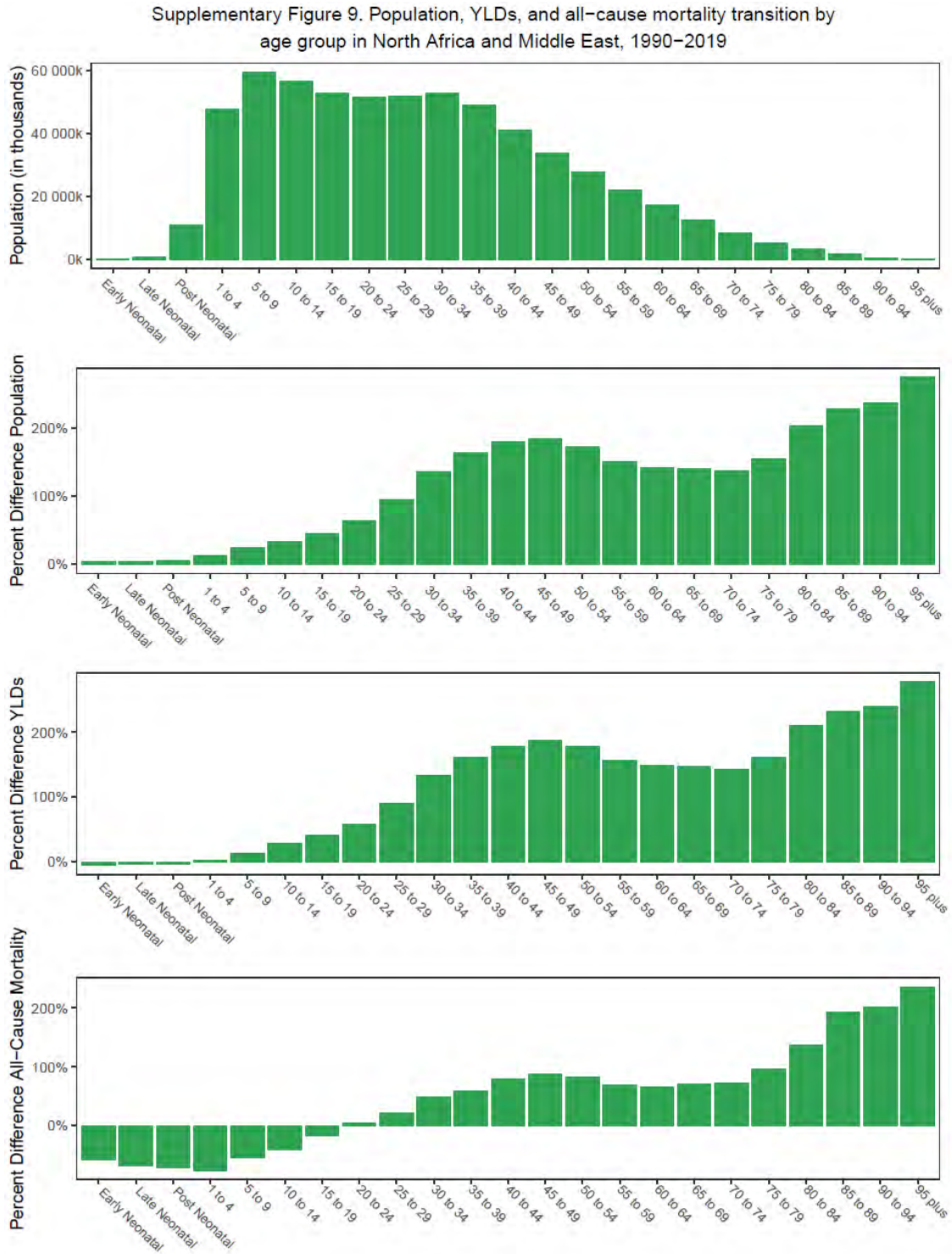


Figure S10. Global population change by age group for both sexes combined (top panel), population percentage change during the same period (upper middle panel), rate of change in years lived with disability (YLDs; lower middle panel), and rate of change in All-cause mortality (bottom panel) between 1990 and 2019 in the South Asia GBD super-region.

Supplementary Figure 10. Population, YLDs, and all-cause mortality transition by age group in South Asia, 1990–2019

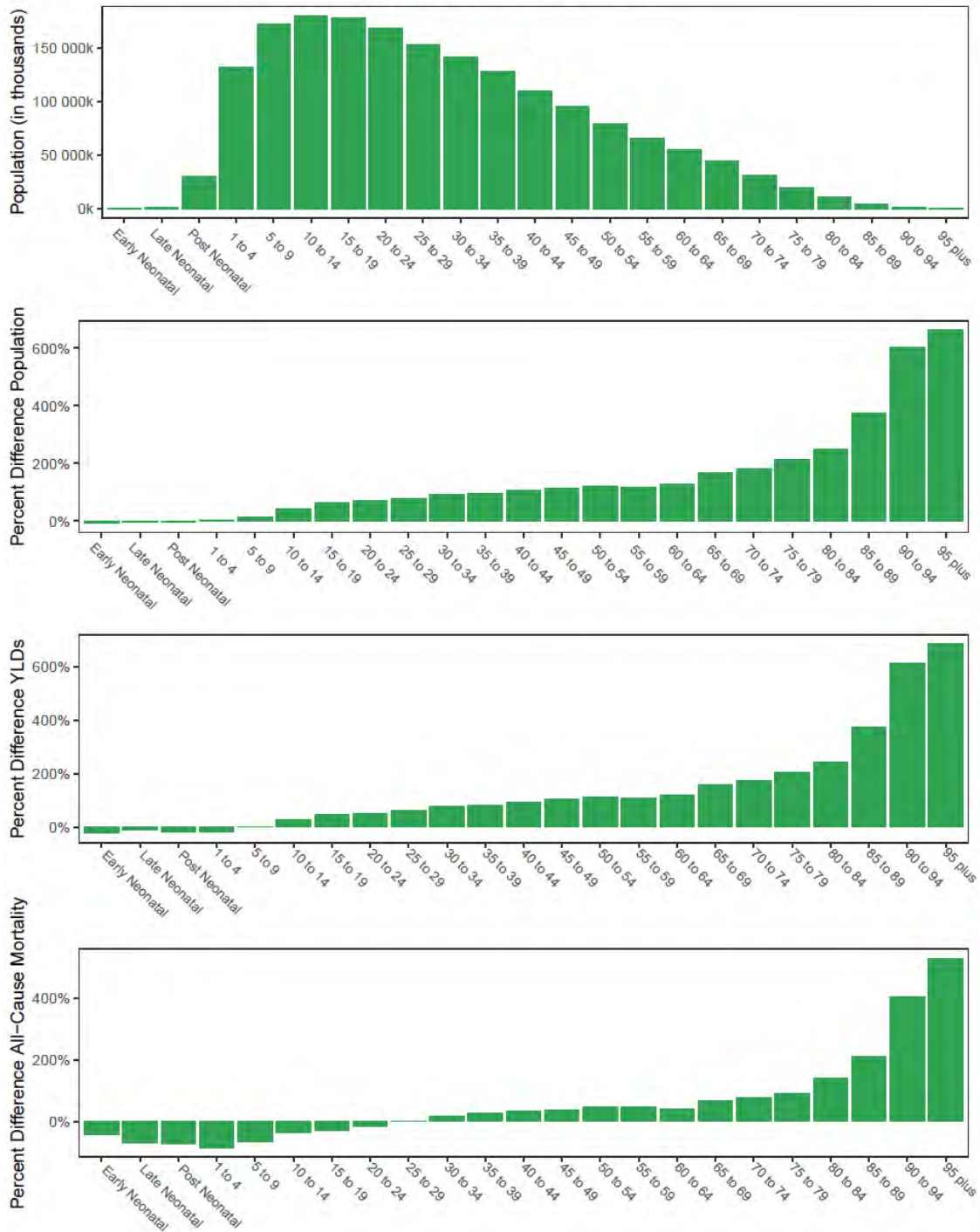


Figure S11. Global population change by age group for both sexes combined (top panel), population percentage change during the same period (upper middle panel), rate of change in years lived with disability (YLDs; lower middle panel), and rate of change in All-cause mortality (bottom panel) between 1990 and 2019 in the Southeast Asia, East Asia and Oceania GBD super-region.

Supplementary Figure 11. Population, YLDs, and all-cause mortality transition by age group in Southeast Asia, East Asia, and Oceania, 1990–2019

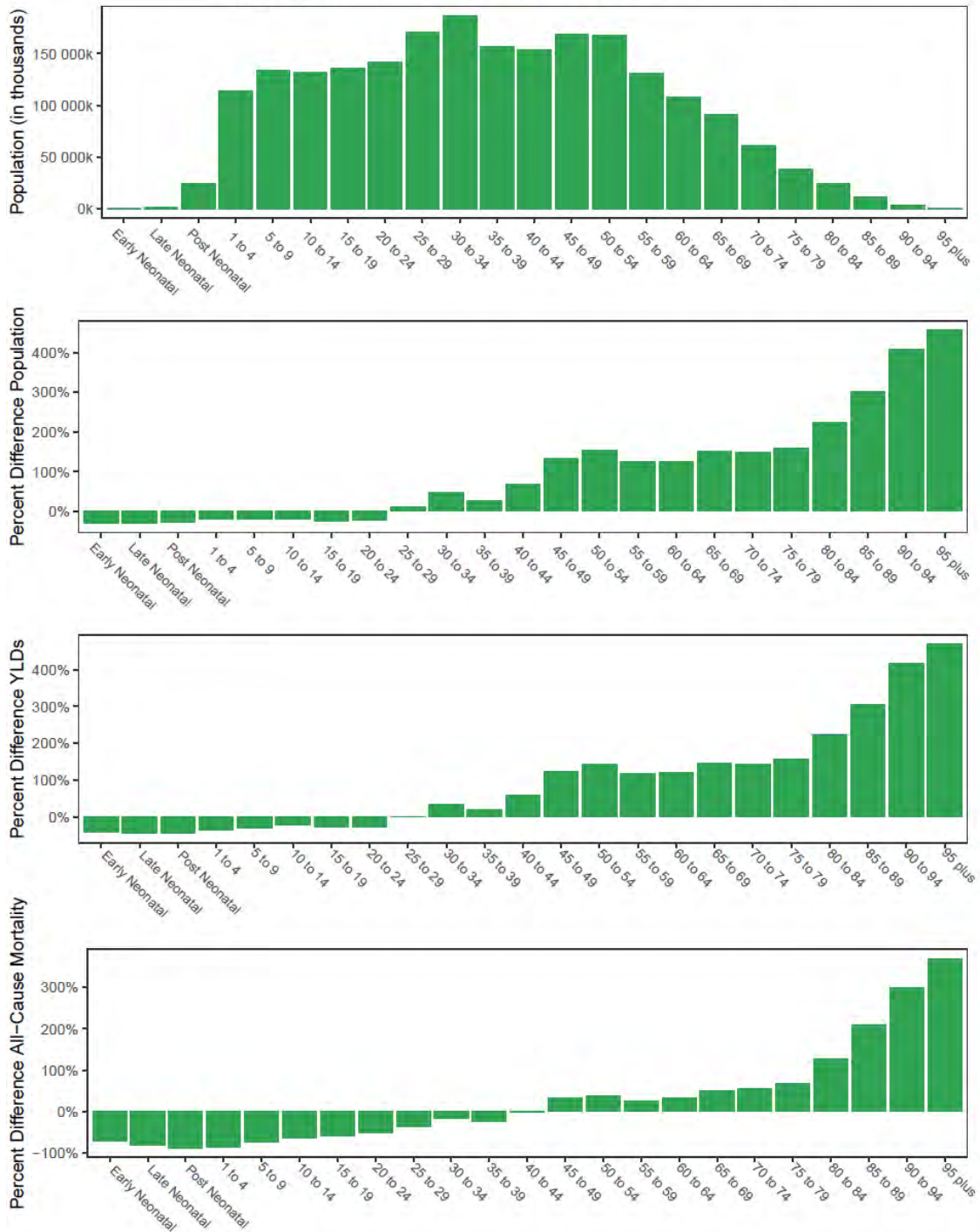


Figure S12. Global population change by age group for both sexes combined (top panel), population percentage change during the same period (upper middle panel), rate of change in years lived with disability (YLDs; lower middle panel), and rate of change in All-cause mortality (bottom panel) between 1990 and 2019 in the Sub-Saharan Africa GBD super-region

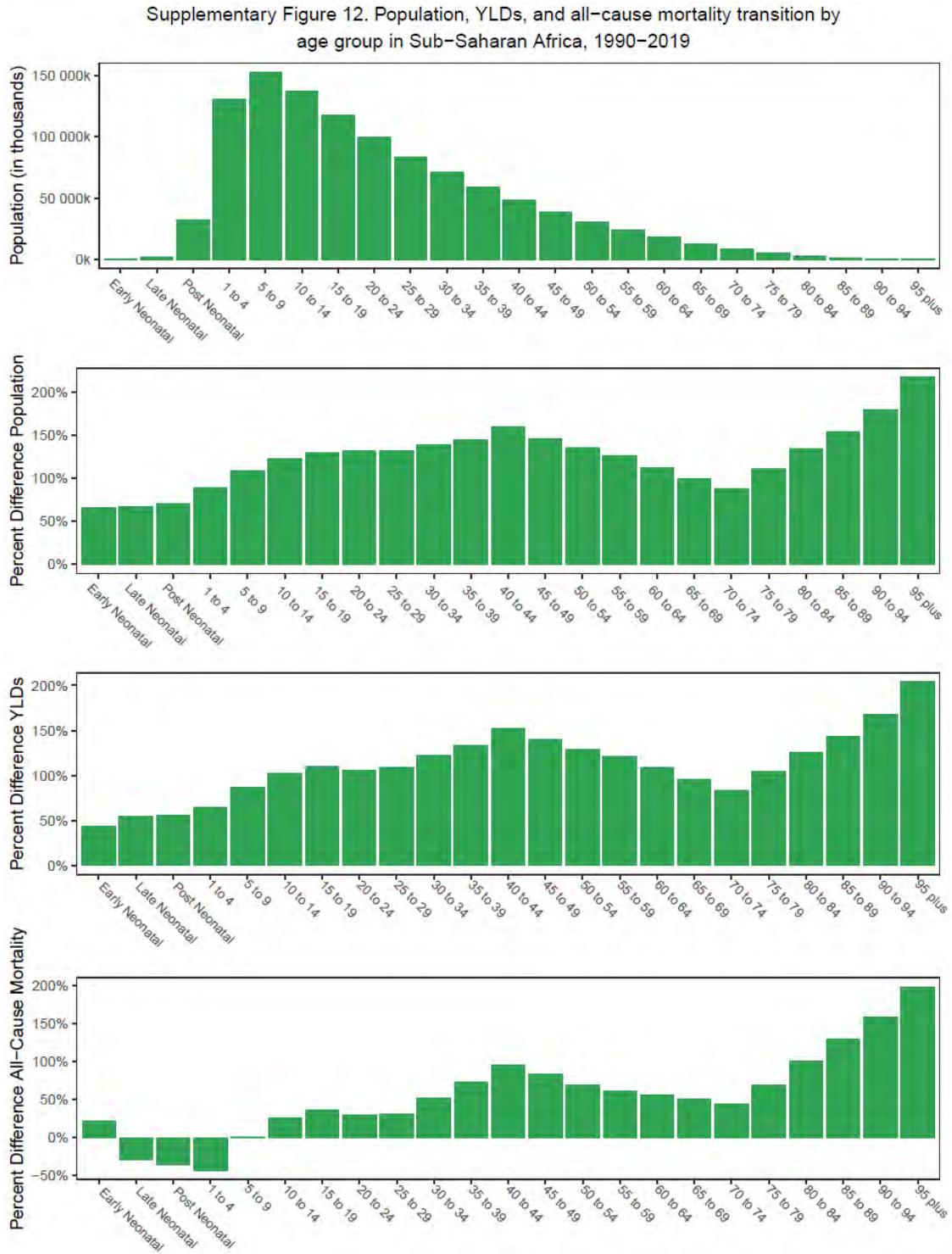


Figure S13. Life expectancy at 70+ (LE-70), healthy life expectancy at 70+ (HALE-70), and proportion of life- years spent in ill health (PYIH-70) at age 70+ GBD by super-region between 1990 and 2019, in males.

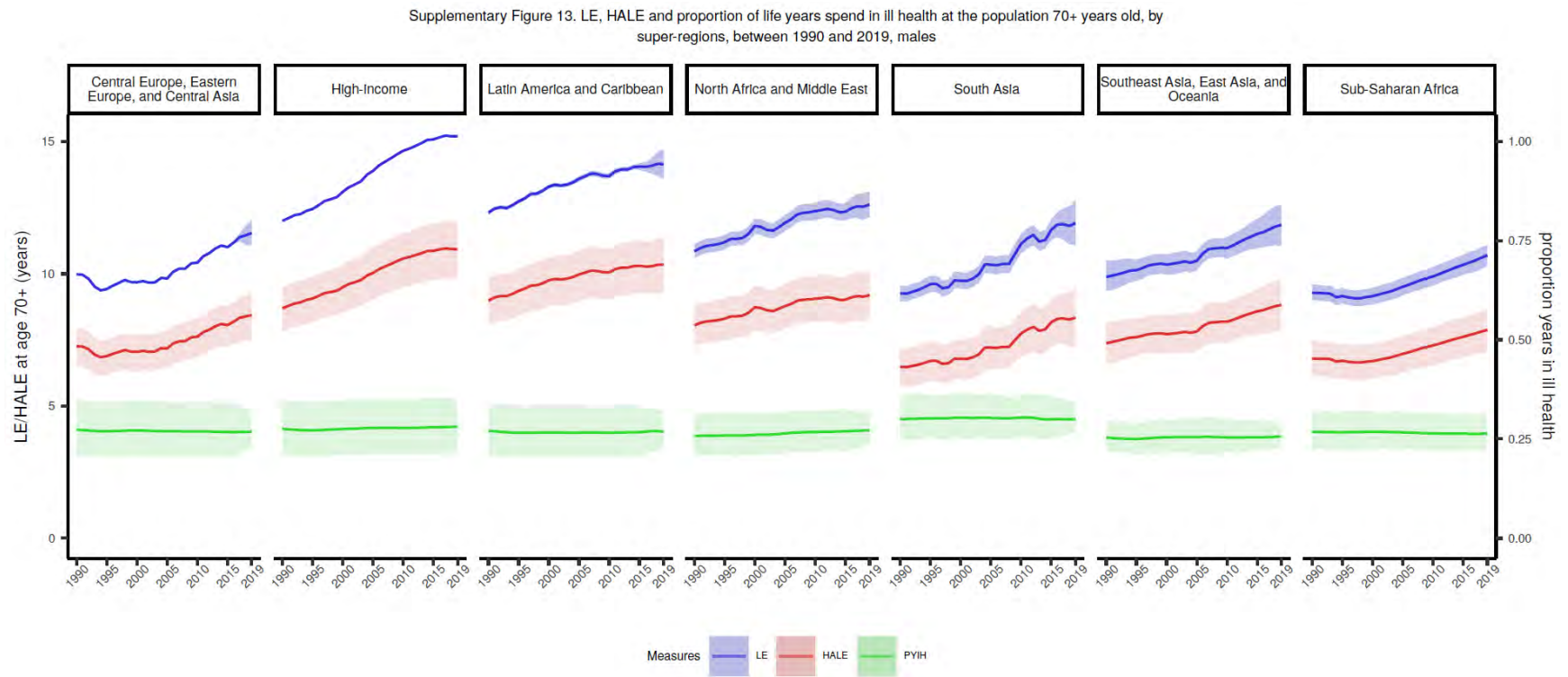


Figure S14. Life expectancy at 70+ (LE-70), healthy life expectancy at 70+ (HALE-70), and proportion of life- years spent in ill health (PYIH-70) at age 70+ GBD by super-region between 1990 and 2019, in females.

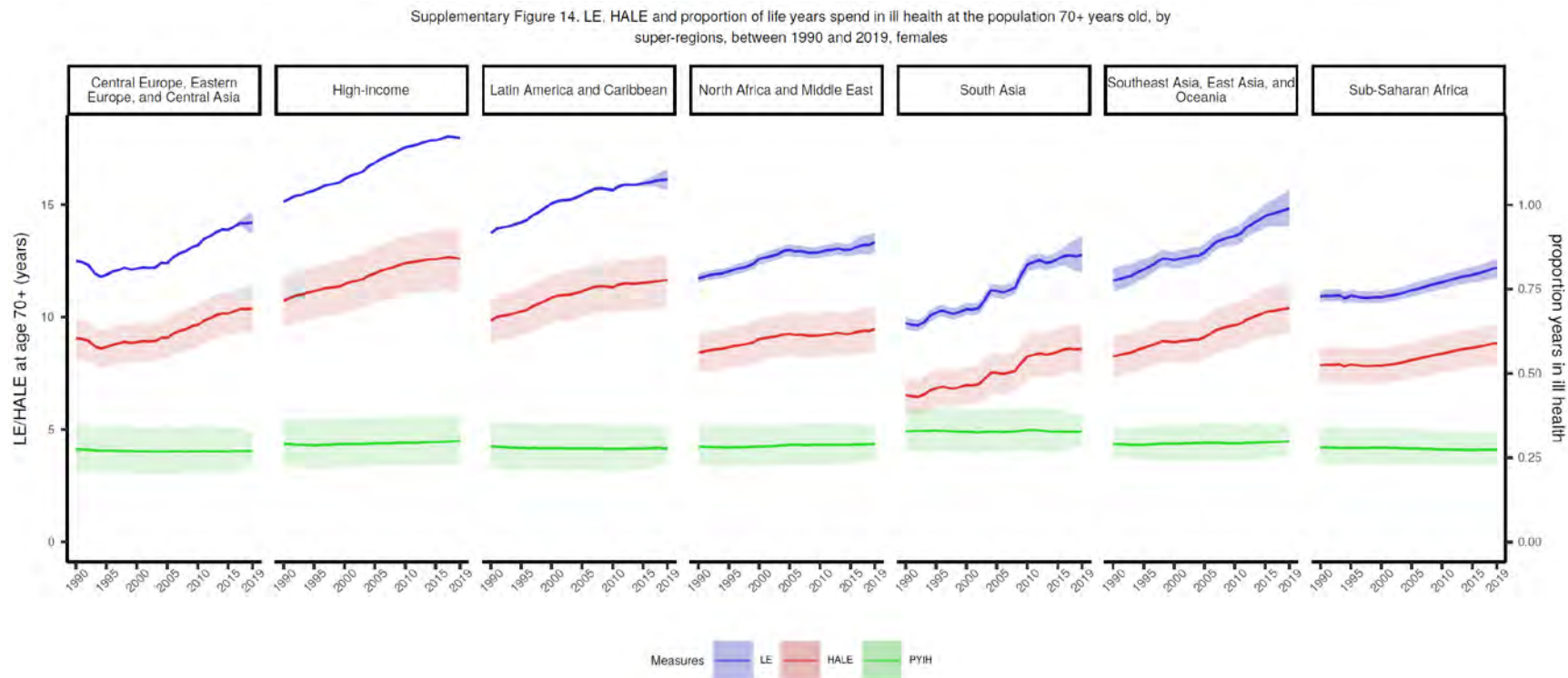


Figure S15. Life expectancy (LE-70), healthy life expectancy (HALE-70) and proportion of life-years spent in ill health at age 70+ (PYIH-70) versus Socio-demographic Index (SDI) and Healthcare Access and Quality (HAQ) Index in 2019, in males.

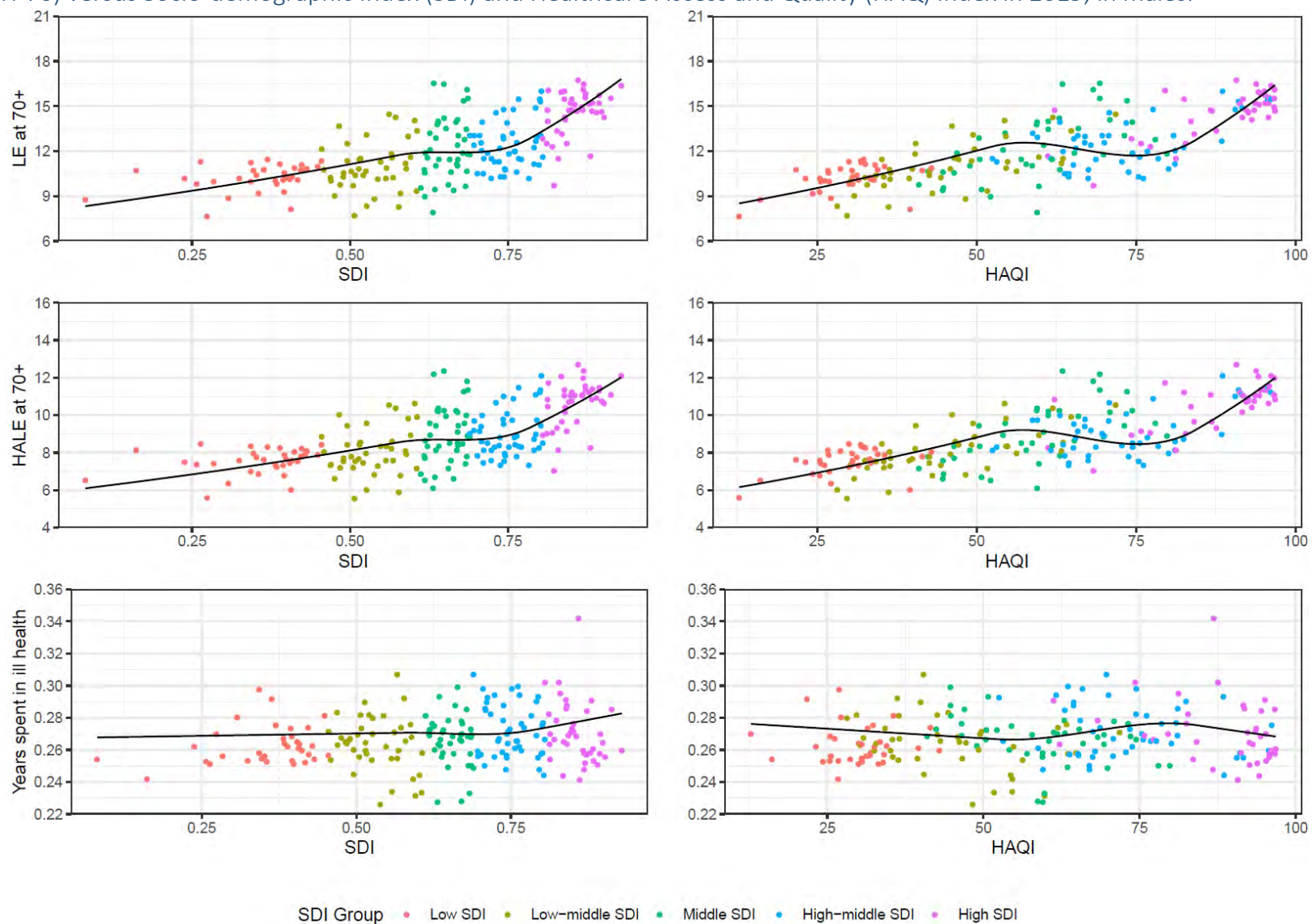


Figure S16. Life expectancy (LE-70), healthy life expectancy (HALE-70) and proportion of life-years spent in ill health at age 70+ (PYIH-70) versus Socio-demographic Index (SDI) and Healthcare Access and Quality (HAQ) Index in 2019, in females.

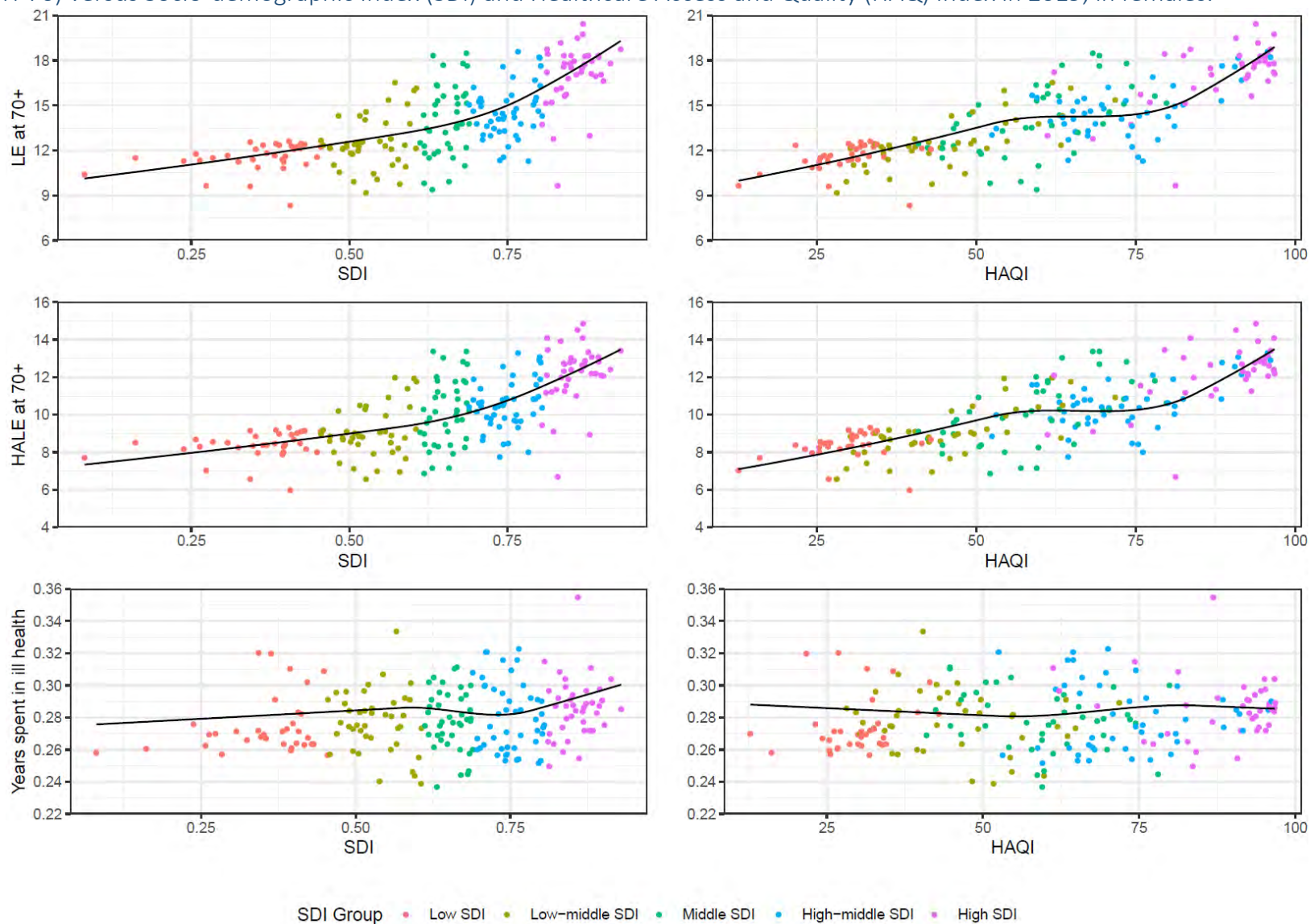
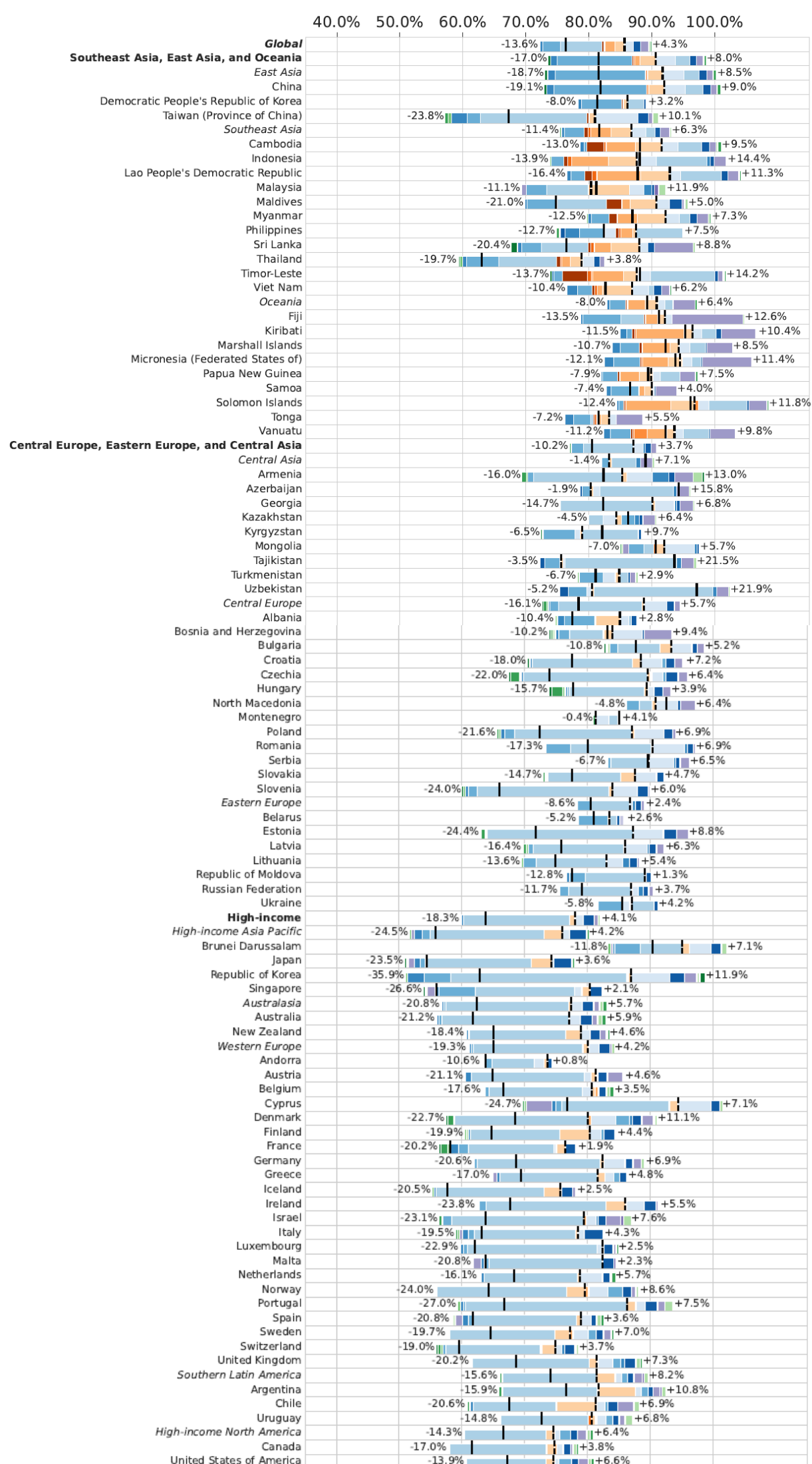


Figure S17. Decomposition of the probability of death, for all GBD locations, for the population aged 70 to 90 years old, from 1990 to 2019, in both sexes.

Both sexes refer to combined estimates for males and females. Probability of death between 70 and 90 years of age (denoted using standard demographer notation as $20q70$, the probability 'q' of death for a period of 20 years starting at age 70) is plotted globally and by Global Burden of Disease super-region and region for 1990 (dashed vertical line) and 2019 (solid vertical line). The relative contribution of that change due to different causes is indicated by different coloured bars. All causes to the right of the dashed line increased from 1990 to 2019 and all those to the left decreased over the same time period. As can be seen at the global level, the probability of death for those 70 to 90 years decreased mainly due to cardiovascular diseases, chronic respiratory diseases, respiratory infections and tuberculosis and enteric infections (-13.6% in aggregate), while probability of death increased owing to increases in neoplasms, neurological disorders, and diabetes and kidney diseases (+4.3% in aggregate). **COLOR LEGEND:**



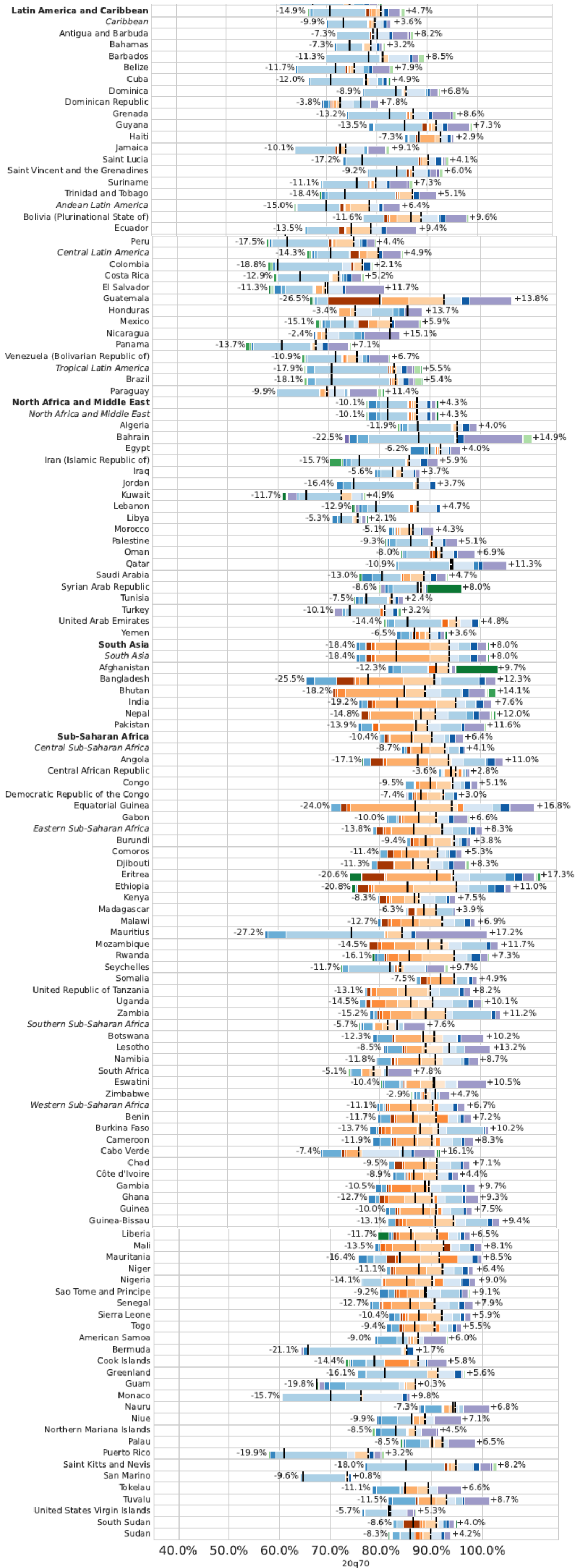
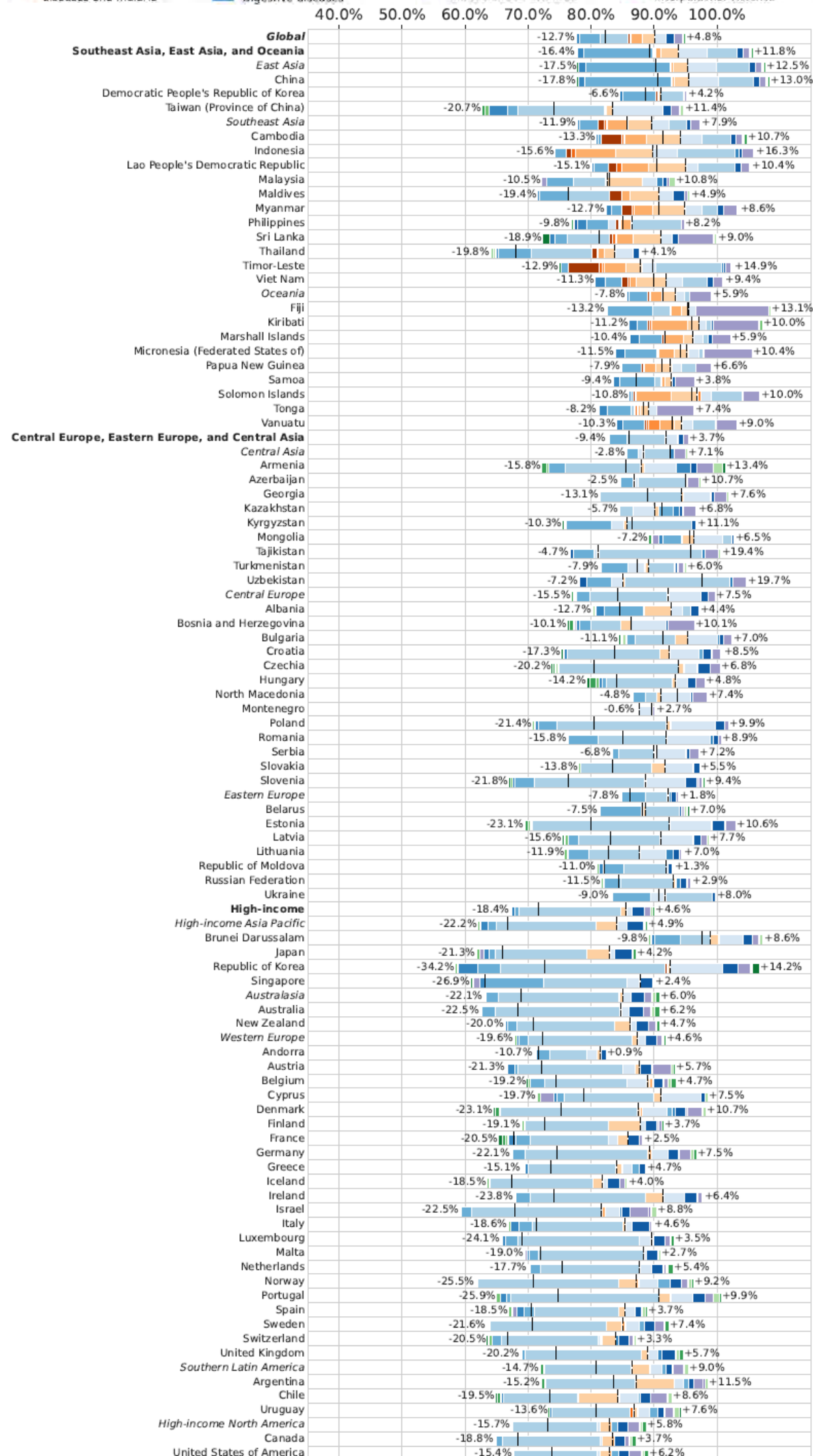


Figure S18. Decomposition of the probability of death, for all GBD locations, for the population aged 70 to 90 years old, from 1990 to 2019, in males
Probability of death between 70 and 90 years of age (denoted using standard demographer notation as 20q70, the probability 'q' of death for a period of 20 years starting at age 70) is plotted globally and by Global Burden of Disease super-region and region for 1990 (dashed vertical line) and 2019 (solid vertical line). The relative contribution of that change due to different causes is indicated by different coloured bars. All causes to the right of the dashed line increased from 1990 to 2019 and all those to the left decreased over the same time period. As can be seen at the global level, the probability of death for the males 70 to 90 years decreased mainly due to cardiovascular diseases, chronic respiratory diseases, respiratory infections and tuberculosis and enteric infections (-12.7% in aggregate), while probability of death increased owing to increases in neoplasms, neurological disorders, and diabetes and kidney diseases (+4.8% in aggregate). **COLOR LEGEND:**



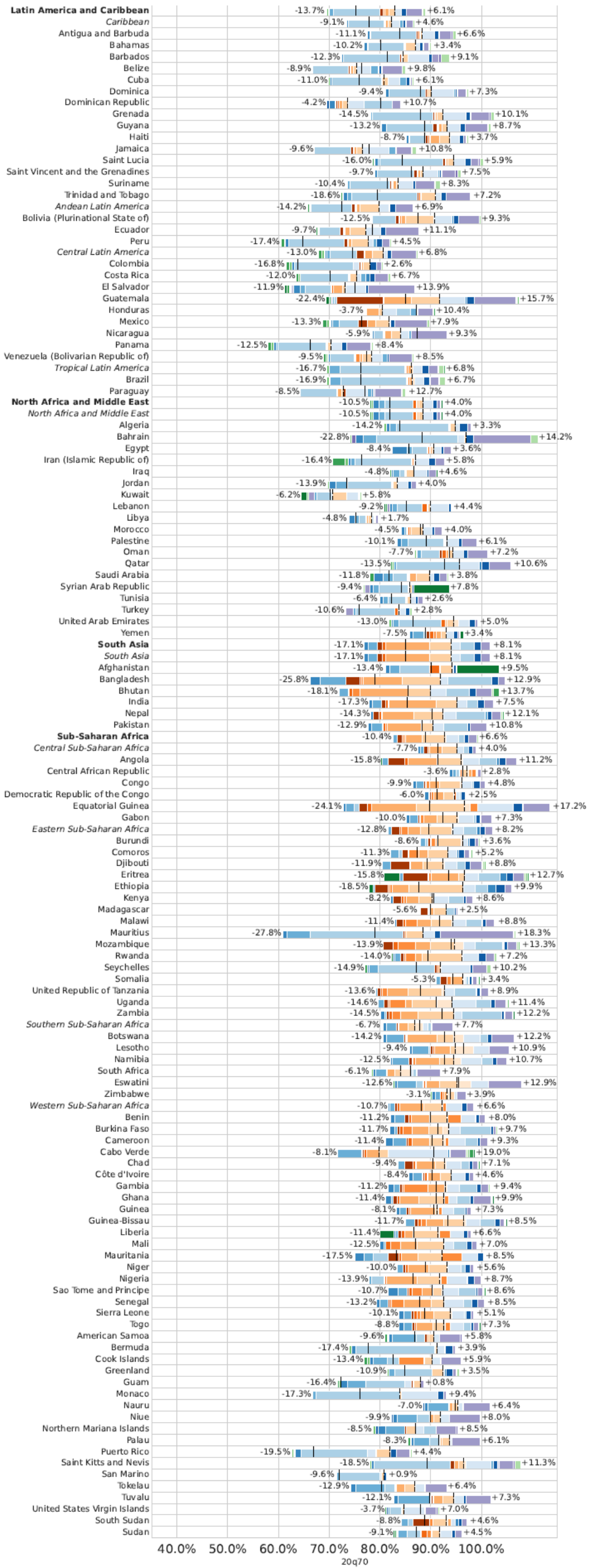
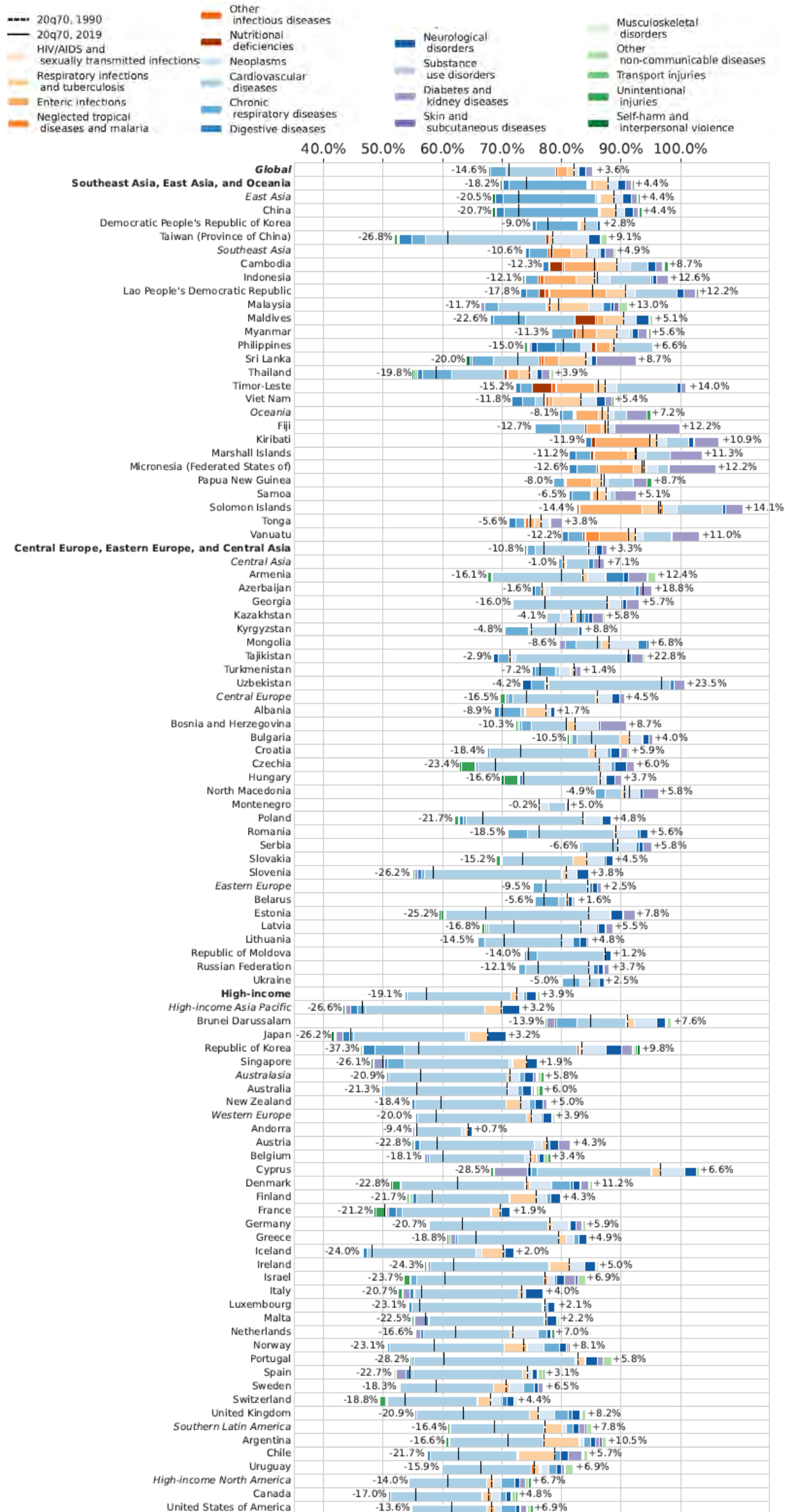
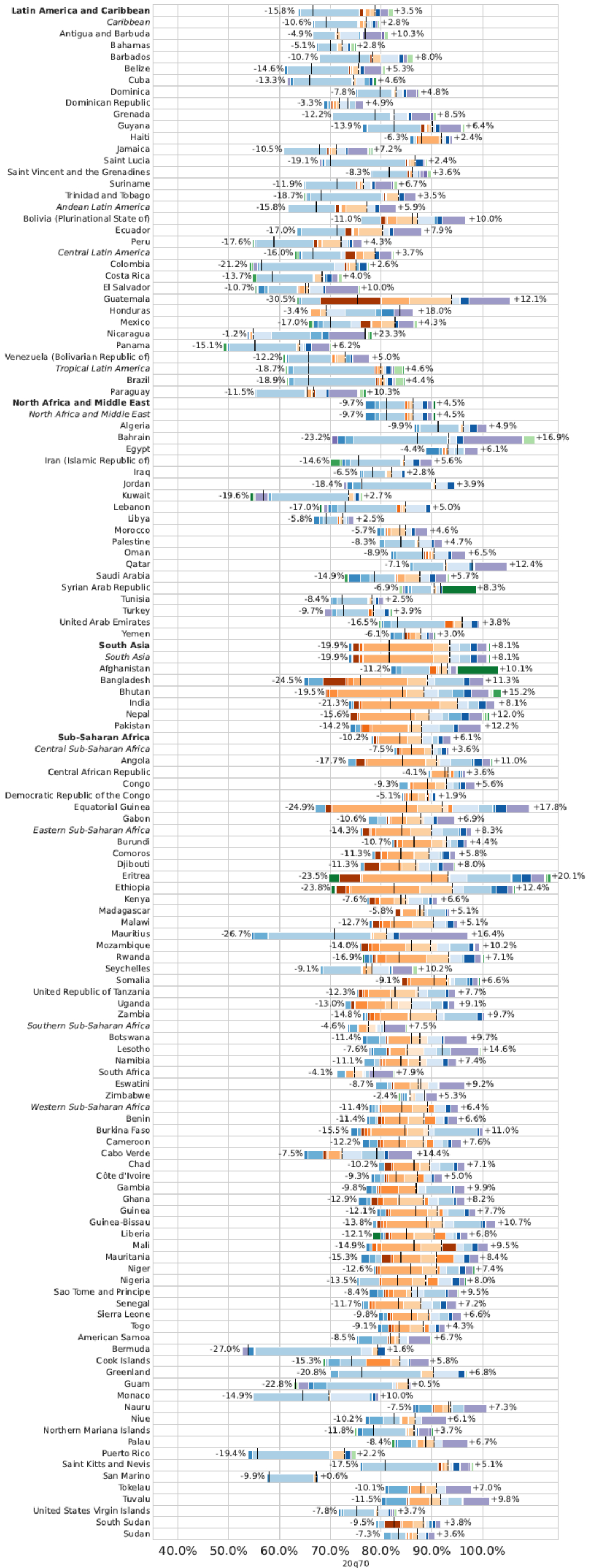


Figure S19. Decomposition of the probability of death, for all GBD locations, for the population aged 70 to 90 years old, from 1990 to 2019, in females.

Probability of death between 70 and 90 years of age (denoted using standard demographer notation as $20q70$, the probability 'q' of death for a period of 20 years starting at age 70) is plotted globally and by Global Burden of Disease super-region and region for 1990 (dashed vertical line) and 2019 (solid vertical line). The relative contribution of that change due to different causes is indicated by different coloured bars. All causes to the right of the dashed line increased from 1990 to 2019 and all those to the left decreased over the same time period. As can be seen at the global level, the probability of death for those 70 to 90 years decreased mainly due to cardiovascular diseases, chronic respiratory diseases, respiratory infections and tuberculosis and enteric infections (-14.6% in aggregate), while probability of death increased owing to increases in neoplasms, neurological disorders, and diabetes and kidney diseases (+3.6% in aggregate). **COLOR LEGEND:**





Solomon Islands	Ischemic heart disease 2.18	Stroke 1.97	Total cancers 1.18	COPD 2.27	Lower respiratory infect 1.91	Diabetes 2.66	Diarthral diseases 2.85	Lung cancer 2.29	Asthma 2.43	Prostate cancer 1.28
Tokelau	Ischemic heart disease 0.57	Total cancers 0.75	Stroke 0.71	Diabetes 2.03	COPD 1.24	Chronic kidney disease 1.35	Lower respiratory infect 1.06	Alzheimer's disease 0.96	Prostate cancer 0.99	Lung cancer 1.16
Tonga	Total cancers 1.32	Ischemic heart disease 0.75	Diabetes 3.36	COPD 1.96	Stroke 0.83	Lower respiratory infect 1.76	Chronic kidney disease 1.94	Lung cancer 1.82	Prostate cancer 1.48	Alzheimer's disease 0.94
Tuvalu	Ischemic heart disease 1	Stroke 1.07	Total cancers 0.96	Diabetes 2.57	COPD 1.65	Lower respiratory infect 1.67	Chronic kidney disease 1.34	Prostate cancer 1.29	Lung cancer 1.46	Alzheimer's disease 1
Vanuatu	Ischemic heart disease 1.49	Stroke 1.42	Total cancers 1.06	COPD 1.86	Diabetes 1.69	Lower respiratory infect 0.98	Diarthral diseases 2.4	Lung cancer 1.75	Chronic kidney disease 1.17	Prostate cancer 1.3
Southeast Asia	Stroke 1.31	Ischemic heart disease 0.94	Total cancers 0.78	COPD 1.65	Lower respiratory infect 1.73	Diabetes 1.25	Lung cancer 1.07	Tuberculosis 7.32	Chronic kidney disease 1.1	Alzheimer's disease 0.92
Cambodia	Stroke 1.3	Ischemic heart disease 0.87	Total cancers 1.23	Lower respiratory infect 2.17	COPD 1.21	Tuberculosis 2.86	Lung cancer 2.26	Cirrhosis 1.94	Upper digest diseases 4.46	Diabetes 0.93
Indonesia	Stroke 1.73	Ischemic heart disease 0.73	Total cancers 0.78	COPD 2	Diarthral diseases 52.59	Diabetes 1.5	Tuberculosis 14.37	Cirrhosis 2.86	Lung cancer 1.12	Hypertensive heart disease 2.03
Lao People's Democratic Republic	Stroke 1.5	Ischemic heart disease 1	Total cancers 0.94	COPD 1.54	Lower respiratory infect 1.42	Tuberculosis 2.69	Chronic kidney disease 1.32	Lung cancer 1.68	Diabetes 0.92	Asthma 2.19
Malaysia	Ischemic heart disease 0.92	Lower respiratory infect 4.74	Total cancers 0.71	Stroke 1.05	COPD 1.3	Lung cancer 0.78	Alzheimer's disease 0.95	Chronic kidney disease 1.23	Colorectal cancer 1.13	Cirrhosis 1.51
Maldives	Ischemic heart disease 0.79	Stroke 0.68	Total cancers 0.81	COPD 0.95	Chronic kidney disease 1.25	Alzheimer's disease 0.91	Diabetes 0.77	Lower respiratory infect 0.84	Lung cancer 0.75	Prostate cancer 0.4
Mauritius	Ischemic heart disease 0.85	Diabetes 4.8	Total cancers 0.96	Stroke 0.8	Chronic kidney disease 3.71	COPD 0.97	Hypertensive heart disease 2.18	Lower respiratory infect 0.98	Alzheimer's disease 0.9	Prostate cancer 0.63
Myanmar	Stroke 1.84	COPD 2.87	Total cancers 0.99	Ischemic heart disease 0.8	Diabetes 1.67	Lower respiratory infect 1.17	Asthma 1.32	Tuberculosis 2.67	Lung cancer 1.57	Hypertensive heart disease 1.14
Philippines	Ischemic heart disease 0.72	Stroke 0.83	Lower respiratory infect 3.42	Total cancers 0.87	COPD 1.45	Chronic kidney disease 1.54	Hypertensive heart disease 2.08	Tuberculosis 0.97	Diabetes 1.08	Alzheimer's disease 0.9
Seychelles	Total cancers 1.3	Ischemic heart disease 0.86	Lower respiratory infect 4.25	Stroke 0.85	Prostate cancer 2.36	COPD 1.16	Hypertensive heart disease 3.76	Chronic kidney disease 2.24	Lung cancer 0.81	Colorectal cancer 1.41
Sri Lanka	Ischemic heart disease 0.71	Stroke 0.81	Total cancers 0.86	Diabetes 2.72	Asthma 0.68	COPD 1.05	Chronic kidney disease 1.33	Lower respiratory infect 1.04	Alzheimer's disease 0.96	Hypertensive heart disease 1.41
Thailand	Total cancers 0.75	Ischemic heart disease 0.84	Stroke 0.5	Lower respiratory infect 1.57	COPD 0.98	Lung cancer 1.03	Alzheimer's disease 0.88	Chronic kidney disease 1.27	Liver cancer 5.43	Diabetes 0.64
Timor-Leste	Stroke 1.4	Ischemic heart disease 0.95	Total cancers 0.83	COPD 1.54	Lower respiratory infect 1.69	Tuberculosis 2.88	Diarthral diseases 3.67	Chronic kidney disease 1.01	Lung cancer 1.29	Hypertensive heart disease 1.28
Viet Nam	Stroke 1.32	Ischemic heart disease 0.68	Total cancers 0.72	COPD 1.77	Lower respiratory infect 1.58	Tuberculosis 1.31	Diabetes 0.79	Lung cancer 1.41	Alzheimer's disease 1.64	Chronic kidney disease 1.17
Sub-Saharan Africa	Total cancers 0.99	Ischemic heart disease 0.85	Stroke 0.85	Lower respiratory infect 1.59	Tuberculosis 1.51	Diarthral diseases 1.87	COPD 0.79	Diabetes 1.41	Prostate cancer 1.64	Chronic kidney disease 1.17
Central Sub-Saharan Africa	Stroke 0.98	Lower respiratory infect 1.98	Total cancers 1	Ischemic heart disease 0.66	Tuberculosis 2.78	COPD 0.94	Diarthral diseases 2.24	Diabetes 1.58	Hypertensive heart disease 1.81	Prostate cancer 1.42
Angola	Stroke 1.06	Total cancers 1.09	Ischemic heart disease 0.67	Lower respiratory infect 2.14	Tuberculosis 3.67	Diarthral diseases 1.79	Diabetes 2	Cirrhosis 2	Prostate cancer 1.55	COPD 0.57
Central African Republic	Tuberculosis 2.54	Diarthral diseases 2.88	Stroke 1.21	Lower respiratory infect 1.54	Ischemic heart disease 0.92	Total cancers 1.07	COPD 1.21	Diabetes 1.67	Hypertensive heart disease 2.17	Chronic kidney disease 1.27
Congo	Total cancers 1.03	Stroke 0.96	Ischemic heart disease 0.85	Lower respiratory infect 2.56	Diabetes 1.79	Tuberculosis 5.85	Diarthral diseases 14.61	COPD 0.9	Prostate cancer 1.52	Hypertensive heart disease 1.91
Democratic Republic of the Congo	Lower respiratory infect 1.3	Stroke 0.95	Total cancers 0.96	Ischemic heart disease 0.56	Tuberculosis 2.5	COPD 1	Diarthral diseases 1.76	Diabetes 1.46	Hypertensive heart disease 1.82	Prostate cancer 1.35
Equatorial Guinea	Total cancers 0.97	Stroke 0.96	Lower respiratory infect 3.79	Ischemic heart disease 0.41	Diabetes 3.07	Prostate cancer 1.53	COPD 1.15	Chronic kidney disease 2.62	Malaria 8517	Tuberculosis 13.62
Gabon	Total cancers 1.12	Ischemic heart disease 0.99	Stroke 1.02	Lower respiratory infect 3.99	Diabetes 3.31	Prostate cancer 1.62	Chronic kidney disease 2.14	Tuberculosis 15.35	Hypertensive heart disease 2.75	COPD 1
Eastern Sub-Saharan Africa	Stroke 0.94	Ischemic heart disease 0.66	Total cancers 0.91	Lower respiratory infect 1.45	Tuberculosis 1.69	Diarthral diseases 1.7	COPD 0.79	Diabetes 1.37	Cirrhosis 1.51	Chronic kidney disease 1.04
Burundi	Stroke 0.96	Ischemic heart disease 0.81	Tuberculosis 1.66	Lower respiratory infect 1.19	Total cancers 0.91	Diarthral diseases 1.24	COPD 1.05	Diabetes 1.16	Prostate cancer 1.24	Chronic kidney disease 0.93
Comoros	Ischemic heart disease 0.95	Total cancers 0.89	Stroke 0.8	Lower respiratory infect 1.61	Tuberculosis 2.56	COPD 0.73	Diarthral diseases 2.49	Diabetes 1.25	Prostate cancer 1.35	Chronic kidney disease 1.02
Djibouti	Total cancers 1.06	Ischemic heart disease 0.74	Stroke 0.93	Lower respiratory infect 1.85	Tuberculosis 2.5	Diabetes 1.51	Prostate cancer 1.59	Diarthral diseases 2.25	COPD 0.98	Chronic kidney disease 1.13
Eritrea	Lower respiratory infect 2.62	Stroke 1.02	Tuberculosis 4.02	Ischemic heart disease 0.75	Total cancers 0.95	Diarthral diseases 3.85	COPD 0.9	Diabetes 1.38	Cirrhosis 1.56	Prostate cancer 1.35
Ethiopia	Stroke 0.74	Lower respiratory infect 1.29	Ischemic heart disease 0.57	Total cancers 0.69	Diarthral diseases 1.72	Tuberculosis 1.11	Cirrhosis 1.75	COPD 0.73	Diabetes 1.31	Chronic kidney disease 1.05
Kenya	Stroke 0.98	Lower respiratory infect 2.52	Total cancers 0.88	Ischemic heart disease 0.53	Diarthral diseases 5.57	Tuberculosis 3.99	Cirrhosis 2.48	COPD 0.88	Diabetes 1.36	Prostate cancer 1.31
Madagascar	Ischemic heart disease 0.94	Stroke 1.19	Lower respiratory infect 1.38	Total cancers 0.72	Tuberculosis 2.21	COPD 1.1	Diarthral diseases 1.75	Hypertensive heart disease 1.88	Diabetes 0.96	Cirrhosis 1.12
Malawi	Stroke 1.02	Total cancers 1.03	Ischemic heart disease 0.87	Lower respiratory infect 1.66	Tuberculosis 2.84	Diarthral diseases 2.38	Diabetes 1.56	COPD 0.77	Cirrhosis 1.71	Chronic kidney disease 1.11
Mozambique	Stroke 1.48	Tuberculosis 2.39	Ischemic heart disease 0.84	Lower respiratory infect 1.38	Total cancers 0.97	Diabetes 1.7	Diarthral diseases 1.04	COPD 0.76	Hypertensive heart disease 1.87	Malaria 4.49
Rwanda	Stroke 0.98	Total cancers 1.04	Ischemic heart disease 0.87	Lower respiratory infect 1.6	COPD 1.03	Tuberculosis 2.03	Diabetes 1.46	Diarthral diseases 2.03	Prostate cancer 1.51	Cirrhosis 1.55
Somalia	Tuberculosis 0.86	Stroke 1.02	Ischemic heart disease 1.07	Lower respiratory infect 0.7	Total cancers 0.97	Diarthral diseases 0.82	COPD 1.06	Diabetes 1.3	Cirrhosis 0.96	Hypertensive heart disease 1.64
South Sudan	Stroke 0.78	Total cancers 0.92	Ischemic heart disease 0.6	Diarthral diseases 2.71	Lower respiratory infect 1.24	Tuberculosis 2.07	COPD 0.75	Diabetes 1.21	Cirrhosis 1.35	Chronic kidney disease 1.05
Uganda	Total cancers 1.42	Stroke 0.93	Ischemic heart disease 0.88	Lower respiratory infect 1.58	Tuberculosis 2.53	Prostate cancer 2.71	COPD 0.96	Diabetes 1.68	Diarthral diseases 1.89	Chronic kidney disease 1.18
United Republic of Tanzania	Ischemic heart disease 0.78	Stroke 0.93	Total cancers 1.03	Lower respiratory infect 1.46	Tuberculosis 2.13	Diarthral diseases 2.18	Diabetes 1.33	Prostate cancer 1.48	COPD 0.88	Chronic kidney disease 1
Zambia	Stroke 1.47	Total cancers 1.09	Ischemic heart disease 0.6	Lower respiratory infect 2.11	Tuberculosis 4.52	Diabetes 1.67	Cirrhosis 2.43	COPD 0.83	Hypertensive heart disease 2.29	Diarthral diseases 3.8
Southern Sub-Saharan Africa	Total cancers 1.03	Ischemic heart disease 0.93	Stroke 0.77	Lower respiratory infect 2.55	Diabetes 2.5	COPD 1.37	Prostate cancer 1.8	Tuberculosis 3.98	Chronic kidney disease 1.75	Diarthral diseases 11.16
Botswana	Total cancers 1.2	Ischemic heart disease 0.73	Stroke 1.14	Lower respiratory infect 3.37	Diabetes 1.86	COPD 1.15	Prostate cancer 2.15	Chronic kidney disease 1.59	Tuberculosis 10.01	HIV/AIDS 135.71
Eswatini	Total cancers 1.59	Diabetes 4.94	Stroke 1.13	Ischemic heart disease 0.88	Lower respiratory infect 2.96	COPD 1.9	Chronic kidney disease 2.79	Tuberculosis 3.89	Prostate cancer 2.28	Diarthral diseases 33.38
Lesotho	Total cancers 1.58	Stroke 1.37	Tuberculosis 3.76	COPD 2.11	Ischemic heart disease 0.67	Lower respiratory infect 2.72	Diarthral diseases 10.84	Diabetes 3.24	Prostate cancer 2.6	Chronic kidney disease 2.15
Namibia	Stroke 1.19	Ischemic heart disease 0.69	Total cancers 0.89	Lower respiratory infect 3.88	COPD 2	Diabetes 2.31	Prostate cancer 1.77	Diarthral diseases 31.98	Tuberculosis 3.29	Chronic kidney disease 1.58
South Africa	Total cancers 0.96	Ischemic heart disease 0.87	Stroke 0.72	Diabetes 2.56	Lower respiratory infect 2.43	COPD 1.45	Prostate cancer 1.66	Chronic kidney disease 1.76	Hypertensive heart disease 2.04	Tuberculosis 12.89
Zimbabwe	Total cancers 1.47	Ischemic heart disease 0.98	Tuberculosis 2.89	Lower respiratory infect 2.73	Stroke 0.77	Prostate cancer 2.86	Diarthral diseases 4.86	Chronic kidney disease 1.54	COPD 0.65	Diabetes 1.2
Western Sub-Saharan Africa	Ischemic heart disease 0.73	Total cancers 1.03	Stroke 0.78	Lower respiratory infect 1.49	Prostate cancer 1.99	Malaria 15.77	Tuberculosis 1.48	Diarthral diseases 1.76	COPD 0.65	Diabetes 1.18
Benin	Ischemic heart disease 0.81	Stroke 0.96	Total cancers 1.1	Lower respiratory infect 1.53	Malaria 12.7	Diarthral diseases 1.31	Tuberculosis 0.99	COPD 0.68	Prostate cancer 1.58	Chronic kidney disease 1.19
Burkina Faso	Ischemic heart disease 1.17	Lower respiratory infect 1.32	Total cancers 1.09	Stroke 0.71	Diarthral diseases 0.88	Malaria 5.52	Tuberculosis 0.66	Diabetes 1.17	Prostate cancer 1.5	Chronic kidney disease 1.03
Cabo Verde	Total cancers 2.16	Ischemic heart disease 1	Stroke 0.94	Lower respiratory infect 2.35	Prostate cancer 3.34	Stomach cancer 3.14	Chronic kidney disease 1.26	Alzheimer's disease 0.96	COPD 3.5	Diabetes 1.01
Cameroon	Total cancers 1.13	Ischemic heart disease 0.78	Stroke 0.92	Lower respiratory infect 2.39	Malaria 42.2	Diabetes 1.5	Prostate cancer 1.75	Chronic kidney disease 1.5	Tuberculosis 2.44	COPD 0.66
Chad	Ischemic heart disease 0.92	Lower respiratory infect 1.18	Total cancers 1.08	Stroke 0.81	Diarthral diseases 1.01	Tuberculosis 0.76	COPD 0.72	Prostate cancer 1.42	Chronic kidney disease 1.08	Diabetes 0.82
Côte d'Ivoire	Ischemic heart disease 0.86	Total cancers 1.13	Lower respiratory infect 1.3	Stroke 0.83	Malaria 59.91	Tuberculosis 1.54	Prostate cancer 1.58	Chronic kidney disease 1.31	COPD 0.67	Diabetes 1.13
Gambia	Ischemic heart disease 1.01	Lower respiratory infect 2.18	Stroke 0.88	Total cancers 0.85	Tuberculosis 2.25	COPD 0.77	Chronic kidney disease 1.25	Diarthral diseases 1.45	Liver cancer 7.35	Diabetes 1.06
Ghana	Lower respiratory infect 3.91	Total cancers 1.02	Ischemic heart disease 0.66	Stroke 0.84	Tuberculosis 8.93	Prostate cancer 1.99	Diabetes 1.01	Diabetes 1.62	Malaria 364.88	Chronic kidney disease 1.17
Guinea	Total cancers 1.44	Lower respiratory infect 1.71	Ischemic heart disease 0.84	Stroke 0.82	Tuberculosis 1.19	Diarthral diseases 1.28	Prostate cancer 1.8	COPD 0.74	Liver cancer 8.83	Chronic kidney disease 1.11
Guinea-Bissau	Ischemic heart disease 1.12	Lower respiratory infect 2.18	Total cancers 1.24	Stroke 1.05	Tuberculosis 1.8	Diarthral diseases 1.9	COPD 0.91	Chronic kidney disease 1.45	Prostate cancer 1.66	Diabetes 1.24
Liberia	Ischemic heart disease 0.76	Total cancers 0.99	Stroke 0.7	Lower respiratory infect 1.24	Malaria 18.3	Diarthral diseases 1.27	Tuberculosis 1.08	Prostate cancer 1.48	Chronic kidney disease 1.07	Diabetes 0.91
Mali	Ischemic heart disease 0.87	Stroke 0.8	Total cancers 0.94	Diarthral diseases 1.27	Tuberculosis 0.67	Lower respiratory infect 0.86	COPD 0.7	Chronic kidney disease 0.97	Alzheimer's disease 1.08	Diabetes 0.77
Mauritania	Ischemic heart disease 0.81	Total cancers 0.92	Lower respiratory infect 1.79	Stroke 0.68	Malaria 166.79	Prostate cancer 1.46	Diarthral diseases 2.97	Alzheimer's disease 1.05	Chronic kidney disease 0.99	Diabetes 0.88
Niger	Ischemic heart disease 0.95	Lower respiratory infect 0.81	Stroke 0.74	Total cancers 0.95	Diarthral diseases 0.61	Malaria 2.65	Tuberculosis 0.76	COPD 0.68	Prostate cancer 1.35	Chronic kidney disease 0.94
Nigeria	Total cancers 0.99	Ischemic heart disease 0.83	Stroke 0.75	Lower respiratory infect 1.48	Prostate cancer 2.45	Malaria 204.77	Diarthral diseases 4.34	Tuberculosis 3.39	Diabetes 1.28	COPD 0.97
Sao Tome and Principe	Ischemic heart disease 0.97	Total cancers 1.28	Lower respiratory infect 2.5	Stroke 0.89	COPD 1.53	Chronic kidney disease 1.62	Cirrhosis 1.87	Prostate cancer 1.13	Lung cancer 1.43	Fall 4.87
Senegal	Ischemic heart disease 0.8	Total cancers 1.12	Stroke 0.72	Lower respiratory infect 1.15	Diarthral diseases 1.97	Prostate cancer 1.74	COPD 0.86	Chronic kidney disease 1.27	Malaria 16.19	Tuberculosis 1.12
Sierra Leone	Ischemic heart disease 0.87	Lower respiratory infect 1.54	Total cancers 0.98	Stroke 0.77	Diarthral diseases 2.03	Malaria 12.7	Tuberculosis 0.88	COPD 0.88	Prostate cancer 1.43	Chronic kidney disease 0.93
Togo	Ischemic heart disease 1	Total cancers 1.11	Lower respiratory infect 2.21	Stroke 0.89	Malaria 90.37	Tuberculosis 2.4	Diarthral diseases 2.18	COPD 0.79	Prostate cancer 1.65	Chronic kidney disease 1.19

Values shown in brackets represent the ratio of observed deaths to predicted deaths on the basis of Socio-Demographic Index (SDI), rounded to two (2) digits. Color ranges (shown below) were calculated to place a roughly equal number of cells into each bin.

COLOR KEY:

[0.60,0.85]	[0.65,0.78]	[0.78,0.9]	[0.9,0.99]	[0.99,1.09]	[1.09,1.25]	[1.25,1.5]	[1.5,1.87]	[1.87,2.69]	[2.69,.]
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Figure S21. Leading ten causes of total deaths with ratio of observed to expected years lived with disability in 2019, among people 70 years and older, in females, for all GBD locations.

Causes are ranked based on global estimates of deaths. Causes are color coded (shown in color key) based on the ratio of observed to expected ($O:E$) rates on that basis of SDI from the epidemiologic transition analysis. Shades of blue represent much lower observed deaths and $YLDs$ than expected disease levels based on SDI , whereas red shows that observed deaths and $YLDs$ exceed expected levels. When the ratio exceeds 1 means that observed levels exceeded the expected levels on the basis of SDI . $O:E$ ratios are listed in each cell.

Figure 21. Leading 10 causes of total deaths with ratio of observed to expected deaths in 2019, by location, females

	1	2	3	4	5	6	7	8	9	10
Global	Ischemic heart disease 0.82	Stroke 0.92	Total cancers 0.89	COPD 2.12	Alzheimer's disease 1.01	Lower respiratory infect 0.99	Hypertensive heart disease 1.15	Diabetes 0.79	Chronic kidney disease 1.02	Diarrheal diseases 5.39
Central Europe, Eastern Europe, and Central Asia	Ischemic heart disease 2.17	Stroke 1.83	Total cancers 0.79	Alzheimer's disease 0.97	Hypertensive heart disease 1.4	Colorectal cancer 0.93	COPD 0.72	Breast cancer 0.78	Diabetes 0.62	Cardiomyopathy 2.44
Central Asia	Ischemic heart disease 2.44	Stroke 1.56	Total cancers 0.83	Hypertensive heart disease 1.81	Alzheimer's disease 1	COPD 1.5	Cirrhosis 2.78	Diabetes 0.71	Lower respiratory infect 0.58	Chronic kidney disease 0.6
Armenia	Ischemic heart disease 1.69	Stroke 0.79	Total cancers 0.98	Alzheimer's disease 1.04	COPD 1.83	Diabetes 1.21	Hypertensive heart disease 1.45	Cirrhosis 9.05	Urinary diseases 5.19	Breast cancer 1.09
Azerbaijan	Ischemic heart disease 1.77	Stroke 2.02	Total cancers 0.87	Hypertensive heart disease 2.52	Cirrhosis 4.66	Alzheimer's disease 1.07	COPD 1.35	Diabetes 0.8	Stomach cancer 1.94	Chronic kidney disease 0.98
Georgia	Ischemic heart disease 1.79	Stroke 1.54	Hypertensive heart disease 4.22	Total cancers 0.71	Alzheimer's disease 0.98	Diabetes 0.7	COPD 0.64	Breast cancer 0.99	Lower respiratory infect 0.35	Atrial fibrillation 1.05
Kazakhstan	Ischemic heart disease 2.01	Stroke 2.04	Total cancers 0.75	COPD 2.64	Alzheimer's disease 0.99	Diabetes 0.83	Cirrhosis 2.75	Lower respiratory infect 0.76	Hypertensive heart disease 0.99	Cardiomyopathy 2.94
Kyrgyzstan	Ischemic heart disease 1.99	Stroke 0.77	Total cancers 0.67	Alzheimer's disease 0.99	COPD 1.52	Hypertensive heart disease 0.52	Cirrhosis 1.27	Colorectal cancer 0.73	Stomach cancer 0.83	Lower respiratory infect 0.22
Mongolia	Ischemic heart disease 1.49	Total cancers 2.25	Stroke 1.3	Liver cancer 22.42	Total burden related to hep 16.05	Cirrhosis 5.49	Alzheimer's disease 0.98	Stomach cancer 3.07	Esophageal cancer 13.24	Total burden related to hep 8.94
Tajikistan	Ischemic heart disease 2.96	Stroke 1.52	Total cancers 1	Hypertensive heart disease 2.24	Alzheimer's disease 1	COPD 1.05	Lower respiratory infect 0.73	Diabetes 0.65	Cirrhosis 1.86	Stomach cancer 1.89
Turkmenistan	Ischemic heart disease 2.03	Stroke 1.07	Total cancers 0.89	Alzheimer's disease 0.88	Hypertensive heart disease 0.89	Cirrhosis 1.98	COPD 0.8	Diabetes 0.5	Chronic kidney disease 0.48	Atrial fibrillation 0.87
Uzbekistan	Ischemic heart disease 4.63	Stroke 1.64	Total cancers 0.86	Diabetes 0.85	Hypertensive heart disease 1.56	Cirrhosis 3.29	Alzheimer's disease 0.97	COPD 1.07	Chronic kidney disease 0.81	Lower respiratory infect 0.76
Central Europe	Ischemic heart disease 1.52	Stroke 1.58	Total cancers 0.96	Alzheimer's disease 1.01	Hypertensive heart disease 2.5	Colorectal cancer 1.09	Cardiomyopathy 3.58	Diabetes 0.91	Breast cancer 0.98	COPD 0.77
Albania	Stroke 1.53	Ischemic heart disease 0.92	Total cancers 0.72	Alzheimer's disease 1.04	COPD 0.66	Lower respiratory infect 0.46	Other cardiovascular 2.17	Lung cancer 1.11	Hypertensive heart disease 0.49	Colorectal cancer 0.66
Bosnia and Herzegovina	Ischemic heart disease 1.33	Stroke 1.95	Total cancers 1.14	Diabetes 2.37	Alzheimer's disease 0.98	Colorectal cancer 1.24	Cardiomyopathy 4.45	COPD 0.94	Hypertensive heart disease 1.01	Breast cancer 1.14
Bulgaria	Ischemic heart disease 2.02	Stroke 2.88	Hypertensive heart disease 3.96	Total cancers 0.83	Alzheimer's disease 0.99	Colorectal cancer 1.11	Diabetes 0.93	COPD 0.87	Breast cancer 1.13	Other cardiovascular 0.96
Croatia	Ischemic heart disease 1.51	Stroke 1.41	Total cancers 1.02	Alzheimer's disease 1.04	Hypertensive heart disease 2.51	Falls 2.87	Colorectal cancer 0.95	COPD 0.95	Breast cancer 0.78	Diabetes 1.01
Czechia	Ischemic heart disease 1.66	Total cancers 0.95	Stroke 1.07	Alzheimer's disease 1.02	Diabetes 1.47	Lower respiratory infect 0.82	Colorectal cancer 0.97	Breast cancer 0.91	COPD 0.79	Lung cancer 0.95
Hungary	Ischemic heart disease 1.67	Total cancers 1.06	Stroke 1.01	Alzheimer's disease 1.01	Hypertensive heart disease 3.18	COPD 1.22	Colorectal cancer 1.26	Lung cancer 1.52	Breast cancer 1.01	Diabetes 0.85
Montenegro	Stroke 3.94	Ischemic heart disease 1.38	Total cancers 0.91	Cardiomyopathy 9.4	Alzheimer's disease 1.07	Diabetes 1.22	Breast cancer 1.17	Lung cancer 1.29	Atrial fibrillation 2.13	Colorectal cancer 0.81
North Macedonia	Stroke 4.46	Ischemic heart disease 1.74	Total cancers 1.13	Hypertensive heart disease 5.06	Diabetes 2.63	Alzheimer's disease 1.07	Cardiomyopathy 6.52	COPD 1.2	Breast cancer 1.34	Colorectal cancer 1.25
Poland	Ischemic heart disease 1.28	Total cancers 1.03	Stroke 1.05	Alzheimer's disease 1.04	Colorectal cancer 1.17	Cardiomyopathy 4.25	Hypertensive heart disease 1.39	Lower respiratory infect 0.72	Lung cancer 1.24	Breast cancer 0.95
Romania	Ischemic heart disease 1.55	Stroke 1.99	Total cancers 0.76	Hypertensive heart disease 3.35	Alzheimer's disease 0.97	Cardiomyopathy 5.4	COPD 0.76	Colorectal cancer 0.85	Breast cancer 0.83	Lower respiratory infect 0.52
Serbia	Stroke 3.17	Ischemic heart disease 2	Total cancers 1.16	Hypertensive heart disease 3.03	Diabetes 1.79	Alzheimer's disease 0.93	Cardiomyopathy 6.06	Breast cancer 1.51	Colorectal cancer 1.21	COPD 1.09
Slovakia	Ischemic heart disease 2.19	Total cancers 0.92	Stroke 1.13	Alzheimer's disease 1.02	Lower respiratory infect 1.06	Colorectal cancer 1.15	Hypertensive heart disease 1.5	Breast cancer 0.95	Diabetes 0.71	Chronic kidney disease 0.72
Slovenia	Total cancers 0.88	Ischemic heart disease 0.6	Stroke 0.78	Alzheimer's disease 1.04	Hypertensive heart disease 2.82	Cardiomyopathy 5.69	Lower respiratory infect 0.78	Falls 1.69	Colorectal cancer 0.87	Breast cancer 0.98
Eastern Europe	Ischemic heart disease 2.52	Stroke 2.02	Total cancers 0.67	Alzheimer's disease 0.94	Colorectal cancer 0.86	COPD 0.59	Breast cancer 0.66	Hypertensive heart disease 0.66	Cardiomyopathy 1.85	Atrial fibrillation 0.91
Belarus	Ischemic heart disease 2.58	Stroke 1.3	Total cancers 0.84	Alzheimer's disease 0.97	Colorectal cancer 0.83	COPD 0.56	Stomach cancer 1.08	Atrial fibrillation 0.88	Breast cancer 0.51	Alcohol use disorders 51.65
Estonia	Ischemic heart disease 1.63	Hypertensive heart disease 8.44	Total cancers 0.88	Stroke 0.72	Alzheimer's disease 1.01	Colorectal cancer 0.98	Chronic kidney disease 1.29	Breast cancer 0.74	Lung cancer 0.73	Pancreatic cancer 1.04
Latvia	Ischemic heart disease 2.04	Stroke 2.02	Total cancers 0.8	Alzheimer's disease 0.94	Hypertensive heart disease 1.75	Colorectal cancer 0.88	Breast cancer 0.76	Diabetes 0.62	Pancreatic cancer 1.01	COPD 0.42
Lithuania	Ischemic heart disease 2.56	Stroke 1.47	Total cancers 0.71	Alzheimer's disease 0.98	Colorectal cancer 0.74	Breast cancer 0.65	Hypertensive heart disease 0.89	COPD 0.47	Pancreatic cancer 0.8	Atrial fibrillation 0.79
Republic of Moldova	Ischemic heart disease 1.88	Stroke 0.91	Total cancers 0.54	Alzheimer's disease 0.96	Hypertensive heart disease 2.07	Cirrhosis 2.61	COPD 0.67	Colorectal cancer 0.74	Breast cancer 0.58	Atrial fibrillation 0.68
Russian Federation	Ischemic heart disease 2.27	Stroke 2.4	Total cancers 0.7	Alzheimer's disease 0.83	Colorectal cancer 0.9	COPD 0.62	Breast cancer 0.68	Hypertensive heart disease 0.78	Diabetes 0.63	Cardiomyopathy 1.98
Ukraine	Ischemic heart disease 3.24	Stroke 1.45	Total cancers 0.57	Alzheimer's disease 0.97	Colorectal cancer 0.75	COPD 0.54	Atrial fibrillation 1.18	Breast cancer 0.65	Cardiomyopathy 2.11	Stomach cancer 0.74
High-income	Total cancers 0.91	Ischemic heart disease 0.67	Alzheimer's disease 1.05	Stroke 0.67	Lower respiratory infect 0.97	COPD 1.24	Lung cancer 1.2	Chronic kidney disease 1.31	Colorectal cancer 0.83	Hypertensive heart disease 1.1
Australasia	Total cancers 0.91	Ischemic heart disease 0.64	Alzheimer's disease 1.04	Stroke 0.65	COPD 1.33	Lung cancer 1.19	Colorectal cancer 0.87	Chronic kidney disease 1.23	Lower respiratory infect 0.65	Atrial fibrillation 1.48
Australia	Total cancers 0.9	Ischemic heart disease 0.61	Alzheimer's disease 1.04	Stroke 0.63	COPD 1.28	Lung cancer 1.16	Chronic kidney disease 1.27	Colorectal cancer 0.83	Lower respiratory infect 0.63	Atrial fibrillation 1.47
New Zealand	Total cancers 0.97	Ischemic heart disease 0.8	Stroke 0.76	Alzheimer's disease 1.05	COPD 1.6	Colorectal cancer 1.13	Lung cancer 1.35	Lower respiratory infect 0.76	Atrial fibrillation 1.5	Breast cancer 0.86
High-income Asia Pacific	Total cancers 0.76	Alzheimer's disease 1.22	Stroke 0.65	Ischemic heart disease 0.54	Lower respiratory infect 1.13	Colorectal cancer 0.75	Lung cancer 0.88	Chronic kidney disease 1.03	Stomach cancer 1.63	Pancreatic cancer 0.92
Brunei Darussalam	Total cancers 1.46	Ischemic heart disease 1.26	Stroke 1.43	Diabetes 6.03	COPD 3.14	Lower respiratory infect 3.13	Lung cancer 2.62	Chronic kidney disease 3.19	Alzheimer's disease 1.11	Colorectal cancer 1.47
Japan	Total cancers 0.76	Alzheimer's disease 1.24	Stroke 0.8	Ischemic heart disease 0.32	Lower respiratory infect 1.09	Colorectal cancer 0.76	Chronic kidney disease 1.02	Lung cancer 0.87	Stomach cancer 1.63	Pancreatic cancer 0.95
Republic of Korea	Total cancers 0.76	Stroke 1.02	Ischemic heart disease 0.48	Alzheimer's disease 1.1	Lower respiratory infect 1.23	Diabetes 1.85	Lung cancer 0.95	Colorectal cancer 0.86	COPD 0.77	Hypertensive heart disease 1.45
Singapore	Total cancers 0.67	Lower respiratory infect 3.09	Ischemic heart disease 0.57	Alzheimer's disease 1	Stroke 0.49	Lung cancer 0.97	Colorectal cancer 0.81	Chronic kidney disease 1.21	Hypertensive heart disease 1.08	Urinary diseases 2.54
High-income North America	Total cancers 0.95	Ischemic heart disease 0.88	Alzheimer's disease 0.98	Stroke 0.67	COPD 2.03	Lung cancer 1.82	Chronic kidney disease 1.6	Lower respiratory infect 0.75	Breast cancer 0.89	Colorectal cancer 0.71
Canada	Total cancers 0.95	Ischemic heart disease 0.71	Alzheimer's disease 0.95	Stroke 0.6	Lung cancer 1.66	COPD 1.41	Lower respiratory infect 0.73	Colorectal cancer 0.81	Breast cancer 0.92	Falls 1.29
Greenland	Total cancers 1.77	Ischemic heart disease 0.66	Stroke 1.01	COPD 3.98	Lung cancer 4.87	Alzheimer's disease 1.03	Colorectal cancer 1.91	Lower respiratory infect 1.31	Falls 4.01	Pancreatic cancer 2.64
United States of America	Total cancers 0.95	Ischemic heart disease 0.9	Alzheimer's disease 0.98	Stroke 0.67	COPD 2.11	Lung cancer 1.83	Chronic kidney disease 1.65	Lower respiratory infect 0.74	Breast cancer 0.89	Colorectal cancer 0.7
Southern Latin America	Total cancers 1.2	Ischemic heart disease 0.48	Lower respiratory infect 2.69	Stroke 0.52	Alzheimer's disease 0.95	Chronic kidney disease 1.77	COPD 1.38	Hypertensive heart disease 1.24	Colorectal cancer 1.32	Breast cancer 1.38
Argentina	Total cancers 1.21	Ischemic heart disease 0.53	Lower respiratory infect 3.38	Stroke 0.47	Alzheimer's disease 0.96	COPD 1.47	Chronic kidney disease 1.81	Hypertensive heart disease 1.24	Breast cancer 1.59	Colorectal cancer 1.4
Chile	Total cancers 1.13	Stroke 0.63	Ischemic heart disease 0.58	Alzheimer's disease 0.93	Lower respiratory infect 1.27	Chronic kidney disease 1.87	COPD 1.21	Hypertensive heart disease 1.44	Diabetes 1.06	Colorectal cancer 1.01
Uruguay	Total cancers 1.43	Stroke 0.66	Ischemic heart disease 0.59	Alzheimer's disease 0.95	Lower respiratory infect 1.38	Colorectal cancer 1.86	COPD 1.14	Breast cancer 1.76	Chronic kidney disease 1.06	Hypertensive heart disease 0.83
Western Europe	Total cancers 0.95	Ischemic heart disease 0.65	Stroke 0.89	Alzheimer's disease 0.99	Lower respiratory infect 1.18	COPD 1.71	Hypertensive heart disease 1.48	Colorectal cancer 0.92	Chronic kidney disease 1.25	Breast cancer 1.06
Andorra	Total cancers 0.8	Ischemic heart disease 0.62	Alzheimer's disease 0.97	Stroke 0.55	Falls 2.16	Hypertensive heart disease 2.21	Lower respiratory infect 0.51	COPD 1.11	Chronic kidney disease 1.37	Colorectal cancer 0.68
Austria	Ischemic heart disease 0.98	Total cancers 0.83	Alzheimer's disease 0.95	Stroke 0.55	Hypertensive heart disease 2.33	Chronic kidney disease 2.06	COPD 0.84	Breast cancer 0.99	Diabetes 1.19	Cardiomyopathy 2.85
Belgium	Total cancers 0.96	Ischemic heart disease 0.52	Stroke 0.73	Alzheimer's disease 0.97	Lower respiratory infect 1.39	COPD 1.32	Breast cancer 1.24	Colorectal cancer 0.94	Chronic kidney disease 1.33	Falls 1.5
Cyprus	Total cancers 0.9	Ischemic heart disease 0.99	Stroke 1.1	Diabetes 3.39	Alzheimer's disease 1.05	COPD 1.69	Chronic kidney disease 2.43	Hypertensive heart disease 2.43	Breast cancer 1.2	Noninfectious vial diseases 3.13
Denmark	Total cancers 1.13	Ischemic heart disease 0.69	Stroke 0.85	COPD 2.48	Alzheimer's disease 0.93	Lung cancer 1.73	Lower respiratory infect 1.3	Colorectal cancer 1.12	Breast cancer 1.24	Diabetes 1.24
Finland	Ischemic heart disease 1.15	Total cancers 0.85	Stroke 0.87	Alzheimer's disease 0.95	Hypertensive heart disease 1.64	Breast cancer 0.82	Colorectal cancer 0.68	Lung cancer 0.77	Falls 1.16	Pancreatic cancer 1.18
France	Total cancers 0.9	Alzheimer's disease 1.03	Ischemic heart disease 0.8	Stroke 0.52	Lower respiratory infect 0.8	Colorectal cancer 0.91	Falls 1.61	Breast cancer 1.06	COPD 0.61	Chronic kidney disease 0.76
Germany	Ischemic heart disease 1.05	Total cancers 0.91	Stroke 0.81	Alzheimer's disease 0.95	Hypertensive heart disease 3.15	Chronic kidney disease 2.18	COPD 1.07	Colorectal cancer 0.9	Breast cancer 1.07	Lower respiratory infect 0.64
Greece	Ischemic heart disease 0.88	Stroke 1.39	Total cancers 0.99	Alzheimer's disease 0.96	Lower respiratory infect 1.33	COPD 1.38	Chronic kidney disease 1.66	Hypertensive heart disease 1.4	Breast cancer 1.3	Colorectal cancer 0.9
Iceland	Total cancers 0.78	Ischemic heart disease 0.94	Alzheimer's disease 0.96	Stroke 0.51	Lower respiratory infect 1	COPD 1.26	Lung cancer 1.35	Breast cancer 0.71	Colorectal cancer 0.55	Atrial fibrillation 1.02
Ireland	Total cancers 1.03	Stroke 0.83	Alzheimer's disease 0.76	Stroke 0.99	Lower respiratory infect 1.69	COPD 2.09	Lung cancer 1.48	Colorectal cancer 0.86	Breast cancer 1.05	Chronic kidney disease 1.05
Israel	Total cancers 1.04	Ischemic heart disease 0.48	Alzheimer's disease 0.96	Stroke 0.51	Diabetes 1.98	Chronic kidney disease 2.17	Lower respiratory infect 0.88	Colorectal cancer 1.06	Breast cancer 1.22	COPD 0.9
Italy	Total cancers 0.93	Ischemic heart disease 0.56	Stroke 0.71	Alzheimer's disease 1.05	Hypertensive heart disease 2.15	Diabetes 1.14	COPD 0.88	Colorectal cancer 0.85	Breast cancer 1	Chronic kidney disease 0.97
Luxembourg	Total cancers 0.85	Ischemic heart disease 0.67	Stroke 0.77	Alzheimer's disease 0.91	COPD 1.2	Lower respiratory infect 0.8	Chronic kidney disease 1.39	Colorectal cancer 0.81	Breast cancer 1.01	Lung cancer 0.8
Malta	Ischemic heart disease 0.85	Total cancers 0.74	Stroke 0.61	Alzheimer's disease 0.94	Lower respiratory infect 1.19	Diabetes 1.02	Breast cancer 1.03	Chronic kidney disease 1.03	Colorectal cancer 0.73	Hypertensive heart disease 0.65
Monaco	Total cancers 1.54	Ischemic heart disease 0.88	Stroke 1.05	Alzheimer's disease 0.98	Lung cancer 1.99	Lower respiratory infect 1.31	Breast cancer 1.52	Colorectal cancer 1.1	Pancreatic cancer 2	COPD 0.52
Netherlands	Total cancers 1.13	Ischemic heart disease 0.55	Stroke 0.87	Alzheimer's disease 1.01	COPD 1.74	Lower respiratory infect 1.15	Colorectal cancer 1.13	Lung cancer 1.31	Breast cancer 1.26	Falls 1.68
Norway	Total cancers 0.89	Ischemic heart disease 0.74	Stroke 0.83	Alzheimer's disease 1	Lower respiratory infect 1.25	COPD 1.61	Colorectal cancer 1.02	Falls 1.44	Lung cancer 1.03	Atrial fibrillation 1.28
Portugal	Stroke 0.86	Total cancers 0.9	Ischemic heart disease 0.48	Alzheimer's disease 0.95	Lower respiratory infect 1.57	COPD 1.25	Diabetes 1.08	Chronic kidney disease 1.34	Colorectal cancer 1.09	Hypertensive heart disease 0.81
San Marino	Total cancers 1.1	Ischemic heart disease 0.57	Stroke 0.89	Alzheimer's disease 1.01	Colorectal cancer 1.04	Hypertensive heart disease 1.54	Other cardiovascular 3.99	Stomach cancer 2.56	COPD 0.85	Breast cancer 0.96
Spain	Total cancers 0.85	Ischemic heart disease 0.39	Stroke 0.53	Alzheimer's disease 0.99	COPD 1.32	Chronic kidney disease 1.32	Lower respiratory infect 0.67	Colorectal cancer 1.04		

Latin America and Caribbean	Ischemic heart disease 0.46	Total cancers 0.92	Stroke 0.42	Alzheimer's disease 1	Diabetes 1.13	Lower respiratory infect 1.41	COPD 1.39	Chronic kidney disease 1.43	Hypertensive heart disease 0.73	Colorectal cancer 0.83
Andean Latin America	Total cancers 1.2	Ischemic heart disease 0.37	Lower respiratory infect 2.57	Stroke 0.32	Chronic kidney disease 2.01	Alzheimer's disease 0.92	Diabetes 0.84	Stomach cancer 2.42	COPD 0.89	Cirrhosis 1.98
Bolivia (Plurinational State of)	Total cancers 1.85	Ischemic heart disease 0.67	Lower respiratory infect 2.92	Stroke 0.9	Diabetes 1.56	Chronic kidney disease 2.59	COPD 1.59	Stomach cancer 4.01	Alzheimer's disease 1	Cirrhosis 2.38
Ecuador	Total cancers 1.23	Ischemic heart disease 0.43	Stroke 0.58	Chronic kidney disease 2.68	Lower respiratory infect 1.87	Diabetes 1.17	Alzheimer's disease 0.95	Hypertensive heart disease 1.29	COPD 1.17	Cirrhosis 2.39
Peru	Total cancers 1.05	Lower respiratory infect 2.75	Ischemic heart disease 0.79	Alzheimer's disease 0.9	Stroke 2.03	Chronic kidney disease 1.58	Stomach cancer 2.09	Diabetes 0.48	Interstitial lung disease 13.73	Cirrhosis 1.67
Caribbean	Ischemic heart disease 0.72	Total cancers 0.98	Stroke 0.7	Diabetes 1.4	Alzheimer's disease 0.86	Lower respiratory infect 1.27	Hypertensive heart disease 1.02	COPD 0.85	Chronic kidney disease 1.05	Falls 2.88
Antigua and Barbuda	Ischemic heart disease 0.77	Total cancers 1.13	Stroke 1.02	Diabetes 3.84	Lower respiratory infect 2.14	Hypertensive heart disease 2.86	Chronic kidney disease 0.93	Alzheimer's disease 1.61	Breast cancer 1.47	Colorectal cancer 1.36
Bahamas	Total cancers 0.87	Ischemic heart disease 0.71	Stroke 0.91	Hypertensive heart disease 5.14	Diabetes 2.81	Alzheimer's disease 0.89	Lower respiratory infect 1.38	Chronic kidney disease 1.83	Breast cancer 1.47	Colorectal cancer 0.92
Barbados	Total cancers 1.32	Stroke 0.98	Ischemic heart disease 0.99	Diabetes 4.13	Lower respiratory infect 2.1	Alzheimer's disease 0.9	Breast cancer 1.87	Colorectal cancer 1.68	Chronic kidney disease 1.62	Decubitus ulcer 52.36
Belize	Ischemic heart disease 0.47	Total cancers 0.81	Diabetes 1.71	Stroke 0.43	Lower respiratory infect 1.66	Alzheimer's disease 0.89	Chronic kidney disease 1.46	Hypertensive heart disease 0.93	COPD 0.54	Other cardiovascular 2.1
Bermuda	Total cancers 0.91	Ischemic heart disease 0.63	Alzheimer's disease 0.92	Stroke 0.49	Colorectal cancer 1.1	Diabetes 1.27	Lower respiratory infect 0.76	Breast cancer 1.17	Lung cancer 1.02	Chronic kidney disease 0.99
Cuba	Ischemic heart disease 0.67	Total cancers 1.13	Stroke 0.53	Lower respiratory infect 1.79	Alzheimer's disease 0.85	Falls 6.8	Colorectal cancer 1.54	COPD 0.94	Lung cancer 2.39	Hypertensive heart disease 0.67
Dominica	Total cancers 1.34	Ischemic heart disease 0.75	Stroke 0.99	Diabetes 3.73	Hypertensive heart disease 3.7	Chronic kidney disease 2.77	Alzheimer's disease 0.92	Lower respiratory infect 1.64	Other cardiovascular 5.06	Breast cancer 1.62
Dominican Republic	Ischemic heart disease 0.87	Stroke 0.69	Total cancers 0.95	Alzheimer's disease 0.88	Diabetes 0.8	Hypertensive heart disease 0.98	Lower respiratory infect 0.8	Chronic kidney disease 0.96	Cirrhosis 1.91	COPD 0.63
Grenada	Stroke 0.93	Total cancers 1.31	Ischemic heart disease 0.6	Diabetes 2.78	Lower respiratory infect 2.76	Chronic kidney disease 2.07	Alzheimer's disease 0.9	Hypertensive heart disease 1.69	Breast cancer 1.55	Colorectal cancer 1.36
Guyana	Ischemic heart disease 0.95	Stroke 1.21	Diabetes 2.53	Total cancers 0.95	Hypertensive heart disease 2.62	Lower respiratory infect 1.96	Chronic kidney disease 1.67	Alzheimer's disease 0.86	Breast cancer 1.12	Colorectal cancer 1.06
Haiti	Ischemic heart disease 1.41	Stroke 1.58	Total cancers 1.23	Diabetes 2.38	Lower respiratory infect 1.27	Hypertensive heart disease 1.46	COPD 0.86	Alzheimer's disease 0.83	Chronic kidney disease 0.98	Breast cancer 1.59
Jamaica	Stroke 0.92	Diabetes 3.61	Ischemic heart disease 0.35	Total cancers 0.94	Alzheimer's disease 0.84	Hypertensive heart disease 1.49	Lower respiratory infect 0.7	Chronic kidney disease 1.09	Breast cancer 1.25	Colorectal cancer 1.01
Puerto Rico	Ischemic heart disease 0.51	Total cancers 0.65	Diabetes 3.32	Alzheimer's disease 0.88	Stroke 0.38	Chronic kidney disease 1.94	COPD 1.25	Lower respiratory infect 0.8	Hypertensive heart disease 1.07	Colorectal cancer 0.74
Saint Kitts and Nevis	Stroke 1.75	Ischemic heart disease 0.77	Total cancers 1.16	Diabetes 2.99	Lower respiratory infect 2.11	Chronic kidney disease 3.1	Alzheimer's disease 0.87	Hypertensive heart disease 1.97	Breast cancer 1.61	Colorectal cancer 1.08
Saint Lucia	Stroke 0.83	Total cancers 0.96	Ischemic heart disease 0.38	Diabetes 2.37	Alzheimer's disease 0.91	Lower respiratory infect 1.32	Hypertensive heart disease 1.5	Chronic kidney disease 1.49	COPD 0.66	Breast cancer 1.06
Saint Vincent and the Grenadines	Ischemic heart disease 0.85	Stroke 0.84	Total cancers 1.25	Diabetes 2.8	Hypertensive heart disease 2.08	Lower respiratory infect 1.52	Alzheimer's disease 0.86	Chronic kidney disease 1.58	Breast cancer 1.66	Other cardiovascular 3.08
Suriname	Stroke 0.8	Ischemic heart disease 0.5	Total cancers 0.93	Diabetes 1.23	Alzheimer's disease 0.91	Chronic kidney disease 1.81	Lower respiratory infect 1.14	Hypertensive heart disease 1.22	COPD 0.64	Colorectal cancer 1.12
Trinidad and Tobago	Ischemic heart disease 0.86	Diabetes 5.05	Stroke 0.9	Total cancers 0.73	Alzheimer's disease 0.86	Chronic kidney disease 1.6	Hypertensive heart disease 1.35	Lower respiratory infect 0.76	Breast cancer 1.05	Colorectal cancer 0.8
United States Virgin Islands	Ischemic heart disease 1.51	Total cancers 1.1	Stroke 0.84	Diabetes 3.18	Alzheimer's disease 0.94	Hypertensive heart disease 2.66	Chronic kidney disease 2.13	Colorectal cancer 1.4	Breast cancer 1.43	Lung cancer 1.11
Central Latin America	Ischemic heart disease 0.36	Total cancers 0.86	Stroke 0.44	Diabetes 1.31	Alzheimer's disease 0.99	Chronic kidney disease 1.94	COPD 1.56	Lower respiratory infect 0.77	Hypertensive heart disease 0.67	Cirrhosis 1.47
Colombia	Ischemic heart disease 0.42	Total cancers 0.85	Alzheimer's disease 0.97	COPD 1.7	Stroke 0.62	Chronic kidney disease 0.82	Hypertensive heart disease 0.54	Diabetes 0.82	Lower respiratory infect 0.54	Stomach cancer 1.13
Costa Rica	Total cancers 1.02	Ischemic heart disease 0.4	Alzheimer's disease 0.31	Stroke 1.84	COPD 1.56	Chronic kidney disease 1.37	Hypertensive heart disease 0.84	Colorectal cancer 1.08	Stomach cancer 1.76	Lower respiratory infect 0.84
El Salvador	Ischemic heart disease 0.38	Total cancers 0.93	Alzheimer's disease 0.36	Stroke 0.78	Chronic kidney disease 0.96	Lower respiratory infect 0.68	Diabetes 0.87	COPD 1.45	Stomach cancer 1.15	Cirrhosis 1.15
Guatemala	Ischemic heart disease 0.62	Total cancers 1.08	Lower respiratory infect 2.03	Diabetes 1.48	Stroke 0.36	Chronic kidney disease 1.8	Alzheimer's disease 0.98	Stomach cancer 2.83	COPD 0.68	Cirrhosis 1.42
Honduras	Ischemic heart disease 0.97	Stroke 0.94	Total cancers 1.4	COPD 1.79	Chronic kidney disease 2.07	Cirrhosis 2.57	Alzheimer's disease 1.08	Lung cancer 3.28	Hypertensive heart disease 0.69	Upper digestive diseases 1.36
Mexico	Ischemic heart disease 0.93	Total cancers 0.79	Diabetes 1.95	Chronic kidney disease 2.82	Stroke 0.32	COPD 1.87	Alzheimer's disease 1.01	Lower respiratory infect 0.79	Cirrhosis 2.17	Hypertensive heart disease 0.65
Nicaragua	Ischemic heart disease 0.95	Total cancers 1.07	Stroke 0.45	Chronic kidney disease 2.29	Diabetes 1.34	COPD 1.17	Alzheimer's disease 1	Hypertensive heart disease 0.83	Cirrhosis 1.31	Lower respiratory infect 0.49
Panama	Ischemic heart disease 0.36	Total cancers 0.76	Stroke 0.43	Alzheimer's disease 0.98	Diabetes 1.28	COPD 1.13	Chronic kidney disease 1.29	Lower respiratory infect 0.72	Colorectal cancer 0.77	Hypertensive heart disease 0.5
Venezuela (Bolivarian Republic of)	Ischemic heart disease 0.6	Total cancers 0.98	Stroke 0.44	Alzheimer's disease 0.99	Diabetes 1.01	Chronic kidney disease 1.36	Hypertensive heart disease 1.04	COPD 0.98	Lower respiratory infect 0.98	Lung cancer 1.63
Tropical Latin America	Total cancers 0.9	Ischemic heart disease 0.35	Stroke 0.45	Lower respiratory infect 1.81	Alzheimer's disease 1.06	Diabetes 0.97	COPD 1.46	Hypertensive heart disease 0.75	Chronic kidney disease 0.9	Urinary diseases 5.26
Brazil	Total cancers 0.9	Ischemic heart disease 0.34	Stroke 0.45	Lower respiratory infect 1.82	Alzheimer's disease 1.06	COPD 1.48	Diabetes 0.95	Hypertensive heart disease 0.74	Chronic kidney disease 0.88	Urinary diseases 5.32
Paraguay	Ischemic heart disease 0.47	Total cancers 0.88	Stroke 0.5	Diabetes 1.56	Alzheimer's disease 1.03	Lower respiratory infect 1.15	Chronic kidney disease 1.44	Hypertensive heart disease 0.94	COPD 0.67	Colorectal cancer 0.9
North Africa and Middle East	Ischemic heart disease 1.47	Stroke 1.01	Total cancers 0.75	Hypertensive heart disease 2.31	Alzheimer's disease 1.13	Chronic kidney disease 2.05	Diabetes 1.13	Cirrhosis 3.1	COPD 1.21	Lower respiratory infect 0.92
North Africa and Middle East	Ischemic heart disease 1.47	Stroke 1.01	Total cancers 0.75	Hypertensive heart disease 2.31	Alzheimer's disease 1.13	Chronic kidney disease 2.05	Diabetes 1.13	Cirrhosis 3.1	COPD 1.21	Lower respiratory infect 0.92
Afghanistan	Ischemic heart disease 2.25	Stroke 1.41	Total cancers 1.57	Conflict & terror 2868.46	Hypertensive heart disease 2.4	Diabetes 1.52	Chronic kidney disease 1.97	COPD 1.25	Lower respiratory infect 0.68	Alzheimer's disease 1.25
Algeria	Ischemic heart disease 1.62	Stroke 0.63	Total cancers 2.6	Hypertensive heart disease 2.6	Chronic kidney disease 1.19	Alzheimer's disease 0.76	Diabetes 1.23	Lower respiratory infect 1.07	COPD 1.43	Cirrhosis 1.43
Bahrain	Ischemic heart disease 1.52	Diabetes 9.01	Total cancers 1.02	Stroke 0.93	Chronic kidney disease 3.47	COPD 2.01	Alzheimer's disease 1.27	Lower respiratory infect 1.44	Breast cancer 1.46	Cirrhosis 3
Egypt	Ischemic heart disease 2.79	Cirrhosis 19.76	Stroke 1.04	Hypertensive heart disease 2.83	Total burden related to hep 22.35	Chronic kidney disease 3.8	Total cancers 0.68	Diabetes 1.29	Total burden related to hep 20.47	Lower respiratory infect 1.74
Iran (Islamic Republic of)	Ischemic heart disease 1.14	Stroke 0.78	Total cancers 0.79	Hypertensive heart disease 2.32	Alzheimer's disease 1.12	Diabetes 1.02	Chronic kidney disease 1.42	COPD 1.16	Lower respiratory infect 0.85	Stomach cancer 1.53
Iraq	Ischemic heart disease 1.44	Stroke 1.35	Total cancers 0.67	Diabetes 1.56	Chronic kidney disease 2.3	Alzheimer's disease 1.09	Hypertensive heart disease 1.3	Breast cancer 0.69	Lower respiratory infect 0.43	Lung cancer 0.96
Jordan	Ischemic heart disease 1	Stroke 1.24	Total cancers 0.72	Hypertensive heart disease 4.49	Diabetes 2.5	Chronic kidney disease 3.45	Alzheimer's disease 1.11	Lower respiratory infect 1.03	Breast cancer 0.9	Colorectal cancer 0.8
Kuwait	Ischemic heart disease 0.74	Total cancers 0.5	Stroke 0.75	Alzheimer's disease 1.1	Lower respiratory infect 1.81	Hypertensive heart disease 2.98	Diabetes 2.01	Chronic kidney disease 1.82	Breast cancer 0.61	Colorectal cancer 0.49
Lebanon	Ischemic heart disease 1.41	Total cancers 1.1	Stroke 0.46	Alzheimer's disease 1.21	Hypertensive heart disease 2.12	Chronic kidney disease 1.8	Breast cancer 1.63	Colorectal cancer 1.16	Lower respiratory infect 0.76	COPD 0.81
Libya	Ischemic heart disease 1.08	Stroke 0.82	Total cancers 0.66	Alzheimer's disease 1.26	Chronic kidney disease 1.92	Hypertensive heart disease 0.85	Diabetes 0.85	Lower respiratory infect 0.85	COPD 0.8	Cirrhosis 1.82
Morocco	Ischemic heart disease 1.61	Stroke 1.07	Hypertensive heart disease 1.81	Total cancers 0.69	Chronic kidney disease 1.71	Alzheimer's disease 1.03	Diabetes 0.7	Lower respiratory infect 0.67	COPD 0.68	Tuberculosis 3.29
Oman	Ischemic heart disease 3.61	Stroke 1.89	Total cancers 0.82	Diabetes 4.62	Lower respiratory infect 2.77	Hypertensive heart disease 3.69	Alzheimer's disease 1.35	Chronic kidney disease 2.25	COPD 1.46	Other cardiovascular 3.93
Palestine	Ischemic heart disease 1.17	Stroke 1.22	Total cancers 1.13	Diabetes 2.28	Hypertensive heart disease 2.06	Alzheimer's disease 1.07	Chronic kidney disease 1.66	Lower respiratory infect 0.96	Cirrhosis 1.6	Colorectal cancer 1.51
Qatar	Ischemic heart disease 4.99	Diabetes 17.7	Total cancers 1.57	Chronic kidney disease 10.31	Stroke 1.75	Cirrhosis 7.64	Lower respiratory infect 3.4	Breast cancer 2.05	Colorectal cancer 1.77	COPD 1.73
Saudi Arabia	Ischemic heart disease 1.74	Stroke 1.82	Chronic kidney disease 5.17	Total cancers 0.56	Alzheimer's disease 1.19	Lower respiratory infect 1.68	Cirrhosis 5.88	COPD 1.34	Diabetes 1.39	Total burden related to hep 6.22
Sudan	Ischemic heart disease 1.65	Stroke 1.23	Hypertensive heart disease 1.87	Total cancers 0.69	Alzheimer's disease 0.98	Chronic kidney disease 1.22	Lower respiratory infect 0.64	COPD 0.67	Diabetes 0.48	Cirrhosis 1.18
Syrian Arab Republic	Ischemic heart disease 2.21	Stroke 0.98	Conflict & terror 4546.82	Total cancers 0.66	Chronic kidney disease 1.69	Alzheimer's disease 1.18	Diabetes 0.63	COPD 1.06	Lower respiratory infect 0.99	Cirrhosis 1.99
Tunisia	Ischemic heart disease 1.14	Stroke 0.84	Total cancers 0.56	Alzheimer's disease 1.14	Hypertensive heart disease 1.89	Chronic kidney disease 1.64	Lower respiratory infect 0.79	Diabetes 0.58	COPD 0.78	Colorectal cancer 0.71
Turkey	Ischemic heart disease 1	Stroke 0.95	Total cancers 0.79	Alzheimer's disease 1.17	Hypertensive heart disease 2.52	COPD 1.83	Diabetes 1.71	Chronic kidney disease 2.08	Lower respiratory infect 0.98	Colorectal cancer 0.79
United Arab Emirates	Ischemic heart disease 2.61	Total cancers 0.87	Stroke 2.53	Diabetes 7.35	Chronic kidney disease 7.73	Lower respiratory infect 4.46	Hypertensive heart disease 7.92	Alzheimer's disease 1.27	COPD 1.61	Colorectal cancer 0.87
Yemen	Ischemic heart disease 1.9	Stroke 1.21	Hypertensive heart disease 2.06	Total cancers 0.74	Alzheimer's disease 1.05	COPD 0.88	Lower respiratory infect 0.56	Chronic kidney disease 0.9	Asthma 1.22	Diabetes 0.48
South Asia	Ischemic heart disease 0.72	COPD 3.62	Diarrheal diseases 14.84	Stroke 0.61	Total cancers 0.75	Lower respiratory infect 1.1	Diabetes 0.77	Falls 5.51	Alzheimer's disease 0.79	Asthma 2.8
South Asia	Ischemic heart disease 0.72	COPD 3.62	Diarrheal diseases 14.84	Stroke 0.61	Total cancers 0.75	Lower respiratory infect 1.1	Diabetes 0.77	Falls 5.51	Alzheimer's disease 0.79	Asthma 2.8
Bangladesh	Stroke 1.24	Ischemic heart disease 0.64	Total cancers 0.65	Diarrheal diseases 3.21	COPD 1.3	Diabetes 0.59	Lower respiratory infect 0.7	Alzheimer's disease 0.73	Hypertensive heart disease 1.26	Tuberculosis 1.26
Bhutan	COPD 0.24	Ischemic heart disease 0.63	Total cancers 0.96	Stroke 0.92	Diabetes 1.02	Lower respiratory infect 0.69	Alzheimer's disease 1.7	Diarrheal diseases 1.09	Chronic kidney disease 1.59	Falls 3.91
India	Ischemic heart disease 0.71	COPD 4.05	Diarrheal diseases 24.57	Stroke 0.53	Total cancers 0.71	Lower respiratory infect 1.28	Falls 6.88	Diabetes 0.7	Alzheimer's disease 0.5	Asthma 3.37
Nepal	COPD 6.24	Ischemic heart disease 0.58	Total cancers 0.58	Diarrheal diseases 2.13	Stroke 1.27	Asthma 0.79	Lower respiratory infect 0.86	Alzheimer's disease 0.58	Chronic kidney disease 0.59	Chronic kidney disease 0.59
Pakistan	Ischemic heart disease 1	Stroke 1.07	Total cancers 1.43	Diarrheal diseases 3.8	COPD 1.75	Diabetes 1.59	Hypertensive heart disease 0.98	Cirrhosis 1.91	Chronic kidney disease 1.24	Breast cancer 3.05
Southeast Asia, East Asia, and Oceania	Stroke 1.18	Ischemic heart disease 0.72	Total cancers 0.94	COPD 3.19	Alzheimer's disease 1.04	Hypertensive heart disease 1.35	Lung cancer 2.37	Lower respiratory infect 0.88	Diabetes 0.5	Chronic kidney disease 0.85
East Asia	Stroke 1.17	Ischemic heart disease 0.75	Total cancers 0.96	COPD 3.72	Alzheimer's disease 1.03	Hypertensive heart disease 1.4	Lung cancer 2.58	Lower respiratory infect 0.63	Stomach cancer 1.62	Chronic kidney disease 0.7
China	Stroke 1.17	Ischemic heart disease 0.76	Total cancers 0.97	COPD 3.76	Alzheimer's disease 1.04	Hypertensive heart disease 1.41	Lung cancer 2.65	Stomach cancer 1.64	Lower respiratory infect 0.98	Chronic kidney disease 0.62
Democratic People's Republic of Korea	Stroke 1.32	Ischemic heart disease 0.67	Total cancers 3.93	Alzheimer's disease 0.81	Lower respiratory infect 0.94	Lower respiratory infect 0.86	Hypertensive heart disease 0.97	Lung cancer 1.79	Diabetes 0.32	Stomach cancer 1.24
Taiwan (Province of China)	Total cancers 0.88	Ischemic heart disease 0.45	Stroke 0.67	Alzheimer's disease 0.97	Lower respiratory infect 1.78	Diabetes 1.34	Chronic kidney disease 2.47	Colorectal cancer 1.17	Lung cancer 1.32	COPD 1.12
Oceania	Ischemic heart disease 1.06	Stroke 1	COPD 3.64	Diabetes 2.73	Total cancers 0.95	Asthma 5.11	Diarrheal diseases 2.49	Lower respiratory infect 0.97	Alzheimer's disease 0.93	Hypertensive heart disease 0.96
American Samoa	Ischemic heart disease 0.91	Total cancers 1.22	Stroke 1.09	Diabetes 4.03	Chronic kidney disease 3.18	Alzheimer's disease 1.08	COPD 1.95	Lower respiratory infect 1.36	Breast cancer 1.72	Lung cancer 1.58

Samoa	Ischemic heart disease	Stroke	Diabetes	Total cancers	COPD	Lower respiratory infect	Alzheimer's disease	Chronic kidney disease	Hypertensive heart disease	Asthma
	1.13	1.08	2.55	0.88	2.66	2.08	1.23	1.93	1.33	6.43
Solomon Islands	Stroke	Ischemic heart disease	Lower respiratory infect	Diarrheal diseases	Total cancers	Diabetes	COPD	Asthma	Hypertensive heart disease	Falls
	2.61	2.08	2.66	5.39	1.42	1.91	2.13	2.48	1.08	5.75
Tokelau	Ischemic heart disease	Stroke	Diabetes	Total cancers	COPD	Lower respiratory infect	Alzheimer's disease	Chronic kidney disease	Hypertensive heart disease	Asthma
	1.13	1.04	3.25	1.22	2.3	1.9	1.14	1.92	1.23	5.06
Tonga	Ischemic heart disease	Diabetes	Stroke	Total cancers	Alzheimer's disease	Lower respiratory infect	Chronic kidney disease	COPD	Breast cancer	Asthma
	0.51	2.88	0.67	1.12	1.09	1.58	1.61	1.1	1.58	2.98
Tuvalu	Ischemic heart disease	Stroke	Diabetes	Total cancers	COPD	Lower respiratory infect	Chronic kidney disease	Alzheimer's disease	Hypertensive heart disease	Asthma
	1.28	1.21	3.45	1.2	2.22	1.84	1.72	1.14	1.32	4.4
Vanuatu	Ischemic heart disease	Stroke	Total cancers	Diabetes	COPD	Diarrheal diseases	Lower respiratory infect	Chronic kidney disease	Asthma	Hypertensive heart disease
	1.69	1.46	1.05	2.16	1.73	4.4	1.23	1.46	2.86	1.03
Southeast Asia	Stroke	Ischemic heart disease	Total cancers	Lower respiratory infect	Diabetes	Alzheimer's disease	COPD	Hypertensive heart disease	Chronic kidney disease	Cirrhosis
	1.25	0.61	0.87	1.74	1.19	1.07	1.43	1.21	1.37	2.11
Cambodia	Stroke	Ischemic heart disease	Lower respiratory infect	Total cancers	Cirrhosis	Alzheimer's disease	Diabetes	COPD	Hypertensive heart disease	Tuberculosis
	1.39	0.7	2.54	0.97	2.73	1.09	0.92	0.92	0.96	2.58
Indonesia	Stroke	Ischemic heart disease	Total cancers	Diabetes	Hypertensive heart disease	Diarrheal diseases	Cirrhosis	COPD	Alzheimer's disease	Lower respiratory infect
	1.91	0.77	0.89	1.29	1.99	41.01	4.53	1.88	1.03	1.26
Lao People's Democratic Republic	Stroke	Ischemic heart disease	Total cancers	Lower respiratory infect	Diabetes	COPD	Hypertensive heart disease	Chronic kidney disease	Alzheimer's disease	Diarrheal diseases
	1.41	1.01	0.93	1.59	1.18	1.19	1.14	1.43	0.97	1.78
Malaysia	Ischemic heart disease	Lower respiratory infect	Stroke	Total cancers	Alzheimer's disease	Chronic kidney disease	COPD	Colorectal cancer	Urinary diseases	Diabetes
	1.1	6.1	1.26	1.02	1.02	2.18	1.42	1.39	6.68	0.86
Maldives	Ischemic heart disease	Total cancers	Stroke	COPD	Chronic kidney disease	Alzheimer's disease	Diabetes	Lower respiratory infect	Hypertensive heart disease	Colorectal cancer
	0.68	0.88	0.5	2.02	1.95	1.01	0.56	0.57	0.46	1.22
Mauritius	Ischemic heart disease	Diabetes	Stroke	Total cancers	Chronic kidney disease	Alzheimer's disease	Hypertensive heart disease	Lower respiratory infect	COPD	Breast cancer
	0.64	4.34	0.64	0.67	3.74	1	2.13	0.84	0.82	0.89
Myanmar	Stroke	Ischemic heart disease	Total cancers	COPD	Diabetes	Lower respiratory infect	Alzheimer's disease	Hypertensive heart disease	Asthma	Chronic kidney disease
	1.78	0.64	0.99	2.18	1.29	1	0.99	0.93	2.39	0.91
Philippines	Ischemic heart disease	Stroke	Lower respiratory infect	Total cancers	Hypertensive heart disease	Diabetes	Chronic kidney disease	Alzheimer's disease	COPD	Tuberculosis
	0.75	0.81	4.17	0.78	1.75	1.03	1.82	1.02	1.06	9.7
Seychelles	Ischemic heart disease	Total cancers	Lower respiratory infect	Stroke	Hypertensive heart disease	Chronic kidney disease	Alzheimer's disease	Diabetes	COPD	Colorectal cancer
	0.74	1.15	3.79	0.78	4.05	3.23	1.03	1.39	1.23	1.62
Sri Lanka	Ischemic heart disease	Stroke	Diabetes	Total cancers	Asthma	Alzheimer's disease	Chronic kidney disease	Hypertensive heart disease	Lower respiratory infect	COPD
	0.69	0.74	2.57	0.66	17.02	1.07	1.45	1.26	1.02	1.13
Thailand	Total cancers	Ischemic heart disease	Stroke	Alzheimer's disease	Lower respiratory infect	Chronic kidney disease	Diabetes	COPD	Lung cancer	Liver cancer
	0.87	0.32	0.47	1.02	1.42	1.87	0.77	0.77	1.69	5.2
Timor-Leste	Stroke	Ischemic heart disease	Total cancers	Lower respiratory infect	COPD	Hypertensive heart disease	Diabetes	Alzheimer's disease	Chronic kidney disease	Tuberculosis
	1.5	0.99	0.91	1.92	1.38	1.32	0.83	1.03	1.19	3.05
Viet Nam	Stroke	Ischemic heart disease	Total cancers	Alzheimer's disease	Diabetes	COPD	Chronic kidney disease	Lower respiratory infect	Hypertensive heart disease	Falls
	1.23	0.84	0.86	1.27	1.23	1.41	1.55	1.06	1.11	5.03
Sub-Saharan Africa	Stroke	Ischemic heart disease	Total cancers	Lower respiratory infect	Hypertensive heart disease	Diarrheal diseases	Diabetes	Alzheimer's disease	Tuberculosis	COPD
	0.94	0.74	1.01	1.58	1.41	1.59	1.18	1.09	1.88	0.8
Central Sub-Saharan Africa	Ischemic heart disease	Stroke	Lower respiratory infect	Hypertensive heart disease	Total cancers	Tuberculosis	COPD	Diarrheal diseases	Alzheimer's disease	Diabetes
	0.91	0.99	1.68	2.18	0.91	2.64	1.4	1.43	1.11	0.81
Angola	Ischemic heart disease	Stroke	Total cancers	Lower respiratory infect	Hypertensive heart disease	Diarrheal diseases	COPD	Alzheimer's disease	Tuberculosis	Diabetes
	0.83	0.98	0.89	1.55	2.04	3.23	0.98	1.12	3.06	0.86
Central African Republic	Stroke	Ischemic heart disease	Diarrheal diseases	Tuberculosis	Lower respiratory infect	Hypertensive heart disease	Total cancers	COPD	Asthma	Diabetes
	1.17	1.15	2.11	2.25	1.33	2.14	0.92	1.5	1.78	1.04
Congo	Ischemic heart disease	Stroke	Total cancers	Hypertensive heart disease	Lower respiratory infect	Diabetes	COPD	Alzheimer's disease	Tuberculosis	Diarrheal diseases
	0.98	1.15	1.09	3.12	2.83	1.2	1.35	1.17	3.2	8.71
Democratic Republic of the Congo	Ischemic heart disease	Stroke	Lower respiratory infect	Hypertensive heart disease	Total cancers	Tuberculosis	COPD	Alzheimer's disease	Diarrheal diseases	Asthma
	0.92	0.97	1.66	2.14	0.9	2.52	1.5	1.1	1.06	1.74
Equatorial Guinea	Ischemic heart disease	Stroke	Total cancers	Lower respiratory infect	Hypertensive heart disease	Diabetes	Alzheimer's disease	COPD	Chronic kidney disease	Breast cancer
	0.8	1.08	1.06	3.74	3.63	1.78	1.21	1.78	1.98	1.54
Gabon	Ischemic heart disease	Stroke	Total cancers	Hypertensive heart disease	Lower respiratory infect	Diabetes	Alzheimer's disease	Chronic kidney disease	COPD	Breast cancer
	0.74	0.87	1.08	3.89	2.84	1.6	1.24	2.32	1.31	1.62
Eastern Sub-Saharan Africa	Stroke	Ischemic heart disease	Lower respiratory infect	Total cancers	Hypertensive heart disease	Diarrheal diseases	Tuberculosis	Alzheimer's disease	Diabetes	Cirrhosis
	0.96	0.65	1.39	1.04	1.56	1.2	1.7	1.13	0.94	1.47
Burundi	Stroke	Ischemic heart disease	Lower respiratory infect	Tuberculosis	Total cancers	Diarrheal diseases	Hypertensive heart disease	Alzheimer's disease	COPD	Diabetes
	0.98	0.86	1.29	1.89	0.98	0.96	1.26	1.06	1	0.98
Comoros	Stroke	Ischemic heart disease	Lower respiratory infect	Total cancers	Hypertensive heart disease	Alzheimer's disease	Tuberculosis	Diabetes	Diarrheal diseases	Chronic kidney disease
	1.01	0.77	1.77	1.03	1.77	1.14	3.27	1.02	1.92	1.07
Djibouti	Stroke	Ischemic heart disease	Total cancers	Lower respiratory infect	Hypertensive heart disease	Diabetes	Alzheimer's disease	Tuberculosis	Diarrheal diseases	Chronic kidney disease
	0.98	0.75	1.11	1.7	1.76	1.08	1.18	2.69	1.66	1.07
Eritrea	Stroke	Lower respiratory infect	Ischemic heart disease	Total cancers	Hypertensive heart disease	Tuberculosis	Diarrheal diseases	Diabetes	Cirrhosis	Alzheimer's disease
	1.09	2.27	0.77	1.19	2.22	3.87	2.5	1.23	3.87	1.16
Ethiopia	Stroke	Ischemic heart disease	Lower respiratory infect	Total cancers	Diarrheal diseases	Hypertensive heart disease	Alzheimer's disease	Tuberculosis	Cirrhosis	Diabetes
	0.79	0.71	1.17	0.94	1.25	1.27	1.32	1.72	1.72	0.93
Kenya	Stroke	Ischemic heart disease	Lower respiratory infect	Total cancers	Hypertensive heart disease	Diarrheal diseases	Cirrhosis	Alzheimer's disease	Tuberculosis	Diabetes
	0.88	0.84	2.18	0.96	1.6	3.79	2.62	1.11	8.32	0.73
Madagascar	Stroke	Ischemic heart disease	Hypertensive heart disease	Lower respiratory infect	Total cancers	Diarrheal diseases	Tuberculosis	COPD	Diabetes	Alzheimer's disease
	1.46	0.87	2.67	1.62	0.85	1.85	2.58	1.02	0.83	0.85
Malawi	Stroke	Ischemic heart disease	Total cancers	Lower respiratory infect	Diarrheal diseases	Hypertensive heart disease	Tuberculosis	Alzheimer's disease	Diabetes	Cirrhosis
	0.87	0.59	1.18	1.32	1.71	1.39	2.18	1.13	0.91	1.41
Mozambique	Stroke	Ischemic heart disease	Total cancers	Lower respiratory infect	Hypertensive heart disease	Tuberculosis	Alzheimer's disease	Diabetes	Malaria	Diarrheal diseases
	1.2	0.62	1.16	1.05	1.7	1.87	1.23	0.98	5.31	0.44
Rwanda	Stroke	Ischemic heart disease	Total cancers	Lower respiratory infect	Hypertensive heart disease	Alzheimer's disease	Diabetes	Tuberculosis	COPD	Diarrheal diseases
	1.02	0.65	1.08	1.54	1.48	1.16	0.99	2.26	0.91	1.38
Somalia	Stroke	Tuberculosis	Ischemic heart disease	Diarrheal diseases	Lower respiratory infect	Hypertensive heart disease	Total cancers	Diabetes	COPD	Cirrhosis
	0.97	0.63	1.02	0.96	0.73	1.19	1.02	1.25	0.94	0.57
South Sudan	Stroke	Ischemic heart disease	Diarrheal diseases	Lower respiratory infect	Total cancers	Hypertensive heart disease	Tuberculosis	Alzheimer's disease	Diabetes	Cirrhosis
	0.85	0.64	2.25	1.23	0.97	1.37	2.13	1	0.94	1.36
Uganda	Stroke	Ischemic heart disease	Total cancers	Lower respiratory infect	Hypertensive heart disease	Tuberculosis	Alzheimer's disease	Diabetes	Diarrheal diseases	COPD
	0.88	0.61	1.22	1.52	1.33	2.33	1.1	1	1.3	0.66
United Republic of Tanzania	Stroke	Ischemic heart disease	Total cancers	Lower respiratory infect	Hypertensive heart disease	Diarrheal diseases	Alzheimer's disease	Tuberculosis	Diabetes	Chronic kidney disease
	1	0.59	1.12	1.57	1.73	1.85	1.14	2.51	1	1.14
Zambia	Stroke	Total cancers	Hypertensive heart disease	Ischemic heart disease	Lower respiratory infect	Diarrheal diseases	Diabetes	Tuberculosis	Alzheimer's disease	Cirrhosis
	1.38	1.09	2.71	0.89	1.83	3.48	0.93	4.28	1.08	2.13
Southern Sub-Saharan Africa	Stroke	Ischemic heart disease	Total cancers	Diabetes	Lower respiratory infect	Hypertensive heart disease	Alzheimer's disease	COPD	Chronic kidney disease	Diarrheal diseases
	0.9	0.87	1.07	2.51	2.48	2.19	1	1.36	1.52	10.28
Botswana	Stroke	Ischemic heart disease	Total cancers	Diabetes	Lower respiratory infect	Hypertensive heart disease	Alzheimer's disease	COPD	Chronic kidney disease	Breast cancer
	1.19	0.69	1.28	2.72	3.42	2.37	1.08	1.6	1.55	1.64
Eswatini	Stroke	Diabetes	Ischemic heart disease	Total cancers	Lower respiratory infect	Hypertensive heart disease	Diarrheal diseases	Chronic kidney disease	COPD	Alzheimer's disease
	1.15	3.22	0.86	1.25	2.34	2.15	11.88	1.47	1.25	0.95
Lesotho	Stroke	Ischemic heart disease	Diabetes	Total cancers	Lower respiratory infect	Hypertensive heart disease	Diarrheal diseases	COPD	HIV/AIDS	Tuberculosis
	1.56	0.75	3	1.39	2.21	2.45	6.24	1.92	436.75	5.35
Namibia	Stroke	Ischemic heart disease	Total cancers	Lower respiratory infect	Diabetes	Hypertensive heart disease	Alzheimer's disease	COPD	Diarrheal diseases	Chronic kidney disease
	1.11	0.6	0.91	2.82	1.78	2.31	1.08	1.59	14.45	1.03
South Africa	Stroke	Total cancers	Ischemic heart disease	Diabetes	Lower respiratory infect	Hypertensive heart disease	Alzheimer's disease	COPD	Chronic kidney disease	Diarrheal diseases
	0.86	0.99	0.49	2.63	2.43	2.42	0.99	1.47	1.61	27.4
Zimbabwe	Ischemic heart disease	Total cancers	Stroke	Lower respiratory infect	Diabetes	Alzheimer's disease	Tuberculosis	Hypertensive heart disease	Chronic kidney disease	Diarrheal diseases
	1.15	1.74	0.9	2.61	1.7	1.06	3.07	0.92	1.16	1.81
Western Sub-Saharan Africa	Ischemic heart disease	Stroke	Lower respiratory infect	Total cancers	Diarrheal diseases	Malaria	Diabetes	Alzheimer's disease	Tuberculosis	Hypertensive heart disease
	0.86	0.91	1.55	0.97	1.78	19.44	1.05	1.1	1.65	0.83
Benin	Stroke	Ischemic heart disease	Lower respiratory infect	Total cancers	Malaria	Diarrheal diseases	Diabetes	Alzheimer's disease	Hypertensive heart disease	Chronic kidney disease
	0.99	0.88	1.43	1	10.79	1.09	1.09	1.09	0.75	1.14
Burkina Faso	Ischemic heart disease	Stroke	Lower respiratory infect	Total cancers	Diarrheal diseases	Malaria	Hypertensive heart disease	Alzheimer's disease	Tuberculosis	Diabetes
	1.03	0.94	1.18	1.11	0.8	6.27	0.9	1.15	0.71	0.83
Cabo Verde	Ischemic heart disease	Total cancers	Stroke	Lower respiratory infect	Alzheimer's disease	Diabetes	Chronic kidney disease	Hypertensive heart disease	Stomach cancer	COPD
	0.91	1.53	0.62	1.66	1	1.2	0.92	0.68	2.27	0.52
Cameroon	Ischemic heart disease	Stroke	Total cancers	Lower respiratory infect	Diabetes	Malaria	Chronic kidney disease	Alzheimer's disease	Diarrheal diseases	Tuberculosis
	0.74	0.9	1.09	2.06	1.42	417.05	1.58	1.1	2.41	2.87
Chad	Ischemic heart disease	Stroke	Lower respiratory infect	Diarrheal diseases	Total cancers	Tuberculosis	Diabetes	Alzheimer's disease	Hypertensive heart disease	Cirrhosis
	1.01	0.87	1.27	0.93	1.08	0.92	1.19	1.05	0.74	1.07
Côte d'Ivoire	Ischemic heart disease	Stroke	Lower respiratory infect	Total cancers	Malaria	Diabetes	Alzheimer's disease	Diarrheal diseases	Tuberculosis	Chronic kidney disease
	0.84	0.8	1.65	1.02	55.76	1.2	1.06	1.3	1.8	1.18
Gambia	Ischemic heart disease	Stroke	Lower respiratory infect	Total cancers	Diabetes	Tuberculosis	Alzheimer's disease	Hypertensive heart disease	Diarrheal diseases	Chronic kidney disease
	1.11	0.96	2.02	0.87	1.2	2.32	1.13	0.93	1.16	1.22
Ghana	Stroke	Ischemic heart disease	Total cancers	Lower respiratory infect	Diabetes	Chronic kidney disease	Alzheimer's disease	Malaria	Hypertensive heart disease	Diarrheal diseases
	1.27	0.87	0.99	1.97	0.94	1.36	0.95	981.74	1.02	4.73
Guinea	Ischemic heart disease	Stroke	Lower respiratory infect	Total cancers	Diarrheal diseases	Diabetes	Alzheimer's disease	Tuberculosis	Hypertensive heart disease	Chronic kidney disease
	0.98	0.96	1.74	1.19	1.22	1.32	1.11	1.28	0.89	1.2
Guinea-Bissau	Ischemic heart disease	Stroke	Lower respiratory infect	Total cancers	Diarrheal diseases	Diabetes	Tuberculosis	Hypertensive heart disease	Alzheimer's disease	Chronic kidney disease
	1.14	1.02	1.88	1.15	2.11	1.44	1.64	0.97	1.06	1.23
Liberia	Ischemic heart disease	Stroke	Lower respiratory infect	Total cancers	Malaria	Diarrheal diseases	Diabetes	Alzheimer's disease	Chronic kidney disease	Tuberculosis
	0.95	0.63	1.44	1.02	18.86	1.47	1.21	1.07	1.34	1.42
Mali	Ischemic heart disease	Stroke	Diarrheal diseases	Total cancers	Protein-energy malnutrition	Diabetes	Lower respiratory infect	Tuberculosis	Alzheimer's disease	Hypertensive heart disease
	1.12	0.93	1	0.97	4.8	1.39	0.83	1.16	1.16	0.76
Mauritania	Ischemic heart disease	Stroke	Lower respiratory infect	Total cancers	Diabetes	Malaria	Alzheimer's disease	Chronic kidney disease	Diarrheal diseases	Hypertensive heart disease
	0.86	0.82	2.09	1.08	1.26	430.62				

Figure S22. Leading ten causes of total years lived with disability with ratio of observed to expected years lived with disability in 2019, among people 70 years and older, in males, for all GBD locations. Causes are ranked based on global estimates of YLDs. Causes are color coded (shown in color key) based on observed to expected (O:E) rate ratio on the basis of SDI from the epidemiologic transition analysis. Shades of blue represent much lower observed deaths and YLDs than expected levels based on SDI, whereas red shows that observed deaths and YLDs exceed expected levels. When the ratio exceeds 1 means that observed levels exceeded the expected levels on the basis of SDI. O:E ratios are listed in each cell. YLDs = years of life lived with disability.

Location	1	2	3	4	5	6	7	8	9	10
Global	Age-related hearing loss 1.09	Diabetes 0.97	COPD 1.51	Low back pain 0.9	Blindness and vision loss 1.28	Stroke 1.16	Falls 1.12	Alzheimer's disease 1.04	Osteoarthritis 1.01	Oral disorders 0.87
Central Europe, Eastern Europe, and Central Asia	Age-related hearing loss 1.09	Low back pain 1.22	Diabetes 0.93	Falls 1.46	Blindness and vision loss 1.46	Alzheimer's disease 1.18	Oral disorders 1.12	Osteoarthritis 1.06	Stroke 1.12	COPD 0.79
Central Asia	Age-related hearing loss 0.97	Diabetes 0.81	Low back pain 1.09	Blindness and vision loss 1.25	Oral disorders 1.33	Alzheimer's disease 1.19	COPD 0.97	Stroke 0.87	Osteoarthritis 0.99	Falls 1.05
Armenia	Age-related hearing loss 0.98	Low back pain 1.15	Diabetes 0.83	Blindness and vision loss 1.33	Oral disorders 1.35	Alzheimer's disease 1.22	COPD 1.19	Osteoarthritis 0.97	Ischemic heart disease 1.09	Atrial fibrillation 1.39
Azerbaijan	Age-related hearing loss 0.98	Low back pain 1.1	Diabetes 0.79	Blindness and vision loss 1.35	Oral disorders 1.31	Alzheimer's disease 1.17	Stroke 0.88	COPD 0.97	Osteoarthritis 0.96	Ischemic heart disease 1.01
Georgia	Diabetes 1.06	Age-related hearing loss 0.99	Low back pain 0.99	Blindness and vision loss 1.43	Alzheimer's disease 1.19	Oral disorders 1.21	Falls 1.53	Depressive disorders 1.6	Stroke 0.91	COPD 0.85
Kazakhstan	Age-related hearing loss 1.01	Low back pain 1.13	Diabetes 0.89	Blindness and vision loss 1.57	Oral disorders 1.43	COPD 1.28	Alzheimer's disease 1.15	Stroke 1.04	Falls 1.09	Osteoarthritis 0.95
Kyrgyzstan	Age-related hearing loss 0.95	Low back pain 1.12	Blindness and vision loss 0.9	Oral disorders 1.35	COPD 1.57	Alzheimer's disease 1.25	Diabetes 0.91	Osteoarthritis 1.06	Depressive disorders 1.18	Ischemic heart disease 0.91
Mongolia	Age-related hearing loss 0.93	Blindness and vision loss 1.16	Low back pain 1.1	Oral disorders 1.27	Alzheimer's disease 1.2	Falls 1.7	Diabetes 0.86	Osteoarthritis 1.04	Ischemic heart disease 1.09	Depressive disorders 1.26
Tajikistan	Age-related hearing loss 0.96	Diabetes 0.83	Low back pain 1.09	Blindness and vision loss 0.92	Oral disorders 1.42	Alzheimer's disease 1.26	Osteoarthritis 1.03	Ischemic heart disease 1	Atrial fibrillation 1.66	Falls 1.36
Turkmenistan	Age-related hearing loss 0.96	Low back pain 1.09	Blindness and vision loss 1.34	Diabetes 0.66	Oral disorders 1.27	Alzheimer's disease 1.22	Stroke 0.98	Osteoarthritis 1.04	Ischemic heart disease 0.98	Atrial fibrillation 1.44
Uzbekistan	Age-related hearing loss 0.94	Diabetes 0.8	Low back pain 1.08	Blindness and vision loss 1.09	Oral disorders 1.3	Stroke 0.92	Osteoarthritis 1.04	Alzheimer's disease 1.14	Atrial fibrillation 1.5	Depressive disorders 1.04
Central Europe	Diabetes 1.33	Low back pain 1.3	Age-related hearing loss 1.08	Falls 1.56	COPD 1.01	Stroke 1.28	Alzheimer's disease 1.18	Oral disorders 1.06	Mechanical forces 2.54	Blindness and vision loss 1.17
Albania	Low back pain 1.39	Age-related hearing loss 0.96	Diabetes 0.64	Mechanical forces 3.78	Oral disorders 1.09	Alzheimer's disease 1.19	Blindness and vision loss 0.77	Stroke 0.99	COPD 1.07	Falls 1.14
Bosnia and Herzegovina	Diabetes 1.5	Age-related hearing loss 0.98	Low back pain 1.22	Stroke 1.56	Falls 1.44	COPD 1.17	Oral disorders 1.08	Alzheimer's disease 1.14	Blindness and vision loss 0.9	Mechanical forces 2.67
Bulgaria	Low back pain 1.36	Diabetes 1.1	Age-related hearing loss 1.04	Stroke 1.68	Falls 1.18	Mechanical forces 3.06	COPD 0.98	Alzheimer's disease 1.15	Oral disorders 1	Blindness and vision loss 1.08
Croatia	Diabetes 1.45	Low back pain 1.25	Age-related hearing loss 1.06	Falls 1.97	COPD 1.25	Total cancers 1.17	Alzheimer's disease 1.18	Stroke 1.22	Oral disorders 1.14	Blindness and vision loss 1.21
Czechia	Diabetes 2.32	Low back pain 1.28	Age-related hearing loss 1.08	Falls 1.47	COPD 0.88	Alzheimer's disease 1.18	Total cancers 0.92	Oral disorders 1.11	Stroke 1.15	Ischemic heart disease 1.63
Hungary	Diabetes 1.46	Low back pain 1.43	Age-related hearing loss 1.05	Falls 1.75	COPD 1.31	Stroke 1.38	Alzheimer's disease 1.18	Oral disorders 1.08	Blindness and vision loss 1.27	Total cancers 0.88
Montenegro	Diabetes 1.53	Low back pain 1.3	Age-related hearing loss 1.06	Falls 1.46	Stroke 1.33	Oral disorders 1.17	Alzheimer's disease 1.18	Ischemic heart disease 1.43	Blindness and vision loss 1.23	Mechanical forces 2.29
North Macedonia	Diabetes 1.57	Age-related hearing loss 1.01	Low back pain 1.19	Stroke 1.89	Oral disorders 1.16	Falls 1.09	COPD 0.91	Alzheimer's disease 1.12	Blindness and vision loss 1.02	Mechanical forces 2.53
Poland	Diabetes 1.3	Age-related hearing loss 1.17	Low back pain 1.25	Falls 1.66	COPD 0.96	Alzheimer's disease 1.2	Ischemic heart disease 1.5	Oral disorders 1	Osteoarthritis 0.87	Mechanical forces 2.32
Romania	Low back pain 1.32	Age-related hearing loss 1.03	Diabetes 0.87	Falls 1.48	Stroke 1.5	Alzheimer's disease 1.17	COPD 0.99	Mechanical forces 2.8	Blindness and vision loss 1.09	Oral disorders 1
Serbia	Diabetes 1.48	Low back pain 1.33	Age-related hearing loss 1.03	Stroke 1.66	COPD 1.19	Falls 1.16	Oral disorders 1.15	Alzheimer's disease 1.12	Blindness and vision loss 1.12	Mechanical forces 2.47
Slovakia	Low back pain 1.34	Falls 1.91	Age-related hearing loss 1.07	Diabetes 1.09	Stroke 1.36	Total cancers 1.04	Oral disorders 1.16	Alzheimer's disease 1.17	Mechanical forces 2.77	Ischemic heart disease 1.54
Slovenia	Falls 1.83	Low back pain 1.28	Diabetes 1.23	Age-related hearing loss 1	Alzheimer's disease 1.21	Mechanical forces 3.05	COPD 0.84	Oral disorders 1.27	Total cancers 0.81	Blindness and vision loss 1.47
Eastern Europe	Age-related hearing loss 1.13	Low back pain 1.16	Falls 1.4	Blindness and vision loss 1.75	Osteoarthritis 1.24	Diabetes 0.61	Alzheimer's disease 1.18	Oral disorders 1.13	Urinary diseases 2.86	Stroke 1.02
Belarus	Age-related hearing loss 1.06	Low back pain 1.22	Falls 1.9	Blindness and vision loss 1.37	Alzheimer's disease 1.21	Diabetes 0.54	Urinary diseases 2.72	Alcohol use disorders 6.51	Osteoarthritis 1.02	Oral disorders 0.97
Estonia	Age-related hearing loss 1.16	Low back pain 1.19	Falls 1.2	Diabetes 0.86	Total cancers 1.13	Alzheimer's disease 1.24	Urinary diseases 2.97	Depressive disorders 1.87	Osteoarthritis 0.91	Oral disorders 1.04
Latvia	Age-related hearing loss 1.13	Low back pain 1.17	Falls 1.31	Diabetes 0.79	Blindness and vision loss 1.91	Alzheimer's disease 1.19	Urinary diseases 3.19	Depressive disorders 1.92	Osteoarthritis 0.92	Stroke 1.01
Lithuania	Age-related hearing loss 1.16	Low back pain 1.2	Falls 1.43	Blindness and vision loss 2.11	Diabetes 0.7	Alzheimer's disease 1.19	Urinary diseases 3.27	Total cancers 0.84	Depressive disorders 1.8	Osteoarthritis 0.79
Republic of Moldova	Age-related hearing loss 1.01	Low back pain 1.21	Blindness and vision loss 1.58	Diabetes 0.7	Alzheimer's disease 1.2	Falls 1.4	Urinary diseases 2.62	Oral disorders 0.97	Osteoarthritis 1.1	Ischemic heart disease 1.08
Russian Federation	Age-related hearing loss 1.15	Low back pain 1.12	Falls 1.29	Blindness and vision loss 2.01	Osteoarthritis 1.35	Diabetes 0.62	Alzheimer's disease 1.18	Oral disorders 1.18	Urinary diseases 2.92	Stroke 1.1
Ukraine	Age-related hearing loss 1.08	Low back pain 1.27	Falls 1.74	Blindness and vision loss 1.3	Diabetes 0.57	Alzheimer's disease 1.17	Oral disorders 1.08	Urinary diseases 2.89	Depressive disorders 1.83	Osteoarthritis 1.02
High-income	Age-related hearing loss 1.16	Diabetes 1.25	Low back pain 1.04	COPD 1.2	Falls 0.94	Total cancers 1.01	Alzheimer's disease 1.09	Osteoarthritis 1.05	Stroke 1.06	Oral disorders 0.95
Australasia	Age-related hearing loss 1.34	Falls 1.43	Diabetes 1.04	Low back pain 0.91	Total cancers 1.26	COPD 1	Osteoarthritis 1.04	Mechanical forces 2.77	Oral disorders 1.12	Alzheimer's disease 0.94
Australia	Age-related hearing loss 1.34	Diabetes 1.07	Falls 1.43	Low back pain 0.92	Total cancers 1.26	COPD 0.99	Osteoarthritis 1.04	Mechanical forces 2.88	Oral disorders 1.1	Alzheimer's disease 0.93
New Zealand	Age-related hearing loss 1.34	Falls 1.44	Low back pain 0.89	Diabetes 0.88	Total cancers 1.25	COPD 1.02	Mechanical forces 3.22	Osteoarthritis 1.05	Oral disorders 1.22	Alzheimer's disease 1.03
High-income Asia Pacific	Age-related hearing loss 1.28	Low back pain 0.94	Diabetes 0.93	COPD 0.97	Stroke 1.49	Alzheimer's disease 1.11	Falls 0.74	Total cancers 0.75	Osteoarthritis 0.91	Oral disorders 0.94
Brunel Darussalam	Diabetes 1.19	Age-related hearing loss 0.86	COPD 1.07	Low back pain 0.96	Stroke 1.81	Osteoarthritis 0.97	Falls 0.81	Total cancers 0.8	Other musculoskeletal 1.95	Asthma 3.02
Japan	Age-related hearing loss 1.29	Low back pain 0.95	Diabetes 0.89	COPD 0.91	Stroke 1.5	Alzheimer's disease 1.13	Total cancers 0.83	Falls 0.72	Osteoarthritis 0.9	Oral disorders 0.98
Republic of Korea	Age-related hearing loss 1.27	COPD 1.35	Diabetes 1.11	Low back pain 0.88	Falls 0.89	Stroke 1.42	Osteoarthritis 0.88	Total cancers 0.79	Alzheimer's disease 0.95	Other musculoskeletal 1.84
Singapore	Age-related hearing loss 1.26	Diabetes 1.29	COPD 1.05	Low back pain 0.73	Osteoarthritis 0.95	Stroke 1.11	Alzheimer's disease 0.98	Other musculoskeletal 2.57	Falls 0.61	Total cancers 0.62
High-income North America	Diabetes 1.69	Age-related hearing loss 1.39	COPD 1.68	Low back pain 1.34	Total cancers 1.17	Osteoarthritis 1.26	Falls 0.94	Alzheimer's disease 1.24	Stroke 1.38	Atrial fibrillation 1.72
Canada	Age-related hearing loss 1.08	Total cancers 1.42	Low back pain 0.96	Diabetes 1	COPD 0.96	Alzheimer's disease 0.88	Alzheimer's disease 1.13	Stroke 1.28	Atrial fibrillation 1.6	Other musculoskeletal 3.3
Greenland	Age-related hearing loss 1.13	Low back pain 1.15	Falls 2.17	Stroke 2.27	Diabetes 0.93	COPD 1.48	Total cancers 1.31	Osteoarthritis 1.12	Alzheimer's disease 1.2	Atrial fibrillation 1.81
United States of America	Diabetes 1.77	Age-related hearing loss 1.43	COPD 1.79	Low back pain 1.39	Total cancers 1.14	Osteoarthritis 1.3	Falls 0.93	Alzheimer's disease 1.26	Stroke 1.39	Atrial fibrillation 1.73
Southern Latin America	Age-related hearing loss 1.16	Diabetes 0.96	Low back pain 0.8	Other musculoskeletal 4.16	Osteoarthritis 1.22	Alzheimer's disease 1.08	COPD 1	Oral disorders 0.83	Blindness and vision loss 0.89	Total cancers 0.99
Argentina	Age-related hearing loss 1.13	Diabetes 0.91	Low back pain 0.8	Other musculoskeletal 4.31	Osteoarthritis 1.24	Alzheimer's disease 1.08	COPD 1.1	Oral disorders 0.86	Blindness and vision loss 0.88	Total cancers 1.01
Chile	Age-related hearing loss 1.22	Diabetes 1.15	Low back pain 0.78	Other musculoskeletal 3.87	Osteoarthritis 1.16	Alzheimer's disease 1.08	Falls 0.92	COPD 0.78	Oral disorders 0.82	Total cancers 0.98
Uruguay	Age-related hearing loss 1.12	Diabetes 0.73	Low back pain 0.82	COPD 1.34	Alzheimer's disease 1.08	Osteoarthritis 1.27	Other musculoskeletal 4.08	Mechanical forces 2.8	Total cancers 1.42	Oral disorders 0.89
Western Europe	Diabetes 1.17	Age-related hearing loss 0.95	Low back pain 0.93	COPD 1.03	Falls 1.04	Total cancers 1.01	Alzheimer's disease 0.99	Osteoarthritis 0.99	Oral disorders 1.02	Atrial fibrillation 1.07
Andorra	Diabetes 1.08	Falls 0.93	Age-related hearing loss 0.91	Osteoarthritis 0.98	Low back pain 1.35	COPD 1	Oral disorders 0.83	Total cancers 0.98	Endo/metab/blood/immun 1.06	Alzheimer's disease 0.94
Austria	Diabetes 1.06	Falls 1.28	Age-related hearing loss 0.84	Low back pain 0.81	COPD 0.83	Oral disorders 1.22	Total cancers 0.87	Alzheimer's disease 2.54	Stroke 0.95	Ischemic heart disease 1.01
Belgium	Diabetes 1.12	Age-related hearing loss 0.95	COPD 1.28	Falls 1.31	Low back pain 0.91	Osteoarthritis 1.2	Oral disorders 0.97	Alzheimer's disease 1.22	Stroke 0.95	Atrial fibrillation 1.01
Cyprus	Diabetes 1.55	Low back pain 0.98	Age-related hearing loss 0.87	COPD 1.17	Osteoarthritis 1.29	Total cancers 1.09	Falls 0.96	Oral disorders 1.07	Alzheimer's disease 0.97	Atrial fibrillation 0.99
Denmark	Low back pain 1.17	COPD 1.15	Age-related hearing loss 0.81	Total cancers 0.86	Diabetes 0.77	Osteoarthritis 1.09	Falls 0.72	Oral disorders 1.08	Alzheimer's disease 0.92	Stroke 0.74
Finland	Falls 1.68	Diabetes 1.21	Age-related hearing loss 0.87	Total cancers 0.86	Total cancers 1.04	COPD 0.79	Oral disorders 1.13	Alzheimer's disease 0.94	Osteoarthritis 0.84	Ischemic heart disease 1.28
France	Age-related hearing loss 0.98	Falls 1.4	Low back pain 0.89	Total cancers 1.04	Alzheimer's disease 0.98	Osteoarthritis 1	Diabetes 0.56	Oral disorders 1.04	COPD 0.51	Atrial fibrillation 1.05
Germany	Diabetes 1.5	Low back pain 1	Age-related hearing loss 0.94	COPD 0.93	Falls 0.88	Total cancers 0.81	Alzheimer's disease 1.05	Osteoarthritis 0.8	Oral disorders 1.05	Atrial fibrillation 1.03
Greece	Age-related hearing loss 0.99	Diabetes 1.07	COPD 1.49	Low back pain 0.88	Alzheimer's disease 0.96	Total cancers 1.13	Oral disorders 1.03	Depressive disorders 1.81	Falls 0.79	Osteoarthritis 0.89
Iceland	Diabetes 1.05	Age-related hearing loss 0.91	Low back pain 0.93	Osteoarthritis 1.4	Falls 0.94	COPD 0.85	Total cancers 0.93	Alzheimer's disease 0.96	Oral disorders 1.07	Atrial fibrillation 1.05
Ireland	Diabetes 1.13	Low back pain 1.07	Age-related hearing loss 0.9	COPD 1.15	Total cancers 0.99	Falls 0.79	Osteoarthritis 1.01	Oral disorders 1.19	Alzheimer's disease 0.98	Atrial fibrillation 1.04
Israel	Diabetes 0.99	Age-related hearing loss 0.87	Low back pain 0.95	Osteoarthritis 1.25	Oral disorders 1.12	Alzheimer's disease 0.96	COPD 0.77	Total cancers 0.86	Falls 0.74	Depressive disorders 1.42
Italy	Diabetes 1.21	Age-related hearing loss 1.07	Low back pain 0.94	COPD 1.06	Falls 1.16	Total cancers 1.23	Alzheimer's disease 1.12	Osteoarthritis 1.02	Blindness and vision loss 1.2	Oral disorders 0.94
Luxembourg	Diabetes 1.71	Falls 1.02	Age-related hearing loss 0.84	COPD 0.95	Low back pain 0.85	Total cancers 0.72	Osteoarthritis 0.96	Oral disorders 1.21	Alzheimer's disease 0.84	Atrial fibrillation 1.05
Malta	Diabetes 1.2	Low back pain 1.08	Age-related hearing loss 0.86	COPD 1.17	Falls 1.18	Osteoarthritis 1.11	Total cancers 0.91	Alzheimer's disease 0.96	Oral disorders 0.89	Ischemic heart disease 1.17
Monaco	Total cancers 1.23	Age-related hearing loss 0.93	Diabetes 1.04	Low back pain 0.9	COPD 0.89	Osteoarthritis 0.98	Falls 0.64	Alzheimer's disease 0.96	Oral disorders 0.99	Stroke 0.91
Netherlands	COPD 1.36	Diabetes 0.99	Age-related hearing loss 0.88	Total cancers 1.06	Low back pain 0.88	Falls 0.89	Oral disorders 1.45	Osteoarthritis 0.93	Alzheimer's disease 1.05	Atrial fibrillation 0.89
Norway	Age-related hearing loss 1.2	Falls 1.12	Diabetes 1.22	Low back pain 0.84	COPD 0.89	Total cancers 0.83	Stroke 1.36	Osteoarthritis 0.97	Alzheimer's disease 0.96	Oral disorders 1.05
Portugal	Diabetes 1.2	Age-related hearing loss 0.93	Low back pain 0.97	COPD 1.34	Total cancers 1.37	Alzheimer's disease 0.96	Osteoarthritis 1.09	Falls 1.01	Oral disorders 0.95	Depressive disorders 1.46
San Marino	Diabetes 1.11	Age-related hearing loss 0.92	Total cancers 1.18	Low back pain 0.91	COPD 0.95	Falls 0.76	Osteoarthritis 0.99	Alzheimer's disease 0.96	Oral disorders 1.06	Atrial fibrillation 0.96
Spain	Diabetes 1.28	Age-related hearing loss 0.95	COPD 1.53	Total cancers 1.47	Low back pain 0.73	Blindness and vision loss 1.26	Falls 1.04	Osteoarthritis 1.12	Alzheimer's disease 0.88	Depressive disorders 1.46
Sweden	Falls 1.21	Low back pain 0.97	Diabetes 0.97	COPD 0.82	Total cancers 0.86	Age-related hearing loss 0.59	Atrial fibrillation 1.46	Oral disorders 1.04	Osteoarthritis 0.82	Ischemic heart disease 1.55
Switzerland	Falls 1.03	Low back pain 1.04	Diabetes 1.2	Age-related						

Latin America and Caribbean	Diabetes 1.24	Age-related hearing loss 0.96	Blindness and vision loss 1.17	Low back pain 0.75	Oral disorders 1.12	Alzheimer's disease 0.99	Osteoarthritis 1.17	Other musculoskeletal 3.29	Falls 1.36	Ischemic heart disease 0.91
Andean Latin America	Age-related hearing loss 1.06	Diabetes 0.86	Blindness and vision loss 1.31	Oral disorders 1.43	Low back pain 0.76	Alzheimer's disease 0.9	Osteoarthritis 1.1	Other musculoskeletal 3.09	Falls 0.95	Urinary diseases 1.43
Bolivia (Plurinational State of)	Age-related hearing loss 1.08	Diabetes 1.03	Blindness and vision loss 1.09	Oral disorders 1.46	Low back pain 0.81	Osteoarthritis 1.12	Alzheimer's disease 0.93	Other musculoskeletal 2.85	Depressive disorders 1.07	Falls 1.16
Ecuador	Age-related hearing loss 1.11	Diabetes 1.09	Blindness and vision loss 1.04	Oral disorders 1.34	Low back pain 0.74	Osteoarthritis 1.15	Alzheimer's disease 0.91	Other musculoskeletal 2.94	Falls 1.21	Urinary diseases 1.75
Peru	Age-related hearing loss 1.04	Blindness and vision loss 1.5	Diabetes 0.72	Oral disorders 1.46	Low back pain 0.76	Alzheimer's disease 0.88	Osteoarthritis 1.07	Other musculoskeletal 3.28	Ischemic heart disease 0.78	Falls 0.8
Caribbean	Diabetes 1.54	Age-related hearing loss 1.07	Blindness and vision loss 1.09	Low back pain 0.7	Oral disorders 0.96	Alzheimer's disease 0.86	Osteoarthritis 1.04	Total cancers 1.35	Falls 1.04	Depressive disorders 1.29
Antigua and Barbuda	Diabetes 1.87	Age-related hearing loss 1.13	Low back pain 0.08	Total cancers 1.49	Blindness and vision loss 1.27	Prostate cancer 1.18	Oral disorders 0.91	Osteoarthritis 0.94	Alzheimer's disease 0.88	Mechanical forces 1.96
Bahamas	Diabetes 1.8	Age-related hearing loss 1.21	Low back pain 0.67	Blindness and vision loss 1.64	Total cancers 0.99	Oral disorders 0.9	Osteoarthritis 0.93	Alzheimer's disease 0.87	Prostate cancer 2.01	Other musculoskeletal 2.3
Barbados	Diabetes 1.63	Age-related hearing loss 1.12	Total cancers 1.75	Low back pain 0.89	Prostate cancer 3.54	Oral disorders 0.93	Osteoarthritis 0.98	Alzheimer's disease 0.88	Other musculoskeletal 2.66	Ischemic heart disease 1.08
Belize	Age-related hearing loss 1.02	Diabetes 1	Blindness and vision loss 0.77	Low back pain 0.74	Oral disorders 0.9	Osteoarthritis 1.19	Alzheimer's disease 0.89	Ischemic heart disease 1.04	Depressive disorders 1.07	Chronic kidney disease 1.39
Bermuda	Diabetes 1.44	Age-related hearing loss 1.22	Total cancers 1.58	Low back pain 0.89	Blindness and vision loss 1.61	Prostate cancer 2.87	Osteoarthritis 0.9	Alzheimer's disease 0.91	Oral disorders 0.92	Ischemic heart disease 1.14
Cuba	Diabetes 1.51	Age-related hearing loss 1.05	Blindness and vision loss 1.24	Low back pain 0.68	Falls 1.6	Total cancers 1.83	Oral disorders 0.91	Alzheimer's disease 0.82	Depressive disorders 1.55	Osteoarthritis 1.06
Dominica	Diabetes 2.23	Age-related hearing loss 1.11	Total cancers 1.74	Blindness and vision loss 1.25	Low back pain 0.68	Prostate cancer 3.59	Oral disorders 0.93	Osteoarthritis 0.96	Alzheimer's disease 0.84	Chronic kidney disease 1.65
Dominican Republic	Age-related hearing loss 1.02	Diabetes 0.77	Blindness and vision loss 0.92	Low back pain 0.75	Oral disorders 1.01	Osteoarthritis 1.16	Alzheimer's disease 0.88	Depressive disorders 1.38	Ischemic heart disease 1.1	Road injuries 1.56
Grenada	Diabetes 1.88	Age-related hearing loss 1.05	Total cancers 2.14	Low back pain 0.7	Blindness and vision loss 0.94	Prostate cancer 4.26	Oral disorders 0.89	Osteoarthritis 1.03	Chronic kidney disease 1.99	Ischemic heart disease 0.96
Guyana	Diabetes 1.77	Age-related hearing loss 1.01	Blindness and vision loss 0.81	Low back pain 0.71	Oral disorders 0.9	Depressive disorders 1.46	Osteoarthritis 1.09	Lymphatic filariasis 8.35	Falls 1.32	Alzheimer's disease 0.84
Haiti	Diabetes 1.68	Age-related hearing loss 1.06	Blindness and vision loss 0.74	Low back pain 0.71	Oral disorders 1.18	Osteoarthritis 1.03	Alzheimer's disease 0.96	Nature disaster 187.22	Depressive disorders 0.84	Ischemic heart disease 1.03
Jamaica	Diabetes 1.71	Age-related hearing loss 1.07	Blindness and vision loss 0.98	Low back pain 0.72	Alzheimer's disease 0.86	Oral disorders 0.93	Total cancers 1.49	Osteoarthritis 1.03	Ischemic heart disease 0.96	Prostate cancer 2.86
Puerto Rico	Diabetes 2.29	Age-related hearing loss 1.2	Low back pain 0.86	Blindness and vision loss 1.59	Alzheimer's disease 0.9	Osteoarthritis 0.93	Falls 0.74	Oral disorders 0.94	Ischemic heart disease 1.25	Total cancers 0.74
Saint Kitts and Nevis	Diabetes 1.89	Age-related hearing loss 1.13	Total cancers 2.17	Prostate cancer 4.72	Low back pain 0.66	Blindness and vision loss 1.27	Osteoarthritis 0.96	Oral disorders 0.9	Depressive disorders 1.45	Chronic kidney disease 1.99
Saint Lucia	Diabetes 1.89	Age-related hearing loss 1.04	Blindness and vision loss 0.94	Low back pain 0.71	Total cancers 0.76	Oral disorders 0.89	Osteoarthritis 1.05	Alzheimer's disease 0.86	Prostate cancer 3.39	Chronic kidney disease 1.52
Saint Vincent and the Grenadines	Diabetes 1.71	Age-related hearing loss 1.02	Blindness and vision loss 0.83	Low back pain 0.7	Oral disorders 0.88	Osteoarthritis 1.11	Total cancers 1.82	Alzheimer's disease 0.87	Ischemic heart disease 0.92	Depressive disorders 1.13
Suriname	Diabetes 1.76	Age-related hearing loss 1.02	Blindness and vision loss 0.98	Low back pain 0.71	Oral disorders 0.87	Osteoarthritis 1.12	Alzheimer's disease 0.84	Depressive disorders 1.43	Ischemic heart disease 1.07	Chronic kidney disease 1.44
Trinidad and Tobago	Diabetes 2.37	Age-related hearing loss 1.15	Low back pain 0.69	Blindness and vision loss 1.31	Osteoarthritis 0.94	Oral disorders 0.91	Ischemic heart disease 1.26	Alzheimer's disease 0.86	Other musculoskeletal 2.45	Depressive disorders 1.3
United States Virgin Islands	Diabetes 1.95	Age-related hearing loss 1.2	Total cancers 1.5	Low back pain 0.67	Prostate cancer 3	Blindness and vision loss 1.64	Osteoarthritis 0.95	Oral disorders 0.76	Other musculoskeletal 2.07	Ischemic heart disease 1.1
Central Latin America	Diabetes 1.48	Age-related hearing loss 1.02	Blindness and vision loss 1.14	Low back pain 0.62	Other musculoskeletal 3.9	Osteoarthritis 1.27	Alzheimer's disease 0.86	Oral disorders 0.81	Chronic kidney disease 1.76	Falls 1.21
Colombia	Diabetes 1.28	Age-related hearing loss 1	Blindness and vision loss 1.14	Low back pain 0.72	Alzheimer's disease 0.92	Other musculoskeletal 4.28	Osteoarthritis 1.11	COPD 0.92	Oral disorders 0.69	Chronic kidney disease 1.38
Costa Rica	Diabetes 1.5	Age-related hearing loss 1.03	Blindness and vision loss 1.24	Low back pain 0.64	Other musculoskeletal 4.12	Alzheimer's disease 0.91	Osteoarthritis 1.06	Total cancers 1.41	Oral disorders 0.79	Chronic kidney disease 1.77
El Salvador	Diabetes 1.4	Age-related hearing loss 0.99	Blindness and vision loss 1.16	Low back pain 0.67	Alzheimer's disease 0.95	Osteoarthritis 1.16	Chronic kidney disease 1.85	Oral disorders 0.79	Other musculoskeletal 2.83	Falls 1.44
Guatemala	Diabetes 1.57	Age-related hearing loss 1.01	Blindness and vision loss 1.05	Low back pain 0.74	Oral disorders 0.9	Falls 3.04	Osteoarthritis 1.12	Alzheimer's disease 0.98	Chronic kidney disease 1.97	Depressive disorders 1.2
Honduras	Diabetes 1.66	Age-related hearing loss 1.03	Blindness and vision loss 0.78	Low back pain 0.89	Other musculoskeletal 3.59	Oral disorders 0.9	Osteoarthritis 1.15	Alzheimer's disease 1.01	Depressive disorders 1.19	Urinary diseases 1.81
Mexico	Diabetes 1.6	Age-related hearing loss 1.05	Blindness and vision loss 1.21	Osteoarthritis 1.44	Other musculoskeletal 3.89	Low back pain 0.55	Falls 1.46	Oral disorders 0.87	Chronic kidney disease 1.93	Alzheimer's disease 0.78
Nicaragua	Diabetes 1.48	Age-related hearing loss 1.02	Blindness and vision loss 0.91	Low back pain 0.68	Other musculoskeletal 3.06	Chronic kidney disease 3.19	Osteoarthritis 1.16	Oral disorders 0.87	Alzheimer's disease 1.04	Depressive disorders 1.06
Panama	Diabetes 1.49	Age-related hearing loss 1.04	Blindness and vision loss 1.62	Other musculoskeletal 4.37	Low back pain 0.64	Alzheimer's disease 0.9	Osteoarthritis 1.03	Oral disorders 0.78	Chronic kidney disease 1.64	Depressive disorders 1.23
Venezuela (Bolivarian Republic of)	Diabetes 1.29	Age-related hearing loss 1	Blindness and vision loss 0.96	Other musculoskeletal 4.08	Low back pain 0.62	Alzheimer's disease 0.88	Osteoarthritis 1.07	Oral disorders 0.78	Depressive disorders 1.33	Total cancers 1.76
Tropical Latin America	Diabetes 1.03	Age-related hearing loss 0.84	Blindness and vision loss 1.19	Low back pain 0.88	Oral disorders 1.4	Alzheimer's disease 1.2	Falls 1.72	Osteoarthritis 1.13	Other musculoskeletal 3.04	Ischemic heart disease 0.97
Brazil	Diabetes 1.03	Age-related hearing loss 0.84	Blindness and vision loss 1.19	Low back pain 0.88	Oral disorders 1.41	Alzheimer's disease 1.21	Falls 1.74	Osteoarthritis 1.13	Other musculoskeletal 3.08	Ischemic heart disease 0.97
Paraguay	Age-related hearing loss 1.01	Diabetes 1.01	Blindness and vision loss 1.13	Low back pain 0.86	Alzheimer's disease 1.06	Oral disorders 0.98	Other musculoskeletal 3.37	Osteoarthritis 1.07	Ischemic heart disease 1.03	Stroke 0.71
North Africa and Middle East	Diabetes 1.18	Age-related hearing loss 1.06	Blindness and vision loss 1.48	Low back pain 1.08	COPD 1.49	Alzheimer's disease 1.32	Oral disorders 1.21	Stroke 1.2	Osteoarthritis 0.94	Chronic kidney disease 1.84
North Africa and Middle East	Diabetes 1.18	Age-related hearing loss 1.06	Blindness and vision loss 1.48	Low back pain 1.08	COPD 1.49	Alzheimer's disease 1.32	Oral disorders 1.21	Stroke 1.2	Osteoarthritis 0.94	Chronic kidney disease 1.84
Afghanistan	Blindness and vision loss 1.28	Diabetes 1.53	Conflict & terror 312.66	Age-related hearing loss 1.06	Low back pain 0.98	Oral disorders 1.7	Alzheimer's disease 1.48	Stroke 1.18	Leishmaniasis 899.31	Depressive disorders 0.86
Algeria	Diabetes 1.24	Age-related hearing loss 1.02	Blindness and vision loss 1.44	Low back pain 1.03	Stroke 1.28	Alzheimer's disease 1.3	Oral disorders 1.15	COPD 1.12	Osteoarthritis 0.98	Chronic kidney disease 1.75
Bahrain	Diabetes 3.03	Age-related hearing loss 1.09	Low back pain 0.97	Blindness and vision loss 2.11	COPD 1.25	Oral disorders 1.12	Alzheimer's disease 1.31	Chronic kidney disease 2.53	Ischemic heart disease 1.29	Osteoarthritis 0.88
Egypt	Age-related hearing loss 1.03	Diabetes 0.91	Blindness and vision loss 1.46	Low back pain 1.05	COPD 1.8	Stroke 1.32	Oral disorders 1.16	Alzheimer's disease 1.26	Chronic kidney disease 1.92	Osteoarthritis 1
Iran (Islamic Republic of)	Age-related hearing loss 1.05	Diabetes 1.09	Blindness and vision loss 1.8	Low back pain 1.17	Alzheimer's disease 1.32	COPD 1.25	Oral disorders 1.07	Stroke 1.04	Osteoarthritis 0.99	Ischemic heart disease 0.99
Iraq	Diabetes 1.28	Age-related hearing loss 1.02	Blindness and vision loss 1.56	Low back pain 1.01	Stroke 1.48	Conflict & terror 757.61	Oral disorders 1.15	Alzheimer's disease 1.26	Chronic kidney disease 2.12	Ischemic heart disease 1.24
Jordan	Diabetes 1.38	Age-related hearing loss 1.09	Low back pain 1.01	Blindness and vision loss 1.55	Stroke 1.52	Oral disorders 1.24	Alzheimer's disease 1.29	COPD 0.97	Chronic kidney disease 2.13	Osteoarthritis 0.91
Kuwait	Diabetes 2.43	Age-related hearing loss 1.23	Blindness and vision loss 3.07	Low back pain 0.95	Alzheimer's disease 1.37	Oral disorders 1.22	Stroke 1.18	Ischemic heart disease 1.43	Osteoarthritis 0.78	Chronic kidney disease 2.04
Lebanon	Diabetes 1.67	Age-related hearing loss 1.06	Blindness and vision loss 1.74	COPD 1.65	Low back pain 0.91	Alzheimer's disease 1.29	Oral disorders 1.18	Stroke 1.06	Total cancers 1.41	Chronic kidney disease 1.91
Libya	Diabetes 1.64	Age-related hearing loss 1.06	Blindness and vision loss 2.04	Low back pain 0.98	COPD 1.4	Alzheimer's disease 1.25	Oral disorders 1.17	Stroke 1.05	Ischemic heart disease 1.15	Osteoarthritis 0.91
Morocco	Diabetes 1.2	Age-related hearing loss 1.02	Low back pain 1.12	Blindness and vision loss 0.89	Oral disorders 1.26	Alzheimer's disease 1.38	Stroke 1.32	COPD 1.27	Ischemic heart disease 1.28	Depressive disorders 1.32
Oman	Diabetes 1.74	Blindness and vision loss 4.23	Age-related hearing loss 1.12	Low back pain 0.97	Stroke 1.61	Oral disorders 1.16	Chronic kidney disease 2.58	Alzheimer's disease 1.3	Ischemic heart disease 1.44	Osteoarthritis 0.82
Palestine	Diabetes 1.6	Age-related hearing loss 0.98	Blindness and vision loss 1.03	Low back pain 1.03	Depressive disorders 2.02	Oral disorders 1.18	Stroke 1.21	Alzheimer's disease 1.33	Conflict & terror 276.53	Chronic kidney disease 1.98
Qatar	Diabetes 2.55	Age-related hearing loss 1.14	Low back pain 0.98	Blindness and vision loss 3.25	Oral disorders 1.12	Chronic kidney disease 2.94	Stroke 1.07	Osteoarthritis 0.81	COPD 0.71	Alzheimer's disease 1.32
Saudi Arabia	Diabetes 1.71	Blindness and vision loss 4.4	Age-related hearing loss 1.14	Falls 1.7	Low back pain 0.96	Stroke 1.6	COPD 0.94	Oral disorders 1.12	Alzheimer's disease 1.27	Osteoarthritis 0.96
Sudan	Diabetes 1.21	Blindness and vision loss 1.27	Age-related hearing loss 1.03	Low back pain 1.03	Oral disorders 1.25	Stroke 1.35	Alzheimer's disease 1.39	COPD 1.06	Osteoarthritis 1.02	Ischemic heart disease 1.17
Syrian Arab Republic	Diabetes 1.1	Age-related hearing loss 1	Conflict & terror 843.55	Blindness and vision loss 1.29	Low back pain 1.03	Oral disorders 1.18	Alzheimer's disease 1.29	Stroke 1.11	COPD 1.37	Ischemic heart disease 1.2
Tunisia	Diabetes 1.54	Age-related hearing loss 1.03	Blindness and vision loss 1.37	Low back pain 0.98	COPD 1.74	Alzheimer's disease 1.29	Oral disorders 1.16	Stroke 1.05	Depressive disorders 1.73	Osteoarthritis 0.94
Turkey	Age-related hearing loss 1.13	Diabetes 1.14	COPD 2.14	Low back pain 1.16	Blindness and vision loss 1.47	Alzheimer's disease 1.33	Oral disorders 1.32	Stroke 1.02	Chronic kidney disease 1.98	Osteoarthritis 0.87
United Arab Emirates	Diabetes 2.61	Age-related hearing loss 1.22	Stroke 2.27	Low back pain 0.94	Blindness and vision loss 4.18	COPD 0.89	Oral disorders 1.23	Chronic kidney disease 2.94	Alzheimer's disease 1.23	Osteoarthritis 0.72
Yemen	Age-related hearing loss 1.06	Blindness and vision loss 1.04	Diabetes 0.96	Low back pain 1.03	Oral disorders 1.56	Stroke 1.3	Alzheimer's disease 1.48	COPD 1.19	Depressive disorders 0.9	Osteoarthritis 0.93
South Asia	Blindness and vision loss 1.53	COPD 3.16	Age-related hearing loss 0.99	Diabetes 0.97	Road injuries 3.05	Low back pain 0.77	Falls 2.14	Dietary iron deficiency 4.48	Depressive disorders 1.44	Other musculoskeletal 2.67
South Asia	Blindness and vision loss 1.53	COPD 3.16	Age-related hearing loss 0.99	Diabetes 0.97	Road injuries 3.05	Low back pain 0.77	Falls 2.14	Dietary iron deficiency 4.48	Depressive disorders 1.44	Other musculoskeletal 2.67
Bangladesh	Blindness and vision loss 1.17	Age-related hearing loss 0.98	COPD 2.1	Diabetes 0.83	Low back pain 1.03	Depressive disorders 1.66	Road injuries 2.2	Other musculoskeletal 3.56	Alzheimer's disease 1.09	Dietary iron deficiency 2.83
Bhutan	COPD 3.01	Age-related hearing loss 0.98	Diabetes 0.95	Low back pain 1.02	Blindness and vision loss 0.71	Road injuries 2.18	Depressive disorders 1.4	Falls 2.21	Alzheimer's disease 0.95	Osteoarthritis 0.99
India	Blindness and vision loss 1.61	COPD 3.38	Age-related hearing loss 0.99	Diabetes 0.97	Road injuries 3.36	Low back pain 0.72	Falls 2.43	Dietary iron deficiency 5.01	Depressive disorders 1.44	Other musculoskeletal 2.57
Nepal	COPD 3.15	Age-related hearing loss 0.94	Blindness and vision loss 0.98	Diabetes 1.04	Low back pain 1.13	Depressive disorders 1.59	Dietary iron deficiency 2.9	Falls 2.01	Road injuries 1.42	Osteoarthritis 0.95
Pakistan	Blindness and vision loss 1.47	Age-related hearing loss 1.03	Diabetes 1.21	COPD 2.61	Low back pain 0.87	Dietary iron deficiency 3.17	Depressive disorders 1.11	Road injuries 1.54	Osteoarthritis 0.95	Oral disorders 0.8
Southeast Asia, East Asia, and Oceania	Age-related hearing loss 1.15	Stroke 1.78	Blindness and vision loss 1.25	Diabetes 0.86	COPD 1.68	Low back pain 0.75	Alzheimer's disease 1.09	Falls 1.09	Oral disorders 0.76	Osteoarthritis 0.9
East Asia	Age-related hearing loss 1.19	Stroke 1.82	COPD 1.55	Blindness and vision loss 1.12	Diabetes 0.56	Low back pain 0.67	Alzheimer's disease 1.16	Falls 1.12	Osteoarthritis 0.96	Oral disorders 0.75
China	Age-related hearing loss 1.19	Stroke 1.83	Blindness and vision loss 1.14	COPD 1.58	Diabetes 0.55	Low back pain 0.65	Alzheimer's disease 1.17	Falls 1.16	Osteoarthritis 0.96	Oral disorders 0.75
Democratic People's Republic of Korea	Age-related hearing loss 1.01	Low back pain 1.09	COPD 2.29	Stroke 1.77	Diabetes 0.84	Oral disorders 0.75	Blindness and vision loss 0.89	Osteoarthritis 0.95	Alzheimer's disease 0.95	Urinary diseases 1.47
Taiwan (Province of China)	Diabetes 1.32	Age-related hearing loss 1.09	Low back pain 1.12	Stroke 1.35	Chronic kidney disease 3.25	Alzheimer's disease 0.87	Total cancers 0.65	Osteoarthritis 0.72	COPD 0.47	Urinary diseases 2.21
Oceania	Diabetes 1.79	Age-related hearing loss 0.98	Low back pain 1.19	Blindness and vision loss 1.02	Stroke 1.49	Oral disorders 1.4	COPD 1.43	Ischemic heart disease 1.19	Alzheimer's disease 0.97	Osteoarthritis 0.79
American Samoa	Diabetes 2.54	Age-related hearing loss 0.98	Low back pain 1.17	Stroke 1.56	Blindness and vision loss 1.33	Oral disorders 1.11	Ischemic heart disease 1.17	Alzheimer's disease 0.85	COPD 0.78	Chronic kidney disease 1.76
Cook Islands	Diabetes 2.03	Age-related hearing loss 1.03	Low back pain 1.17	COPD 1.49	Stroke 1.75	Blindness and vision loss 1.83	Oral disorders 1.13	Alzheimer's disease 0.87	Total cancers 0.97	Osteoarthritis 0.75
Fiji	Diabetes 2.68	Age-related hearing loss 0.94	Low back pain 1.15	Blindness and vision loss 1.42	Stroke 1.52	Oral disorders 1.09	Ischemic heart disease 1.2	Chronic kidney disease 1.9	Osteoarthritis 0.81	Urinary diseases 1.53
Guam	Diabetes 1.43	Age-related hearing loss 1.11	Low back pain 1.16	Stroke 1.89	Blindness and vision loss 2.06	Oral disorders 1.14	Ischemic heart disease 1.53	Alzheimer's disease 0.89	Osteoarthritis 0.7	COPD 0.68
Kiribati	Diabetes 2.13	Age-related hearing loss 0.95	Low back pain 1.26	Stroke 2.15	Blindness and vision loss 0.84	Oral disorders 1.28	Ischemic heart disease 1.17	Osteoarthritis 0.85	Urinary diseases 1.61	Diarrhoeal diseases 1.82
Marshall Islands	Diabetes 2.39	Age-related hearing loss 0.93	Low back pain 1.19	Stroke 1.73	Blindness and vision loss 0.85	Oral disorders 1.18	COPD 1.06</			

Samoa	Diabetes	Age-related hearing loss	Low back pain	Stroke	Blindness and vision loss	Oral disorders	Alzheimer's disease	COPD	Ischemic heart disease	Osteoarthritis
Solomon Islands	Diabetes	Age-related hearing loss	Low back pain	Blindness and vision loss	Stroke	Oral disorders	Ischemic heart disease	COPD	Diarrheal diseases	Alzheimer's disease
Tokelau	Diabetes	Age-related hearing loss	Low back pain	COPD	Blindness and vision loss	Stroke	Oral disorders	Alzheimer's disease	Ischemic heart disease	Osteoarthritis
Tonga	Diabetes	Age-related hearing loss	Low back pain	Stroke	Oral disorders	Blindness and vision loss	Ischemic heart disease	COPD	Alzheimer's disease	Osteoarthritis
Tuvalu	Diabetes	Age-related hearing loss	Low back pain	Blindness and vision loss	COPD	Stroke	Oral disorders	Ischemic heart disease	Alzheimer's disease	Osteoarthritis
Vanuatu	Diabetes	Age-related hearing loss	Low back pain	Stroke	Blindness and vision loss	Oral disorders	Ischemic heart disease	COPD	Alzheimer's disease	Osteoarthritis
Southeast Asia	Diabetes	Blindness and vision loss	Age-related hearing loss	COPD	Low back pain	Stroke	Oral disorders	Alzheimer's disease	Neck pain	Ischemic heart disease
Cambodia	Diabetes	Blindness and vision loss	Age-related hearing loss	Low back pain	COPD	Stroke	Falls	Oral disorders	Alzheimer's disease	Neck pain
Indonesia	Blindness and vision loss	Age-related hearing loss	Diabetes	Low back pain	Stroke	COPD	Oral disorders	Neck pain	Ischemic heart disease	Alzheimer's disease
Lao People's Democratic Republic	Diabetes	Age-related hearing loss	Low back pain	COPD	Blindness and vision loss	Stroke	Alzheimer's disease	Neck pain	Oral disorders	Urinary diseases
Malaysia	Diabetes	Age-related hearing loss	Blindness and vision loss	Low back pain	COPD	Stroke	Oral disorders	Ischemic heart disease	Alzheimer's disease	Road injuries
Maldives	Diabetes	Age-related hearing loss	COPD	Low back pain	Blindness and vision loss	Stroke	Alzheimer's disease	Ischemic heart disease	Oral disorders	Neck pain
Mauritius	Diabetes	Age-related hearing loss	Low back pain	Blindness and vision loss	COPD	Stroke	Oral disorders	Alzheimer's disease	Chronic kidney disease	Neck pain
Myanmar	Diabetes	COPD	Blindness and vision loss	Age-related hearing loss	Low back pain	Stroke	Falls	Alzheimer's disease	Neck pain	Oral disorders
Philippines	COPD	Age-related hearing loss	Low back pain	Blindness and vision loss	Diabetes	Stroke	Oral disorders	Neck pain	Alzheimer's disease	Ischemic heart disease
Seychelles	Diabetes	Age-related hearing loss	Blindness and vision loss	Low back pain	COPD	Stroke	Total cancers	Oral disorders	Alzheimer's disease	Neck pain
Sri Lanka	Diabetes	Age-related hearing loss	Blindness and vision loss	Low back pain	COPD	Stroke	Falls	Alzheimer's disease	Oral disorders	Neck pain
Thailand	Diabetes	Age-related hearing loss	Low back pain	COPD	Blindness and vision loss	Stroke	Alzheimer's disease	Oral disorders	Other musculoskeletal	Ischemic heart disease
Timor-Leste	Blindness and vision loss	Diabetes	Age-related hearing loss	Low back pain	Stroke	COPD	Oral disorders	Neck pain	Alzheimer's disease	Conflict & terror
Viet Nam	Diabetes	Age-related hearing loss	Low back pain	Blindness and vision loss	COPD	Stroke	Alzheimer's disease	Falls	Neck pain	Urinary diseases
Sub-Saharan Africa	Age-related hearing loss	Blindness and vision loss	Diabetes	Low back pain	Depressive disorders	Road injuries	Osteoarthritis	COPD	Stroke	Alzheimer's disease
Central Sub-Saharan Africa	Diabetes	Age-related hearing loss	Low back pain	Onchocerciasis	Depressive disorders	Blindness and vision loss	COPD	Osteoarthritis	Stroke	Alzheimer's disease
Angola	Diabetes	Age-related hearing loss	Low back pain	Blindness and vision loss	Depressive disorders	Stroke	Osteoarthritis	COPD	Alzheimer's disease	Oral disorders
Central African Republic	Diabetes	Age-related hearing loss	Low back pain	Onchocerciasis	Depressive disorders	Blindness and vision loss	COPD	Osteoarthritis	Stroke	Oral disorders
Congo	Diabetes	Age-related hearing loss	Low back pain	Blindness and vision loss	Depressive disorders	Stroke	Osteoarthritis	COPD	Alzheimer's disease	Oral disorders
Democratic Republic of the Congo	Diabetes	Age-related hearing loss	Onchocerciasis	Low back pain	Depressive disorders	Blindness and vision loss	COPD	Osteoarthritis	Alzheimer's disease	Stroke
Equatorial Guinea	Diabetes	Age-related hearing loss	Blindness and vision loss	Low back pain	Depressive disorders	Stroke	Osteoarthritis	COPD	Alzheimer's disease	Oral disorders
Gabon	Diabetes	Age-related hearing loss	Low back pain	Blindness and vision loss	Depressive disorders	Stroke	Osteoarthritis	COPD	Alzheimer's disease	Road injuries
Eastern Sub-Saharan Africa	Age-related hearing loss	Blindness and vision loss	Low back pain	Diabetes	Depressive disorders	Road injuries	Osteoarthritis	Stroke	COPD	Alzheimer's disease
Burundi	Age-related hearing loss	Low back pain	Diabetes	Depressive disorders	Blindness and vision loss	COPD	Road injuries	Osteoarthritis	Conflict & terror	Stroke
Comoros	Age-related hearing loss	Low back pain	Blindness and vision loss	Diabetes	Road injuries	Depressive disorders	Stroke	Osteoarthritis	COPD	Alzheimer's disease
Djibouti	Age-related hearing loss	Diabetes	Low back pain	Blindness and vision loss	Depressive disorders	Stroke	Road injuries	Osteoarthritis	COPD	Ischemic heart disease
Eritrea	Blindness and vision loss	Age-related hearing loss	Diabetes	Low back pain	Conflict & terror	Depressive disorders	Road injuries	COPD	Osteoarthritis	Stroke
Ethiopia	Blindness and vision loss	Age-related hearing loss	Low back pain	Diabetes	Depressive disorders	Osteoarthritis	Road injuries	Alzheimer's disease	COPD	Ischemic heart disease
Kenya	Age-related hearing loss	Blindness and vision loss	Low back pain	Diabetes	Depressive disorders	COPD	Osteoarthritis	Stroke	Ischemic heart disease	Road injuries
Madagascar	Age-related hearing loss	Low back pain	Diabetes	Blindness and vision loss	Depressive disorders	COPD	Stroke	Road injuries	Osteoarthritis	Alzheimer's disease
Malawi	Diabetes	Blindness and vision loss	Age-related hearing loss	Low back pain	Depressive disorders	COPD	Stroke	Osteoarthritis	Road injuries	Ischemic heart disease
Mozambique	Diabetes	Age-related hearing loss	Blindness and vision loss	Low back pain	Road injuries	Depressive disorders	Stroke	COPD	Osteoarthritis	HIV/AIDS
Rwanda	Age-related hearing loss	Low back pain	Diabetes	Blindness and vision loss	Depressive disorders	Road injuries	COPD	Osteoarthritis	Stroke	Conflict & terror
Somalia	Age-related hearing loss	Low back pain	Blindness and vision loss	Diabetes	Depressive disorders	Road injuries	Osteoarthritis	COPD	Stroke	Dietary iron deficiency
South Sudan	Onchocerciasis	Blindness and vision loss	Age-related hearing loss	Low back pain	Diabetes	Depressive disorders	Road injuries	Stroke	Osteoarthritis	COPD
Uganda	Diabetes	Low back pain	Depressive disorders	Age-related hearing loss	Blindness and vision loss	Road injuries	COPD	Stroke	Osteoarthritis	Alzheimer's disease
United Republic of Tanzania	Blindness and vision loss	Age-related hearing loss	Low back pain	Diabetes	Depressive disorders	Stroke	Road injuries	Osteoarthritis	Alzheimer's disease	COPD
Zambia	Age-related hearing loss	Diabetes	Blindness and vision loss	Low back pain	Depressive disorders	COPD	Osteoarthritis	Stroke	Road injuries	Alzheimer's disease
Southern Sub-Saharan Africa	Diabetes	Age-related hearing loss	Blindness and vision loss	COPD	Low back pain	Osteoarthritis	Stroke	Depressive disorders	Oral disorders	Alzheimer's disease
Botswana	Diabetes	Blindness and vision loss	Age-related hearing loss	COPD	Low back pain	Stroke	Osteoarthritis	HIV/AIDS	Depressive disorders	Endo/metab/blood/immun
Eswatini	Diabetes	Age-related hearing loss	Blindness and vision loss	COPD	Low back pain	HIV/AIDS	Depressive disorders	Stroke	Osteoarthritis	Oral disorders
Lesotho	Blindness and vision loss	Diabetes	Age-related hearing loss	COPD	Low back pain	HIV/AIDS	Depressive disorders	Osteoarthritis	Stroke	Oral disorders
Namibia	Age-related hearing loss	Diabetes	Blindness and vision loss	COPD	Low back pain	Stroke	Osteoarthritis	Oral disorders	Depressive disorders	Alzheimer's disease
South Africa	Diabetes	Age-related hearing loss	Blindness and vision loss	COPD	Low back pain	Osteoarthritis	Stroke	Depressive disorders	Oral disorders	Alzheimer's disease
Zimbabwe	Diabetes	Blindness and vision loss	Age-related hearing loss	Low back pain	COPD	Depressive disorders	Osteoarthritis	Stroke	Oral disorders	Alzheimer's disease
Western Sub-Saharan Africa	Blindness and vision loss	Age-related hearing loss	Diabetes	Low back pain	Depressive disorders	Road injuries	Osteoarthritis	Stroke	COPD	Alzheimer's disease
Berlin	Diabetes	Age-related hearing loss	Blindness and vision loss	Low back pain	Depressive disorders	Road injuries	Osteoarthritis	COPD	Stroke	Oral disorders
Burkina Faso	Blindness and vision loss	Age-related hearing loss	Diabetes	Low back pain	Depressive disorders	Road injuries	Osteoarthritis	Alzheimer's disease	COPD	Stroke
Cabo Verde	Diabetes	Age-related hearing loss	Blindness and vision loss	Low back pain	Depressive disorders	Alzheimer's disease	Stroke	Osteoarthritis	Road injuries	COPD
Cameroon	Diabetes	Age-related hearing loss	Low back pain	Blindness and vision loss	Road injuries	Depressive disorders	COPD	Osteoarthritis	Stroke	Onchocerciasis
Chad	Blindness and vision loss	Age-related hearing loss	Diabetes	Low back pain	Depressive disorders	Road injuries	Osteoarthritis	Stroke	COPD	Oral disorders
Côte d'Ivoire	Diabetes	Blindness and vision loss	Age-related hearing loss	Low back pain	Road injuries	Depressive disorders	Stroke	Osteoarthritis	COPD	Oral disorders
Gambia	Age-related hearing loss	Blindness and vision loss	Diabetes	Low back pain	Depressive disorders	Road injuries	COPD	Osteoarthritis	Stroke	Tuberculosis
Ghana	Diabetes	Age-related hearing loss	Blindness and vision loss	Low back pain	Depressive disorders	Road injuries	Stroke	COPD	Osteoarthritis	Alzheimer's disease
Guinea	Blindness and vision loss	Age-related hearing loss	Diabetes	Low back pain	Road injuries	Depressive disorders	COPD	Osteoarthritis	Stroke	Alzheimer's disease
Guinea-Bissau	Blindness and vision loss	Age-related hearing loss	Diabetes	Low back pain	Depressive disorders	Road injuries	COPD	Stroke	Osteoarthritis	Oral disorders
Liberia	Diabetes	Age-related hearing loss	Blindness and vision loss	Onchocerciasis	Low back pain	Depressive disorders	Road injuries	Osteoarthritis	Stroke	Alzheimer's disease
Mali	Blindness and vision loss	Age-related hearing loss	Diabetes	Low back pain	COPD	Road injuries	Depressive disorders	Osteoarthritis	Alzheimer's disease	Stroke
Mauritania	Age-related hearing loss	Blindness and vision loss	Low back pain	Diabetes	Depressive disorders	Road injuries	Osteoarthritis	Stroke	COPD	Oral disorders
Niger	Age-related hearing loss	Blindness and vision loss	Low back pain	Diabetes	Depressive disorders	Road injuries	Osteoarthritis	COPD	Stroke	Diarrheal diseases
Nigeria	Blindness and vision loss	Age-related hearing loss	Low back pain	Diabetes	Depressive disorders	Road injuries	Osteoarthritis	Stroke	COPD	Alzheimer's disease
Sao Tome and Principe	Diabetes	COPD	Age-related hearing loss	Blindness and vision loss	Low back pain	Stroke	Road injuries	Falls	Osteoarthritis	Depressive disorders
Senegal	Diabetes	Blindness and vision loss	Age-related hearing loss	Low back pain	Depressive disorders	Road injuries	COPD	Osteoarthritis	Stroke	Oral disorders
Sierra Leone	Age-related hearing loss	Blindness and vision loss	Low back pain	Diabetes	Depressive disorders	Road injuries	Onchocerciasis	Stroke	Osteoarthritis	COPD
Togo	Age-related hearing loss	Blindness and vision loss	Low back pain	Diabetes	Depressive disorders	COPD	Road injuries	Stroke	Osteoarthritis	Oral disorders

Values shown in brackets represent the ratio of observed YLDs to predicted YLDs on the basis of Socio-Demographic Index (SDI), rounded to two (2) digits. Color ranges (shown below) were calculated to place a roughly equal number of cells into each bin.

COLOR KEY: [0.00,0.94] [0.94,0.93] [0.93,0.98] [0.98,1.04] [1.04,1.12] [1.12,1.18] [1.18,1.29] [1.29,1.5] [1.5,1.93] [1.93,....]

Figure S23. Leading ten causes of total years lived with disability with ratio of observed to expected years lived with disability in 2019, among people 70 years and older, in females, for all GBD locations.

Causes are ranked based on global estimates of YLDs. Causes are color coded (shown in color key) based on the ratio of observed to expected (O:E) rates on that basis of SDI from the epidemiologic transition analysis. Shades of blue represent much lower observed deaths and YLDs than expected levels based on SDI, whereas red shows that observed deaths and YLDs exceed expected levels. When the ratio exceeds 1 means that observed levels exceeded the expected levels on the basis of SDI. O:E ratios are listed in each cell. YLDs = years of life lived with disability.

Figure 23. Leading 10 causes of total YLDs with ratio of observed to expected deaths in 2019, by location, females		1	2	3	4	5	6	7	8	9	10
Global	Age-related hearing loss 1.09	Low back pain 0.99	Diabetes 0.92	Blindness and vision loss 1.31	COPD 1.99	Stroke 1.21	Alzheimer's disease 1.05	Falls 1.24	Osteoarthritis 1.06	Depressive disorders 0.92	Other musculoskeletal 0.92
Central Europe, Eastern Europe, and Central Asia	Low back pain 1.17	Age-related hearing loss 1.22	Diabetes 0.92	Alzheimer's disease 1.11	Blindness and vision loss 1.5	Stroke 1.2	Oral disorders 1.19	Osteoarthritis 0.95	Falls 0.91	Depressive disorders 1.18	Other musculoskeletal 1.13
Central Asia	Age-related hearing loss 1.02	Low back pain 1.02	Diabetes 0.95	Blindness and vision loss 1.25	Oral disorders 1.28	Alzheimer's disease 1.13	Stroke 1.36	Osteoarthritis 0.91	COPD 1	Depressive disorders 1.04	Other musculoskeletal 1.04
Armenia	Age-related hearing loss 1.03	Low back pain 1.12	Diabetes 0.97	Blindness and vision loss 1.29	Alzheimer's disease 1.14	Oral disorders 1.29	Stroke 1.3	Osteoarthritis 0.96	COPD 1.45	Depressive disorders 0.86	Other musculoskeletal 1.13
Azerbaijan	Age-related hearing loss 1.02	Low back pain 1.04	Diabetes 0.91	Blindness and vision loss 1.32	Oral disorders 1.25	Alzheimer's disease 1.12	Stroke 0.97	Osteoarthritis 1.06	Depressive disorders 1.16	COPD 1.13	Other musculoskeletal 1.13
Georgia	Age-related hearing loss 1.05	Diabetes 1.04	Low back pain 0.95	Blindness and vision loss 1.39	Alzheimer's disease 1.11	Oral disorders 1.2	Stroke 1.46	Osteoarthritis 1.03	Depressive disorders 0.83	COPD 1.07	Other musculoskeletal 1.07
Kazakhstan	Diabetes 1.28	Age-related hearing loss 1.08	Low back pain 0.99	Blindness and vision loss 1.51	Oral disorders 1.34	Stroke 1.12	Alzheimer's disease 1.08	Depressive disorders 1.43	Osteoarthritis 0.92	COPD 1.19	Other musculoskeletal 1.19
Kyrgyzstan	Age-related hearing loss 0.97	Low back pain 1.07	Blindness and vision loss 0.93	Alzheimer's disease 1.21	Oral disorders 1.31	Depressive disorders 1.47	Diabetes 0.53	Osteoarthritis 1.08	COPD 1.46	Stroke 0.63	Other musculoskeletal 0.63
Mongolia	Age-related hearing loss 0.95	Low back pain 1.06	Blindness and vision loss 1.09	Oral disorders 1.25	Depressive disorders 1.46	Alzheimer's disease 1.18	Osteoarthritis 1.07	Stroke 0.69	Diabetes 0.34	Falls 1.29	Other musculoskeletal 1.29
Tajikistan	Age-related hearing loss 0.98	Low back pain 1.03	Diabetes 0.95	Blindness and vision loss 0.91	Oral disorders 1.39	Alzheimer's disease 1.23	Depressive disorders 1.22	Osteoarthritis 1.06	Stroke 0.43	Ischemic heart disease 1.21	Other musculoskeletal 1.21
Turkmenistan	Age-related hearing loss 1	Low back pain 1.04	Blindness and vision loss 1.33	Alzheimer's disease 1.16	Diabetes 0.72	Oral disorders 1.23	Stroke 0.94	Depressive disorders 1.36	Osteoarthritis 0.88	Ischemic heart disease 1.14	Other musculoskeletal 1.14
Uzbekistan	Age-related hearing loss 0.96	Low back pain 1.04	Diabetes 0.75	Blindness and vision loss 1.08	Oral disorders 1.25	Stroke 0.92	Depressive disorders 1.29	Osteoarthritis 1.05	Alzheimer's disease 1.15	Other musculoskeletal 1.39	Other musculoskeletal 1.39
Central Europe	Age-related hearing loss 1.21	Diabetes 1.32	Low back pain 0.94	Alzheimer's disease 1.17	Falls 1.24	Stroke 1.35	Oral disorders 1.11	Blindness and vision loss 1.15	Osteoarthritis 0.71	Depressive disorders 1	Other musculoskeletal 1
Albania	Age-related hearing loss 1.02	Low back pain 1.02	Alzheimer's disease 1.27	Diabetes 0.62	Oral disorders 1.13	Stroke 0.94	Blindness and vision loss 0.79	Falls 1.42	Osteoarthritis 0.84	Depressive disorders 0.9	Other musculoskeletal 0.9
Bosnia and Herzegovina	Diabetes 1.5	Age-related hearing loss 1.06	Stroke 1.05	Low back pain 0.67	Alzheimer's disease 1.17	Oral disorders 1.22	Falls 1.32	Blindness and vision loss 0.9	Depressive disorders 1.16	Osteoarthritis 0.77	Other musculoskeletal 0.77
Bulgaria	Age-related hearing loss 1.15	Diabetes 1.11	Low back pain 0.91	Stroke 1.73	Alzheimer's disease 1.17	Oral disorders 1.07	Depressive disorders 1.25	Blindness and vision loss 1.07	Falls 0.88	Osteoarthritis 0.73	Other musculoskeletal 0.73
Croatia	Falls 2.4	Diabetes 1.42	Age-related hearing loss 1.17	Low back pain 0.95	Alzheimer's disease 1.17	Stroke 1.23	Oral disorders 1.1	Depressive disorders 1.37	Blindness and vision loss 1.18	Osteoarthritis 0.68	Other musculoskeletal 0.68
Czechia	Diabetes 2.23	Age-related hearing loss 1.22	Low back pain 0.87	Falls 1.3	Alzheimer's disease 1.16	Stroke 1.2	Oral disorders 1.15	Blindness and vision loss 1.35	Depressive disorders 1.22	Osteoarthritis 0.64	Other musculoskeletal 0.64
Hungary	Diabetes 1.34	Age-related hearing loss 1.18	Falls 1.64	Low back pain 0.87	Alzheimer's disease 1.17	Stroke 1.32	Oral disorders 1.09	Blindness and vision loss 1.23	Depressive disorders 1.17	Osteoarthritis 0.7	Other musculoskeletal 0.7
Montenegro	Diabetes 1.69	Age-related hearing loss 1.19	Low back pain 0.89	Stroke 1.41	Alzheimer's disease 1.18	Oral disorders 1.2	Falls 0.99	Blindness and vision loss 1.22	Depressive disorders 1.24	Osteoarthritis 0.69	Other musculoskeletal 0.69
North Macedonia	Diabetes 1.73	Stroke 1.96	Age-related hearing loss 1.11	Low back pain 0.86	Oral disorders 1.19	Alzheimer's disease 1.19	Falls 1.32	Blindness and vision loss 1.02	Depressive disorders 1.1	Osteoarthritis 0.74	Other musculoskeletal 0.74
Poland	Age-related hearing loss 1.31	Diabetes 1.34	Low back pain 0.97	Alzheimer's disease 1.18	Falls 1.11	Stroke 1.13	Oral disorders 1.09	Blindness and vision loss 1.17	Osteoarthritis 0.71	Ischemic heart disease 1.69	Other musculoskeletal 1.69
Romania	Age-related hearing loss 1.14	Low back pain 1	Stroke 1.51	Alzheimer's disease 1.18	Diabetes 0.86	Oral disorders 1.06	Blindness and vision loss 1.08	Falls 0.92	Osteoarthritis 0.78	Depressive disorders 1.02	Other musculoskeletal 1.02
Serbia	Diabetes 1.53	Age-related hearing loss 1.14	Stroke 1.85	Low back pain 0.92	Alzheimer's disease 1.13	Oral disorders 1.17	Falls 1.13	Depressive disorders 1.28	Blindness and vision loss 1.1	Osteoarthritis 0.72	Other musculoskeletal 0.72
Slovakia	Age-related hearing loss 1.22	Low back pain 0.86	Diabetes 1.16	Falls 1.35	Alzheimer's disease 1.17	Stroke 1.37	Oral disorders 1.05	Blindness and vision loss 1.3	Depressive disorders 1.18	Osteoarthritis 0.67	Other musculoskeletal 0.67
Slovenia	Falls 1.72	Age-related hearing loss 1.14	Alzheimer's disease 1.16	Low back pain 0.82	Diabetes 1.23	Oral disorders 1.32	Depressive disorders 1.48	Blindness and vision loss 1.37	Stroke 0.87	Osteoarthritis 0.64	Other musculoskeletal 0.64
Eastern Europe	Low back pain 1.33	Age-related hearing loss 1.26	Blindness and vision loss 1.77	Alzheimer's disease 1.08	Osteoarthritis 1.1	Oral disorders 1.23	Stroke 1.15	Diabetes 0.67	Depressive disorders 1.18	Falls 0.71	Other musculoskeletal 0.71
Belarus	Low back pain 1.22	Age-related hearing loss 1.15	Alzheimer's disease 1.14	Blindness and vision loss 1.39	Stroke 1.03	Depressive disorders 1.45	Osteoarthritis 0.97	Oral disorders 1.02	Falls 1.05	Diabetes 0.51	Other musculoskeletal 0.51
Estonia	Age-related hearing loss 1.33	Low back pain 1.06	Alzheimer's disease 1.12	Diabetes 0.89	Depressive disorders 1.77	Blindness and vision loss 1.62	Osteoarthritis 0.81	Oral disorders 1.06	Falls 0.56	Stroke 0.74	Other musculoskeletal 0.74
Latvia	Low back pain 1.15	Age-related hearing loss 1.3	Alzheimer's disease 1.08	Blindness and vision loss 1.88	Diabetes 0.88	Stroke 1.2	Depressive disorders 1.54	Osteoarthritis 0.86	Falls 0.68	Oral disorders 0.93	Other musculoskeletal 0.93
Lithuania	Low back pain 1.11	Age-related hearing loss 1.34	Alzheimer's disease 1.08	Blindness and vision loss 2.06	Falls 0.82	Stroke 1.14	Depressive disorders 1.57	Osteoarthritis 0.7	Diabetes 0.67	Oral disorders 0.96	Other musculoskeletal 0.96
Republic of Moldova	Low back pain 1.23	Age-related hearing loss 1.07	Blindness and vision loss 1.37	Alzheimer's disease 1.15	Diabetes 0.72	Osteoarthritis 1.06	Oral disorders 1.02	Stroke 0.78	Depressive disorders 1.12	Falls 1	Other musculoskeletal 1
Russian Federation	Low back pain 1.35	Age-related hearing loss 1.3	Blindness and vision loss 2	Osteoarthritis 1.18	Alzheimer's disease 1.06	Stroke 1.25	Oral disorders 1.27	Diabetes 0.68	Falls 0.68	Road injuries 4	Other musculoskeletal 4
Ukraine	Low back pain 1.35	Age-related hearing loss 1.18	Alzheimer's disease 1.11	Blindness and vision loss 1.34	Oral disorders 1.21	Depressive disorders 1.53	Stroke 0.95	Diabetes 0.92	Osteoarthritis 0.92	Ischemic heart disease 1.87	Other musculoskeletal 1.87
High-income	Low back pain 1.07	Age-related hearing loss 1.11	Falls 0.99	Alzheimer's disease 1.09	Osteoarthritis 1.2	Diabetes 1.16	COPD 1.32	Stroke 1.08	Oral disorders 0.97	Other musculoskeletal 3.39	Other musculoskeletal 3.39
Australasia	Falls 1.46	Age-related hearing loss 1.15	Low back pain 0.82	Osteoarthritis 1.24	Alzheimer's disease 1.07	COPD 1.66	Diabetes 0.95	Oral disorders 1.26	Other musculoskeletal 3.76	Total cancers 1.4	Total cancers 1.4
Australia	Falls 1.44	Age-related hearing loss 1.15	Low back pain 0.81	Osteoarthritis 1.24	Alzheimer's disease 1.06	COPD 1.64	Diabetes 0.97	Oral disorders 1.24	Other musculoskeletal 4.23	Total cancers 1.37	Total cancers 1.37
New Zealand	Falls 1.56	Age-related hearing loss 1.24	Low back pain 0.85	Osteoarthritis 1.23	COPD 1.76	Alzheimer's disease 1.07	Oral disorders 1.36	Diabetes 1.56	Total cancers 1.23	Atrial fibrillation 1.68	Atrial fibrillation 1.68
High-income Asia Pacific	Low back pain 1.08	Age-related hearing loss 1.24	Alzheimer's disease 1.23	Osteoarthritis 1.37	Stroke 1.58	Other musculoskeletal 4.32	Diabetes 0.83	Falls 0.93	Oral disorders 1.24	Total cancers 1.68	Total cancers 1.68
Brunel Darussalam	Diabetes 2.43	Low back pain 0.95	Osteoarthritis 1.51	Stroke 1.97	Age-related hearing loss 1.11	Other musculoskeletal 1.55	Falls 1.47	Alzheimer's disease 0.98	Oral disorders 0.74	Oral disorders 1.27	Oral disorders 1.27
Japan	Low back pain 1.11	Alzheimer's disease 1.26	Age-related hearing loss 1.24	Osteoarthritis 1.28	Stroke 1.6	Other musculoskeletal 4.45	Falls 0.5	Alzheimer's disease 0.75	Oral disorders 0.96	Total cancers 1.74	Total cancers 1.74
Republic of Korea	Osteoarthritis 1.51	Low back pain 0.94	Age-related hearing loss 1.22	Diabetes 1.18	Alzheimer's disease 1.07	Stroke 1.48	Falls 0.72	Other musculoskeletal 3.72	Oral disorders 0.78	Osteoarthritis 0.62	Osteoarthritis 0.62
Singapore	Osteoarthritis 1.44	Age-related hearing loss 1.21	Low back pain 0.79	Diabetes 1.09	Alzheimer's disease 1.01	Stroke 1.34	Other musculoskeletal 4.44	Falls 0.47	Oral disorders 0.76	Blindness and vision loss 1.08	Blindness and vision loss 1.08
High-income North America	Low back pain 1.16	COPD 2.31	Age-related hearing loss 1.39	Falls 1.11	Diabetes 1.44	Osteoarthritis 1.31	Alzheimer's disease 1.08	Stroke 1.42	Other musculoskeletal 4.69	Total cancers 1.24	Total cancers 1.24
Canada	Falls 1.15	Low back pain 0.9	Age-related hearing loss 1.19	Alzheimer's disease 1	Osteoarthritis 0.97	Other musculoskeletal 5.05	COPD 1.26	Diabetes 0.92	Total cancers 1.42	Stroke 0.97	Stroke 0.97
Greenland	Falls 3.16	Low back pain 1.12	COPD 3.05	Age-related hearing loss 1.08	Stroke 1.51	Osteoarthritis 1.2	Alzheimer's disease 1.09	Diabetes 0.6	Other musculoskeletal 3.2	Total cancers 1.57	Total cancers 1.57
United States of America	Low back pain 1.2	COPD 2.45	Age-related hearing loss 1.41	Diabetes 1.5	Falls 1.1	Osteoarthritis 1.35	Alzheimer's disease 1.09	Stroke 1.48	Other musculoskeletal 4.65	Neck pain 1.81	Neck pain 1.81
Southern Latin America	Age-related hearing loss 0.98	Diabetes 0.95	Other musculoskeletal 6.47	Low back pain 0.82	Osteoarthritis 1.47	Alzheimer's disease 1.05	Oral disorders 1.01	Falls 1.04	Blindness and vision loss 0.68	Stroke 0.61	Stroke 0.61
Argentina	Age-related hearing loss 0.94	Other musculoskeletal 6.47	Diabetes 0.88	Low back pain 0.84	Osteoarthritis 1.51	Alzheimer's disease 1.06	Oral disorders 1.02	Blindness and vision loss 0.67	Falls 0.97	Endo/metab/blood/immun 1.66	Endo/metab/blood/immun 1.66
Chile	Diabetes 1.26	Age-related hearing loss 1.08	Other musculoskeletal 6.13	Osteoarthritis 1.38	Low back pain 0.79	Alzheimer's disease 1.02	Falls 1.11	Oral disorders 0.99	Depressive disorders 0.96	Blindness and vision loss 0.75	Blindness and vision loss 0.75
Uruguay	Age-related hearing loss 0.97	Low back pain 0.85	Other musculoskeletal 6.31	Osteoarthritis 1.54	Alzheimer's disease 1.07	Oral disorders 1.06	Diabetes 0.51	Falls 1.33	Stroke 0.77	Blindness and vision loss 0.54	Blindness and vision loss 0.54
Western Europe	Low back pain 1.03	Falls 1.16	Diabetes 1.2	Alzheimer's disease 1.01	Age-related hearing loss 0.9	Osteoarthritis 1.05	COPD 1.21	Oral disorders 1.07	Depressive disorders 1.2	Blindness and vision loss 1.05	Blindness and vision loss 1.05
Andorra	Falls 1.52	Low back pain 0.96	Alzheimer's disease 0.97	Osteoarthritis 0.96	Age-related hearing loss 0.89	Stroke 1.08	COPD 1.07	Oral disorders 1.1	Depressive disorders 1.12	Stroke 0.69	Stroke 0.69
Austria	Low back pain 0.94	Falls 1.17	Diabetes 1.14	Alzheimer's disease 0.97	Osteoarthritis 1.04	Age-related hearing loss 0.82	Oral disorders 1.2	Stroke 0.84	COPD 0.96	Depressive disorders 0.96	Depressive disorders 0.96
Belgium	Falls 1.71	Low back pain 0.99	Diabetes 1.21	Alzheimer's disease 0.96	Age-related hearing loss 0.88	COPD 1.46	Osteoarthritis 1.02	Oral disorders 1.25	Stroke 0.7	Total cancers 1.05	Total cancers 1.05
Cyprus	Diabetes 1.63	Low back pain 1.02	Falls 1.25	Osteoarthritis 1.04	Age-related hearing loss 0.82	Alzheimer's disease 0.99	Oral disorders 1.12	COPD 1.13	Total cancers 1.13	Endo/metab/blood/immun 1.26	Endo/metab/blood/immun 1.26
Denmark	Low back pain 1.12	COPD 1.8	Falls 0.89	Osteoarthritis 1.03	Alzheimer's disease 0.9	Age-related hearing loss 0.8	Diabetes 0.84	Oral disorders 1.07	Depressive disorders 1.2	Total cancers 1.26	Total cancers 1.26
Finland	Falls 1.43	Low back pain 0.89	Diabetes 1.42	Age-related hearing loss 1.03	Alzheimer's disease 0.96	Osteoarthritis 1.02	Oral disorders 1.16	Stroke 0.9	Depressive disorders 1.01	Neck pain 1.54	Neck pain 1.54
France	Falls 1.61	Low back pain 1.08	Alzheimer's disease 0.99	Age-related hearing loss 0.87	Osteoarthritis 1.07	Oral disorders 1.09	Depressive disorders 1.16	Diabetes 0.56	Total cancers 1.05	Stroke 0.61	Stroke 0.61
Germany	Low back pain 1.04	Diabetes 1.64	Falls 0.9	Alzheimer's disease 1.02	COPD 1.27	Age-related hearing loss 0.9	Osteoarthritis 0.89	Oral disorders 1.1	Stroke 0.83	Depressive disorders 1.09	Depressive disorders 1.09
Greece	Low back pain 1.01	COPD 2	Age-related hearing loss 0.86	Alzheimer's disease 1.01	Diabetes 0.97	Osteoarthritis 0.98	Depressive disorders 1.63	Oral disorders 1.1	Falls 0.79	Stroke 0.8	Stroke 0.8
Iceland	Low back pain 1.01	Osteoarthritis 1.28	COPD 1.73	Falls 0.86	Alzheimer's disease 0.98	Age-related hearing loss 0.86	Diabetes 1	Oral disorders 1.11	Blindness and vision loss 1.14	Stroke 0.7	Stroke 0.7
Ireland	Low back pain 1.06	COPD 1.75	Falls 0.86	Osteoarthritis 1.01	Alzheimer's disease 0.98	Diabetes 1.04	Age-related hearing loss 0.86	Oral disorders 1.23	Depressive disorders 1.18	Total cancers 1.11	Total cancers 1.11
Israel	Low back pain 1.06	Diabetes 1.15	Osteoarthritis 1.23	Age-related hearing loss 0.83	Alzheimer's disease 0.99	Oral disorders 1.2	Falls 0.88	Depressive disorders 1.45	COPD 1.04	Stroke 0.62	Stroke 0.62
Italy	Low back pain 1.04	Diabetes 1.23	Alzheimer's disease 1.17	Age-related hearing loss 0.97	Falls 1.2	Osteoarthritis 1.1	Blindness and vision loss 1.27	Oral disorders 1.07	COPD 1.04	Depressive disorders 1.18	Depressive disorders 1.18
Luxembourg	Low back pain 1.09	Falls 1.01	Diabetes 1.7	COPD 1.39	Osteoarthritis 0.95	Alzheimer's disease 0.82	Age-related hearing loss 0.81	Oral disorders 1.19	Depressive disorders 1.03	Total cancers 0.81	Total cancers 0.81
Malta	Low back pain 1.19	Diabetes 1.44	Falls 1.38	Osteoarthritis 1.14	Age-related hearing loss 0.79	Alzheimer's disease 0.99	Oral disorders 0.95	Endo/metab/blood/immun 1.52	COPD 0.85	Depressive disorders 0.89	Depressive disorders 0.89
Monaco	Low back pain 0.96</										

Figure S24. Global annualised rate of change in risk factors summary exposure values (SEV) in people aged 70 years and older, for both sexes, from 1990 to 2019 versus number of attributable DALYS by risk factor in 2019.

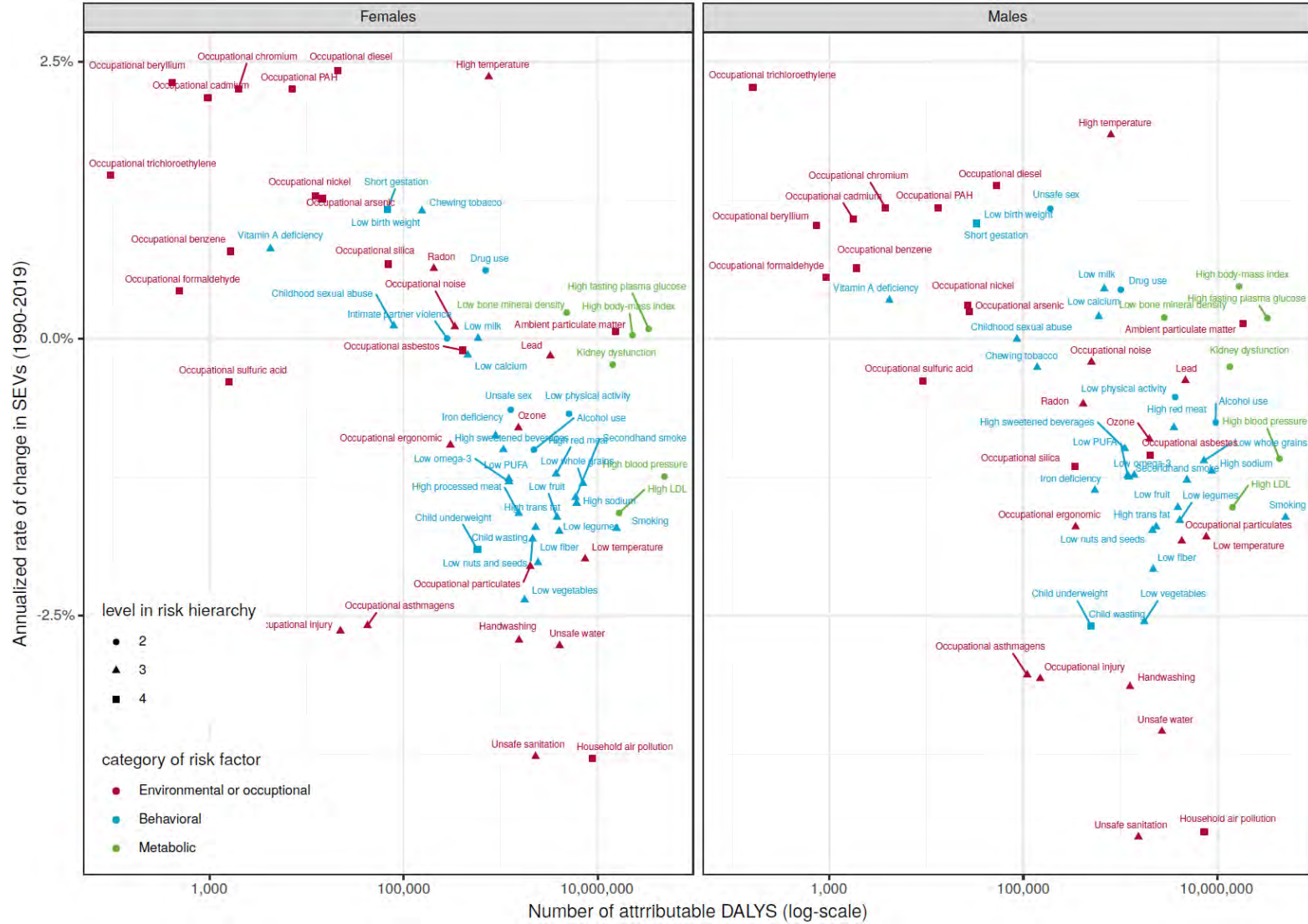


Figure S25. Annualised rate of change in risk factors summary exposure values (SEV) in people aged 70 years and older, for both sexes, from 1990 to 2019 versus number of attributable DALYs by risk factor in 2019, in Low SDI quintile.

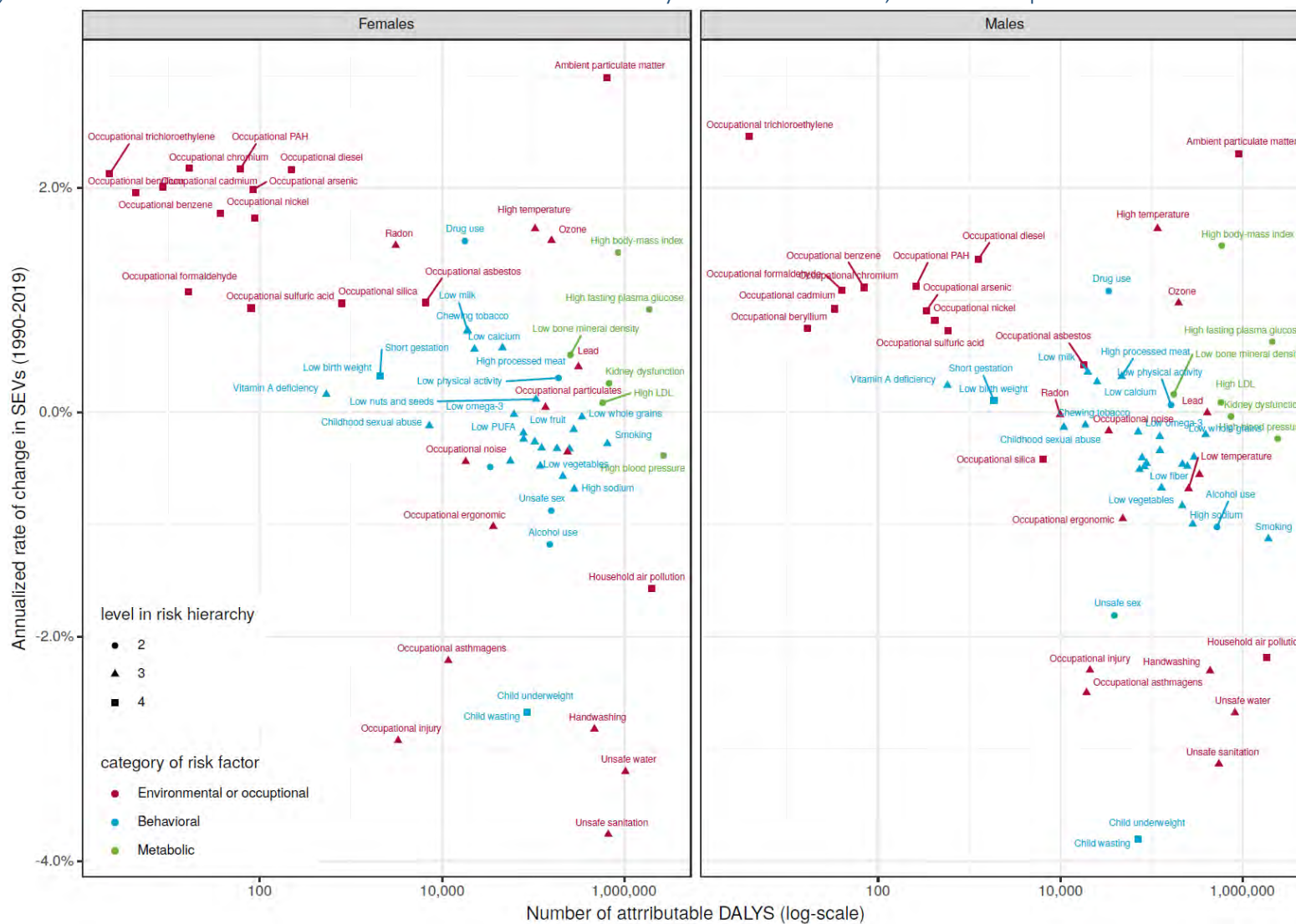


Figure S26. Annualised rate of change in risk factors summary exposure values (SEV) in people aged 70 years and older, for both sexes, from 1990 to 2019 versus number of attributable DALYs by risk factor in 2019, in Low-middle SDI quintile.

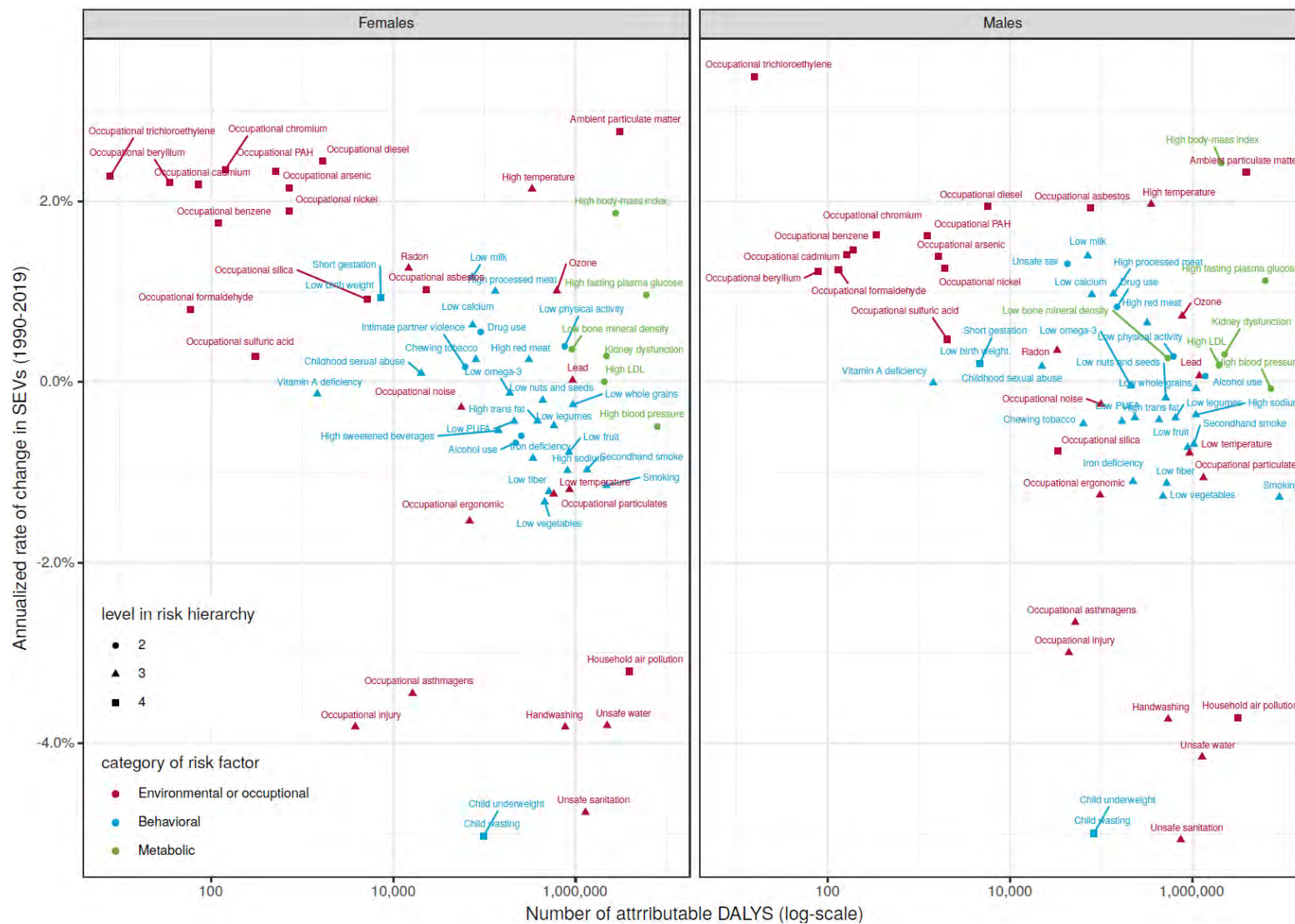


Figure S27. Annualised rate of change in risk factors summary exposure values (SEV) in people aged 70 years and older, for both sexes, from 1990 to 2019 versus number of attributable DALYs by risk factor in 2019, in Middle SDI quintile.

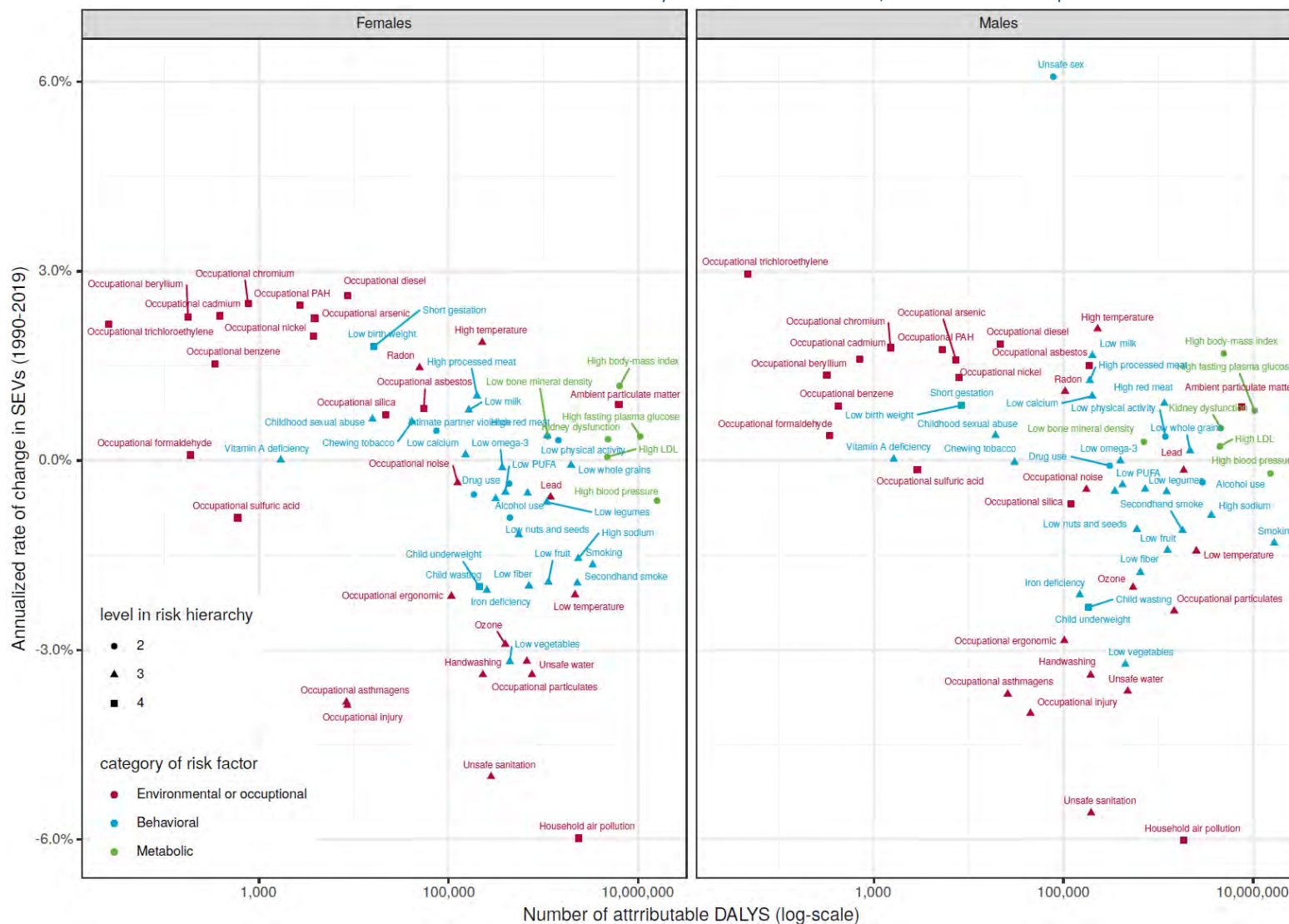


Figure S28. Annualised rate of change in risk factors summary exposure values (SEV) in people aged 70 years and older, for both sexes, from 1990 to 2019 versus number of attributable DALYs by risk factor in 2019, in High-middle SDI quintile.

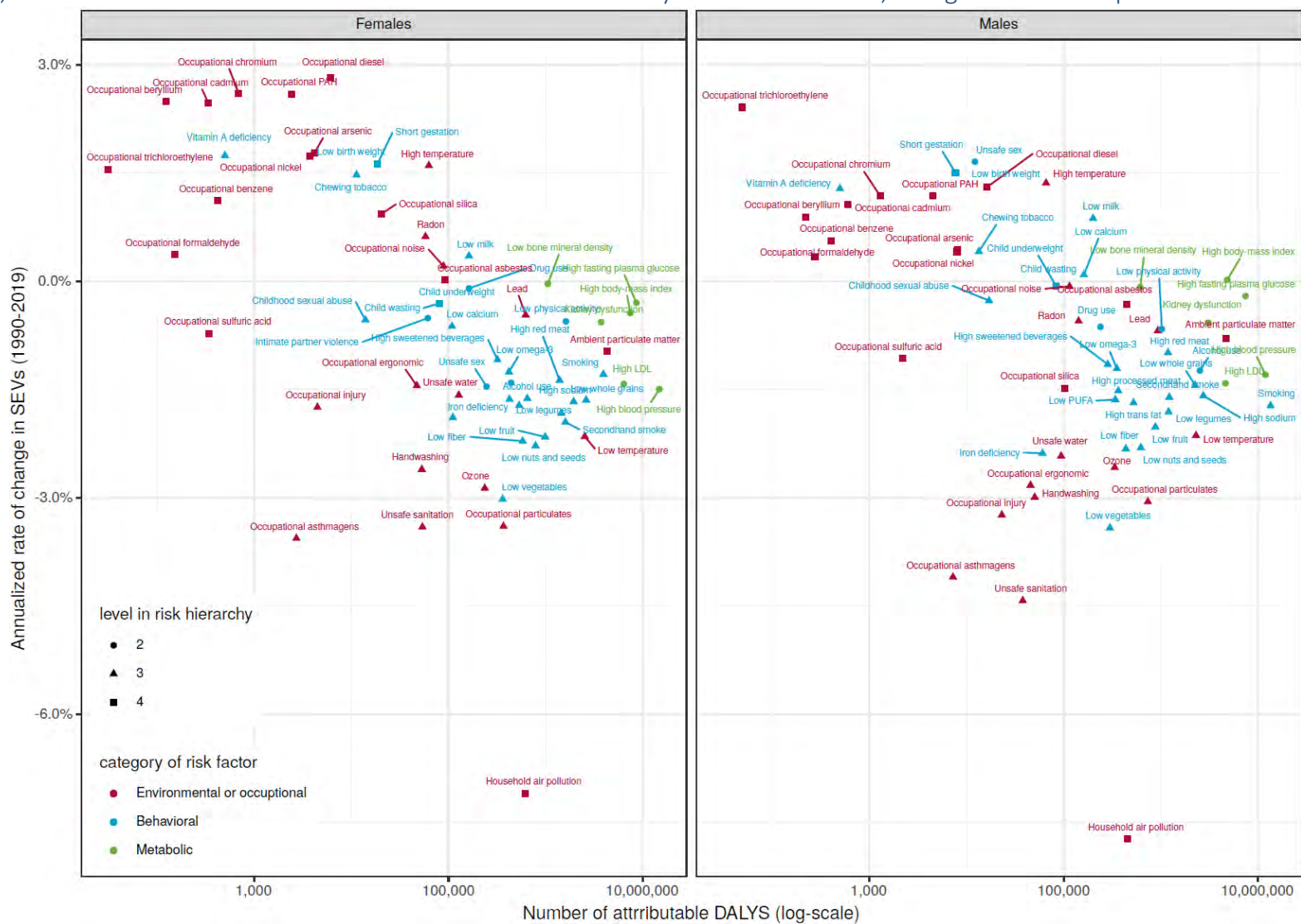


Figure S29. Annualised rate of change in risk factors summary exposure values (SEV) in people aged 70 years and older, for both sexes, from 1990 to 2019 versus number of attributable DALYs by risk factor in 2019, in High SDI quintile.

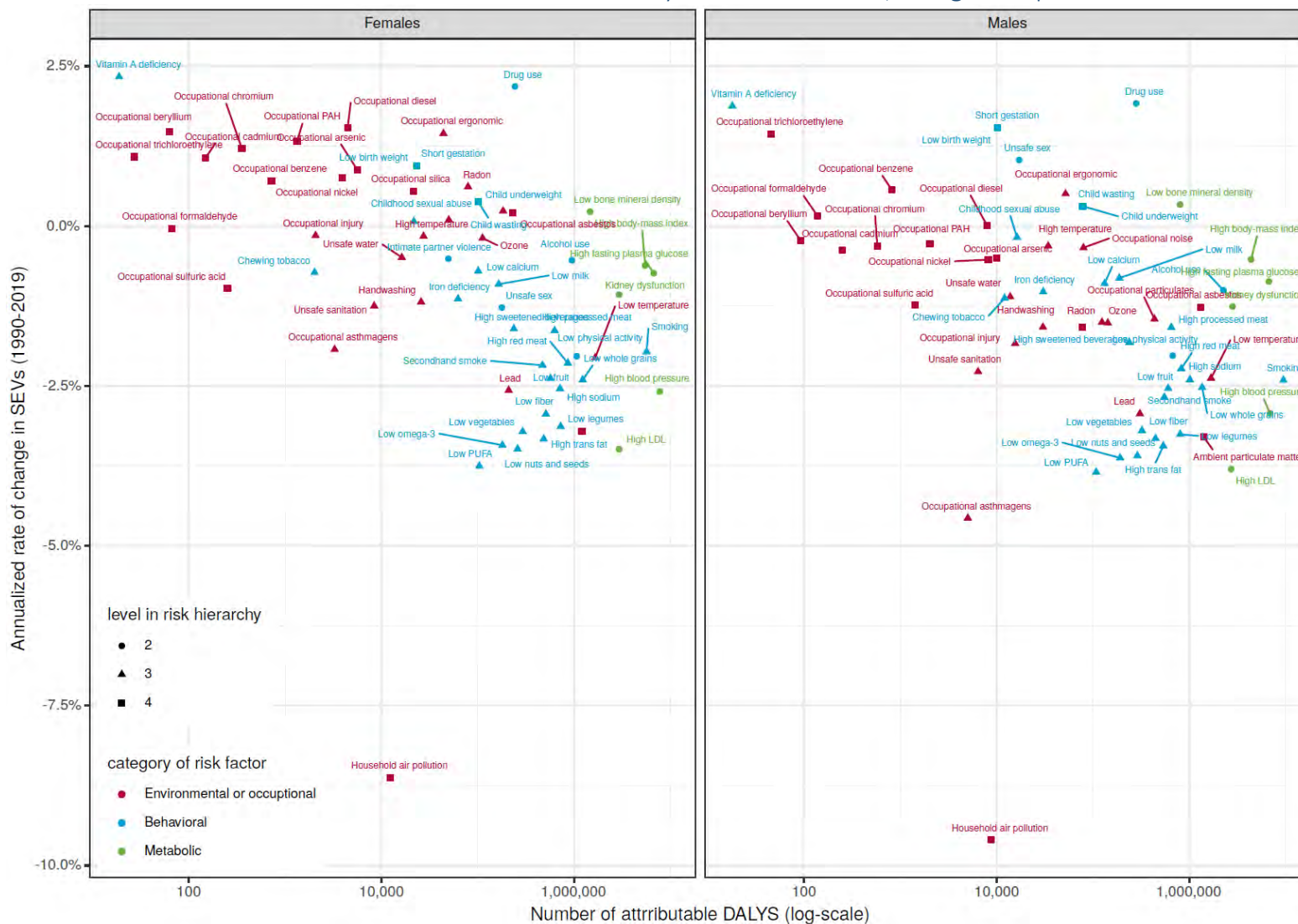


Figure S30. Annualised rate of change in risk factors summary exposure values (SEV) in people aged 70 years and older, for both sexes, from 1990 to 2019 versus number of attributable DALYs by risk factor in 2019, in the Central Europe, Eastern Europe and Central Asia GBD super-region.

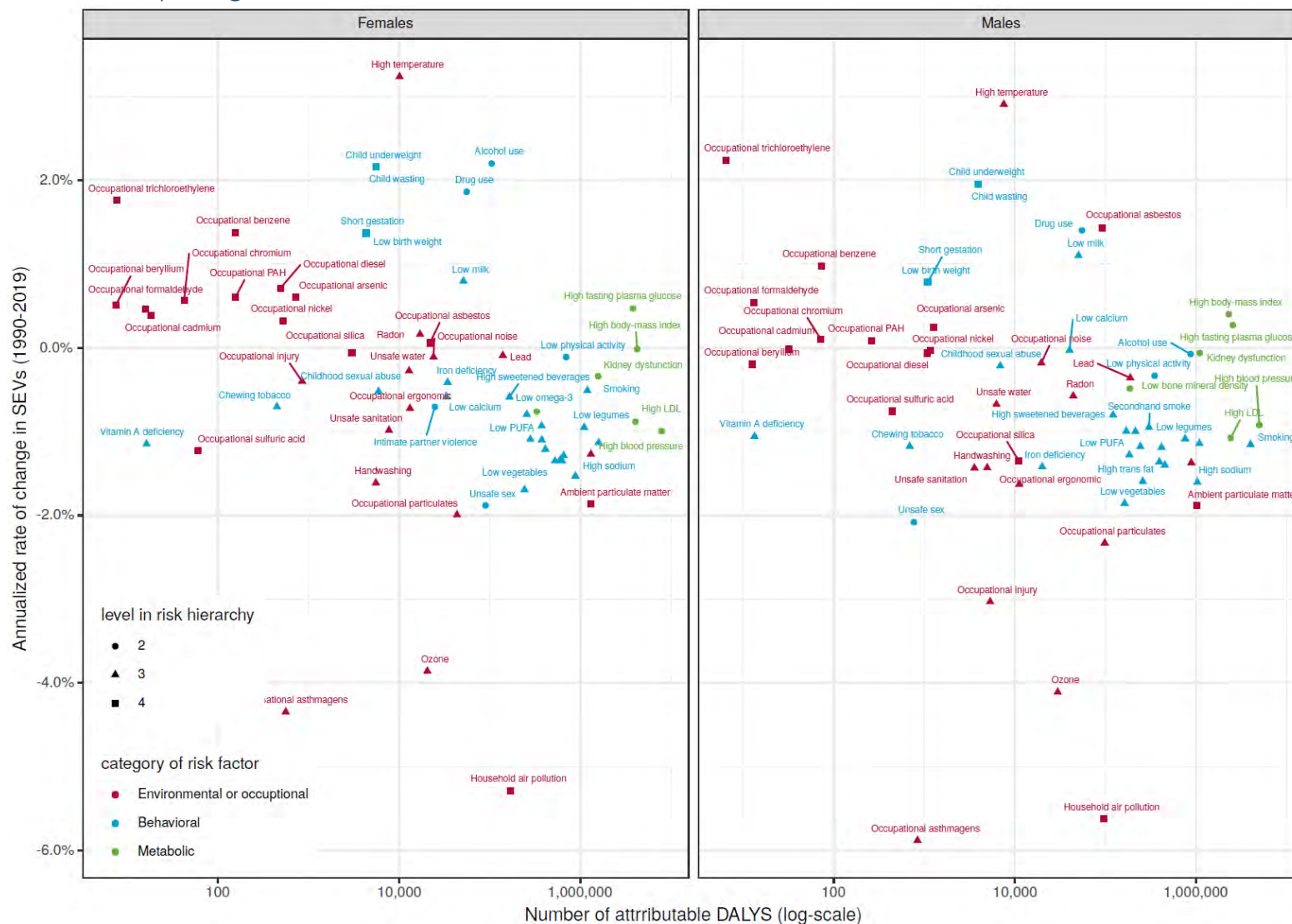


Figure S31. Annualised rate of change in risk factors summary exposure values (SEV) in people aged 70 years and older, for both sexes, from 1990 to 2019 versus number of attributable DALYs by risk factor in 2019, in the High-income GBD super-region.

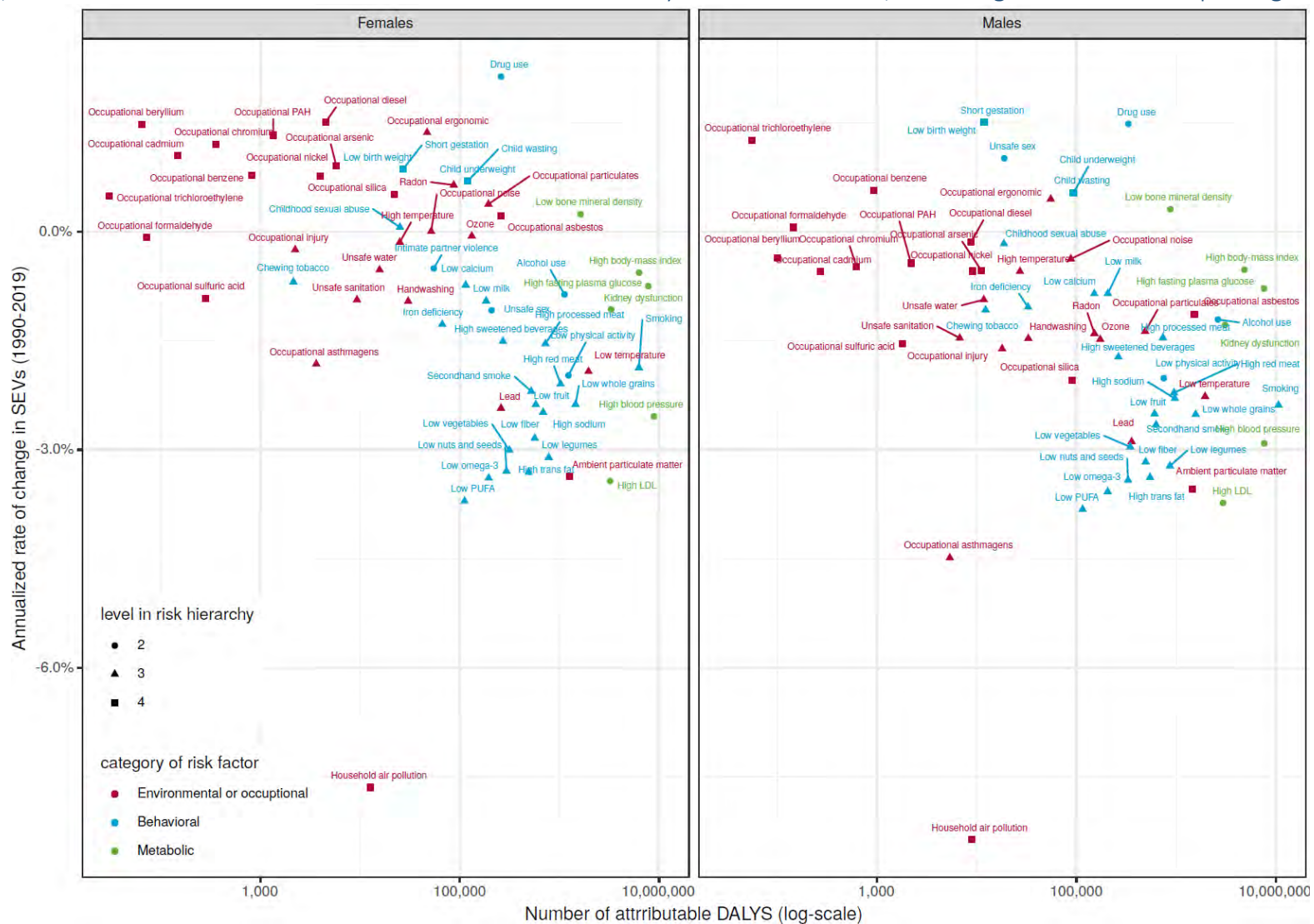


Figure S32. Annualised rate of change in risk factors summary exposure values (SEV) in people aged 70 years and older, for both sexes, from 1990 to 2019 versus number of attributable DALYs by risk factor in 2019, in the Latin America and Caribbean GBD super-region

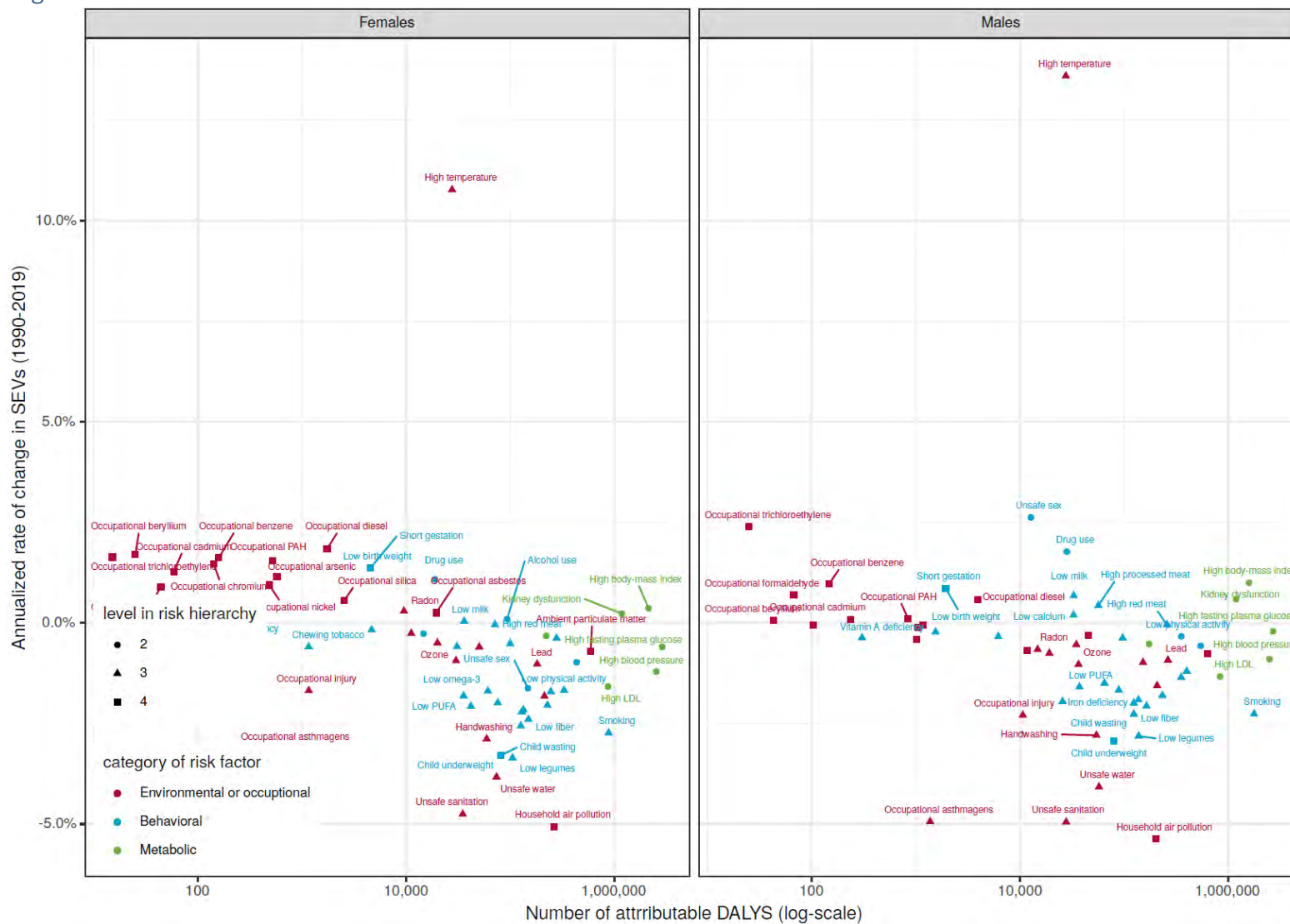


Figure S33. Annualised rate of change in risk factors summary exposure values (SEV) in people aged 70 years and older, for both sexes, from 1990 to 2019 versus number of attributable DALYs by risk factor in 2019, in the North Africa and Middle East super-region.

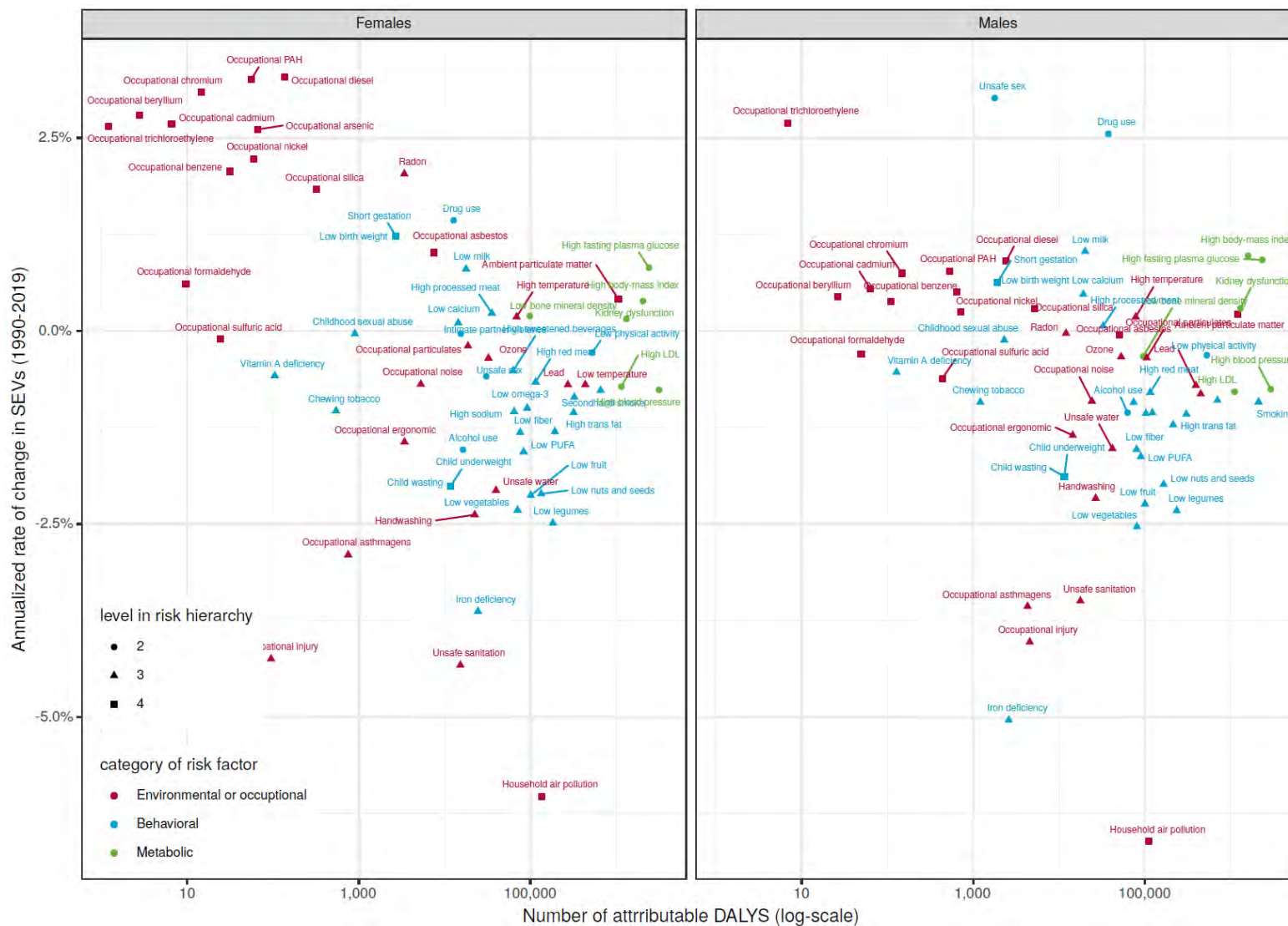


Figure S35. Annualised rate of change in risk factors summary exposure values (SEV) in people aged 70 years and older, for both sexes, from 1990 to 2019 versus number of attributable DALYs by risk factor in 2019, in the Southeast Asia, East Asia and Oceania GBD super-region.

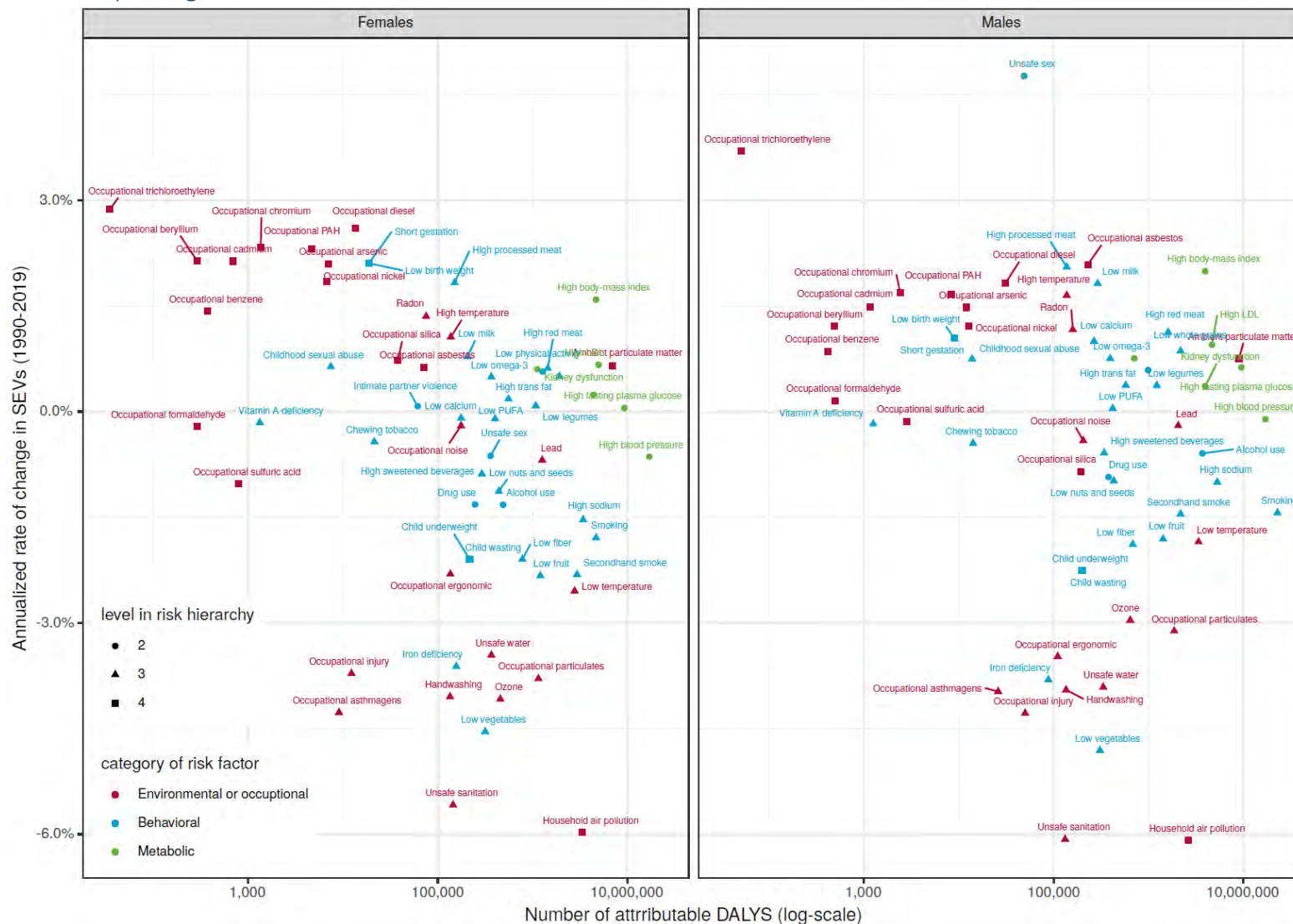
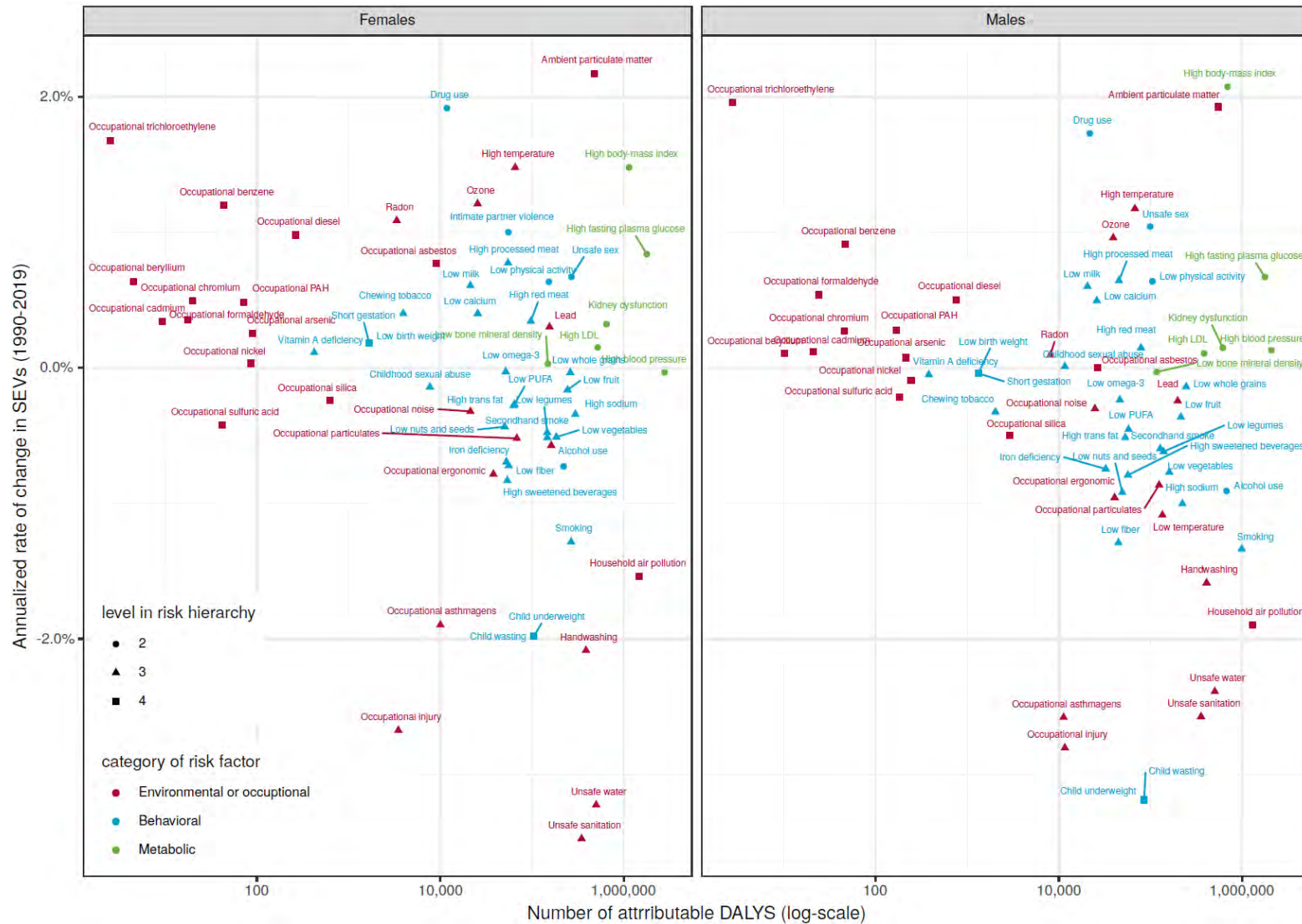


Figure S36. Annualised rate of change in risk factors summary exposure values (SEV) in people aged 70 years and older, for both sexes, from 1990 to 2019 versus number of attributable DALYs by risk factor in 2019, in the Sub-Saharan Africa GBD super-region.



Supplementary Table 1. GATHER checklist of information that should be included in reports of global health estimates, with description of compliance and location of information for "Global, regional, and national burden of diseases and injuries for adults 70 years and older: a systematic analysis for the Global Burden of Disease 2019 Study"

#	GATHER checklist item	Description of compliance	Reference
Objectives and funding			
1	Define the indicators, populations, and time periods for which estimates were made.	Narrative provided in paper and appendix describing indicators, definitions, and populations	Main text methods and appendix tables
2	List the funding sources for the work.	Funding sources listed in paper	Abstract and declaration of interest (Funding)
Data Inputs			
<i>For all data inputs from multiple sources that are synthesized as part of the study:</i>			
3	Describe how the data were identified and how the data were accessed.	Narrative description of data seeking methods provided	Main text (Methods) and appendix
4	Specify the inclusion and exclusion criteria. Identify all ad-hoc exclusions.	Narrative about inclusion and exclusion criteria by data type provided	Main text (Methods) and appendix
5	Provide information on all included data sources and their main characteristics. For each data source used, report reference information or contact name/institution, population represented, data collection method, year(s) of data collection, sex and age range, diagnostic criteria or measurement method, and sample size, as relevant.	An interactive, online data source tool that provides metadata for data sources by component, geography, cause, risk, or impairment has been developed. Detailed descriptions of all cause-specific analyses	Main text (methods), appendix, accompanying publications, and online tools including GBD Input Data Sources Tool at https://ghdx.healthdata.org
6	Identify and describe any categories of input data that have potentially important biases (e.g., based on characteristics listed in item 5).	References on related biases are reported in the main text description	Main text (Methods) and limitations
<i>For data inputs that contribute to the analysis but were not synthesized as part of the study:</i>			
7	Describe and give sources for any other data inputs.	All are included in online data sources tool	https://ghdx.healthdata.org
<i>For all data inputs:</i>			
8	Provide all data inputs in a file format from which data can be efficiently extracted (e.g., a spreadsheet as opposed to a PDF), including all relevant meta-data listed in item 5. For any data inputs that cannot be shared due to ethical or legal reasons, such as third-party ownership, provide a contact name or the name of the institution that retains the right to the data.	Visualization of input data available through online model visualization tools at and for download via data query tools at	https://vizhub.healthdata.org and https://ghdx.healthdata.org
Data analysis			
9	Provide a conceptual overview of the data analysis method. A diagram may be helpful.	Description of the overall methodological processes, as well as of modelling processes, is provided in methods. Main text states that data analysis is following the GBD 2019 capstone papers	Main text (Methods)

10	Provide a detailed description of all steps of the analysis, including mathematical formulae, if necessary. This description should cover, as relevant, data cleaning, data pre-processing, data adjustments and weighting of data sources, and mathematical or statistical model(s).	Detailed methodological description of the analysed variables and statistical analysis provided. Information on this models is following the GBD 2019 capstone papers and relevant references have been provided.	Main text (Methods)
11	Describe how candidate models were evaluated and how the final model(s) were selected.	Information on this models is following the GBD 2019 capstone papers and relevant references have been provided	Main text (methods)
12	Provide the results of an evaluation of model performance, if done, as well as the results of any relevant sensitivity analysis.	Information on this models is following the GBD 2019 capstone papers and relevant references have been provided	Main text (methods)
13	Describe methods for calculating uncertainty of the estimates. State which sources of uncertainty were, and were not, accounted for in the uncertainty analysis.	Brief information on the uncertainty intervals is provided and is following the GBD 2019 capstone papers. Relevant references have been provided	Main text (methods)
14	State how analytic or statistical source code used to generate estimates can be accessed.	Access statement provided.	Code is available upon request.
Results and Discussion			
15	Provide published estimates in a file format from which data can be efficiently extracted.	Results are available through online data visualization tools, the Global Health Data Exchange, and the online data query tool (https://ghdx.healthdata.org/gbd-2019)	Main text, appendix, and online data tools (data visualization tools, data query tools, and the Global Health Data Exchange)
16	Report a quantitative measure of the uncertainty of the estimates (e.g. uncertainty intervals).	Uncertainty intervals are provided with all results	Main text, appendix, and online data tools (data visualization tools, data query tools, and the Global Health Data Exchange, https://ghdx.healthdata.org/gbd-2019)
17	Interpret results in light of existing evidence. If updating a previous set of estimates, describe the reasons for changes in estimates.	Discussion of results is provided in the narrative of the article	Main text (results and Discussion)
18	Discuss limitations of the estimates. Include a discussion of any modelling assumptions or data limitations that affect interpretation of the estimates.	Discussion of limitations provided in the narrative of the article	Main text (Limitations)

Supplementary Table 2. GBD location hierarchy, with SDI quintile								
Geography	Level in hierarchy	SDI quintile	Geography	Level in hierarchy	SDI quintile	Geography	Level in hierarchy	SDI quintile
Global	Global	-	Haringey	Subnational Level 3	High SDI	Pernambuco	Subnational Level 1	Low-middle SDI
Central Europe, Eastern Europe, and Central Asia	Super region	-	Harrow	Subnational Level 3	High SDI	Paoli	Subnational Level 1	Low-middle SDI
Central Asia	Region	-	Havering	Subnational Level 3	High SDI	Rio de Janeiro	Subnational Level 1	High-middle SDI
Armenia	Country	Middle SDI	Hillingdon	Subnational Level 3	High SDI	Rio Grande do Norte	Subnational Level 1	Low-middle SDI
Azerbaijan	Country	Middle SDI	Hounslow	Subnational Level 3	High SDI	Rio Grande do Sul	Subnational Level 1	Middle SDI
Georgia	Country	High-middle SDI	Islington	Subnational Level 3	High SDI	Rondônia	Subnational Level 1	Low-middle SDI
Kazakhstan	Country	High-middle SDI	Kensington and Chelsea	Subnational Level 3	High SDI	Roraima	Subnational Level 1	Middle SDI
Kyrgyzstan	Country	Low-middle SDI	Kingston upon Thames	Subnational Level 3	High SDI	Santa Catarina	Subnational Level 1	High-middle SDI
Mongolia	Country	Low-middle SDI	Lambeth	Subnational Level 3	High SDI	São Paulo	Subnational Level 1	High-middle SDI
Tajikistan	Country	Low-middle SDI	Lewisham	Subnational Level 3	High SDI	Sergipe	Subnational Level 1	Low-middle SDI
Turkmenistan	Country	Middle SDI	Merton	Subnational Level 3	High SDI	Tocantins	Subnational Level 1	Low-middle SDI
Uzbekistan	Country	Middle SDI	Newham	Subnational Level 3	High SDI	Paraguay	Country	Middle SDI
Central Europe	Region	-	Redbridge	Subnational Level 3	High SDI	North Africa and Middle East	Super region	-
Albania	Country	Middle SDI	Richmond upon Thames	Subnational Level 3	High SDI	North Africa and Middle East	Region	-
Bosnia and Herzegovina	Country	High-middle SDI	Southwark	Subnational Level 3	High SDI	Afghanistan	Country	Low SDI
Bulgaria	Country	High-middle SDI	Sutton	Subnational Level 3	High SDI	Algeria	Country	Middle SDI
Croatia	Country	High-middle SDI	Tower Hamlets	Subnational Level 3	High SDI	Bahrain	Country	High-middle SDI
Czechia	Country	High SDI	Waltham Forest	Subnational Level 3	High SDI	Egypt	Country	Middle SDI
Hungary	Country	High-middle SDI	Wandsworth	Subnational Level 3	High SDI	Iran (Islamic Republic of)	Country	Middle SDI
Montenegro	Country	High-middle SDI	Westminster	Subnational Level 3	High SDI	Iraq	Country	Middle SDI
North Macedonia	Country	High-middle SDI	North East England	Subnational Level 2	High SDI	Jordan	Country	High-middle SDI
Poland	Country	High-middle SDI	County Durham	Subnational Level 3	High SDI	Kuwait	Country	High SDI
Romania	Country	High-middle SDI	Darlington	Subnational Level 3	High SDI	Lebanon	Country	High-middle SDI
Serbia	Country	High-middle SDI	Gateshead	Subnational Level 3	High SDI	Libya	Country	High-middle SDI
Slovakia	Country	High SDI	Hartlepool	Subnational Level 3	High SDI	Morocco	Country	Low-middle SDI
Slovenia	Country	High SDI	Middlesbrough	Subnational Level 3	High SDI	Oman	Country	High-middle SDI
Eastern Europe	Region	-	Newcastle upon Tyne	Subnational Level 3	High SDI	Palestine	Country	Low-middle SDI
Belarus	Country	High-middle SDI	North Tyneside	Subnational Level 3	High SDI	Qatar	Country	High SDI
Estonia	Country	High SDI	Northumberland	Subnational Level 3	High SDI	Saudi Arabia	Country	High SDI
Latvia	Country	High SDI	Redcar and Cleveland	Subnational Level 3	High SDI	Sudan	Country	Low-middle SDI
Lithuania	Country	High SDI	South Tyneside	Subnational Level 3	High SDI	Syrian Arab Republic	Country	Middle SDI
Republic of Moldova	Country	High-middle SDI	Stockton-on-Tees	Subnational Level 3	High SDI	Tunisia	Country	Middle SDI
Russian Federation	Country	High-middle SDI	Sunderland	Subnational Level 3	High SDI	Turkey	Country	High-middle SDI
Ukraine	Country	High-middle SDI	North West England	Subnational Level 2	High SDI	United Arab Emirates	Country	High SDI
High-income	Super region	-	Blackburn with Darwen	Subnational Level 3	High SDI	Yemen	Country	Low SDI
Australasia	Region	-	Blackpool	Subnational Level 3	High SDI	South Asia	Super region	-
Australia	Country	High SDI	Bolton	Subnational Level 3	High SDI	South Asia	Region	-
New Zealand	Country	High SDI	Bury	Subnational Level 3	High SDI	Bangladesh	Country	Low-middle SDI
High-income Asia Pacific	Region	-	Cheshire East	Subnational Level 3	High SDI	Bhutan	Country	Low-middle SDI
Brunei Darussalam	Country	High SDI	Cheshire West and Chester	Subnational Level 3	High SDI	India	Country	Low-middle SDI
Japan	Country	High SDI	Cumbria	Subnational Level 3	High SDI	Nepal	Country	Low SDI
Aichi	Subnational Level 1	High SDI	Halton	Subnational Level 3	High SDI	Pakistan	Country	Low SDI
Akita	Subnational Level 1	High SDI	Knowsley	Subnational Level 3	High SDI	Southeast Asia, East Asia, and Oceania	Super region	-
Aomori	Subnational Level 1	High SDI	Lancashire	Subnational Level 3	High SDI	East Asia	Region	-
Chiba	Subnational Level 1	High SDI	Liverpool	Subnational Level 3	High SDI	China	Country	Middle SDI
Ehime	Subnational Level 1	High SDI	Manchester	Subnational Level 3	High SDI	Democratic People's Republic of Korea	Country	Low-middle SDI
Fukui	Subnational Level 1	High SDI	Oldham	Subnational Level 3	High SDI	Taiwan (Province of China)	Country	High SDI
Fukuoka	Subnational Level 1	High SDI	Rochdale	Subnational Level 3	High SDI	Oceania	Region	-
Fukushima	Subnational Level 1	High SDI	Salford	Subnational Level 3	High SDI	American Samoa	Country	High-middle SDI
Gifu	Subnational Level 1	High SDI	Sefton	Subnational Level 3	High SDI	Cook Islands	Country	High-middle SDI
Gunma	Subnational Level 1	High SDI	St Helens	Subnational Level 3	High SDI	Fiji	Country	Middle SDI
Hiroshima	Subnational Level 1	High SDI	Stockport	Subnational Level 3	High SDI	Guam	Country	High SDI
Hokkaidō	Subnational Level 1	High SDI	Tameside	Subnational Level 3	High SDI	Kiribati	Country	Low-middle SDI
Hyōgo	Subnational Level 1	High SDI	Trafford	Subnational Level 3	High SDI	Marshall Islands	Country	Low-middle SDI
Ibaraki	Subnational Level 1	High SDI	Warrington	Subnational Level 3	High SDI	Micronesia (Federated States of)	Country	Low-middle SDI
Ishikawa	Subnational Level 1	High SDI	Wigan	Subnational Level 3	High SDI	Nauru	Country	Middle SDI
Iwate	Subnational Level 1	High SDI	Wirral	Subnational Level 3	High SDI	Niue	Country	High-middle SDI
Kagawa	Subnational Level 1	High SDI	South East England	Subnational Level 2	High SDI	Northern Mariana Islands	Country	High-middle SDI
Kagoshima	Subnational Level 1	High SDI	Bracknell Forest	Subnational Level 3	High SDI	Palau	Country	High-middle SDI
Kanagawa	Subnational Level 1	High SDI	Brighton and Hove	Subnational Level 3	High SDI	Papua New Guinea	Country	Low SDI
Kōchi	Subnational Level 1	High SDI	Buckinghamshire	Subnational Level 3	High SDI	Samoa	Country	Middle SDI
Kumamoto	Subnational Level 1	High SDI	East Sussex	Subnational Level 3	High SDI	Solomon Islands	Country	Low SDI
Kyōto	Subnational Level 1	High SDI	Hampshire	Subnational Level 3	High SDI	Tokelau	Country	Middle SDI
Mie	Subnational Level 1	High SDI	Isle of Wight	Subnational Level 3	High SDI	Tonga	Country	Middle SDI
Miyagi	Subnational Level 1	High SDI	Kent	Subnational Level 3	High SDI	Tuvalu	Country	Low-middle SDI
Miyazaki	Subnational Level 1	High SDI	Medway	Subnational Level 3	High SDI	Vanuatu	Country	Low-middle SDI
Nagano	Subnational Level 1	High SDI	Milton Keynes	Subnational Level 3	High SDI	Southeast Asia	Region	-
Nagasaki	Subnational Level 1	High SDI	Oxfordshire	Subnational Level 3	High SDI	Cambodia	Country	Low-middle SDI
Nara	Subnational Level 1	High SDI	Portsmouth	Subnational Level 3	High SDI	Indonesia	Country	Middle SDI
Niigata	Subnational Level 1	High SDI	Reading	Subnational Level 3	High SDI	Aceh	Subnational Level 1	Middle SDI
Ōita	Subnational Level 1	High SDI	Slough	Subnational Level 3	High SDI	Bali	Subnational Level 1	Middle SDI
Okayama	Subnational Level 1	High SDI	Southampton	Subnational Level 3	High SDI	Bangka-Bellitung Islands	Subnational Level 1	Middle SDI

Supplementary Table 2. GBD location hierarchy, with SDI quintile

Geography	Level in hierarchy	SDI quintile	Geography	Level in hierarchy	SDI quintile	Geography	Level in hierarchy	SDI quintile
Okinawa	Subnational Level 1	High SDI	Surrey	Subnational Level 3	High SDI	Banten	Subnational Level 1	Middle SDI
Osaka	Subnational Level 1	High SDI	West Berkshire	Subnational Level 3	High SDI	Bengkulu	Subnational Level 1	Middle SDI
Saga	Subnational Level 1	High SDI	West Sussex	Subnational Level 3	High SDI	Gorontalo	Subnational Level 1	Low-middle SDI
Saitama	Subnational Level 1	High SDI	Windsor and Maidenhead	Subnational Level 3	High SDI	Jakarta	Subnational Level 1	High-middle SDI
Shiga	Subnational Level 1	High SDI	Wokingham	Subnational Level 3	High SDI	Jambi	Subnational Level 1	Middle SDI
Shimane	Subnational Level 1	High SDI	South West England	Subnational Level 2	High SDI	West Java	Subnational Level 1	Middle SDI
Shizuoka	Subnational Level 1	High SDI	Bath and North East Somerset	Subnational Level 3	High SDI	Central Java	Subnational Level 1	Middle SDI
Tochigi	Subnational Level 1	High SDI	Bournemouth	Subnational Level 3	High SDI	East Java	Subnational Level 1	Middle SDI
Tokushima	Subnational Level 1	High SDI	Bristol, City of	Subnational Level 3	High SDI	West Kalimantan	Subnational Level 1	Low-middle SDI
Tōkyō	Subnational Level 1	High SDI	Cornwall	Subnational Level 3	High SDI	South Kalimantan	Subnational Level 1	Middle SDI
Tottori	Subnational Level 1	High SDI	Devon	Subnational Level 3	High SDI	Central Kalimantan	Subnational Level 1	Middle SDI
Toyama	Subnational Level 1	High SDI	Dorset	Subnational Level 3	High SDI	East Kalimantan	Subnational Level 1	High-middle SDI
Wakayama	Subnational Level 1	High SDI	Gloucestershire	Subnational Level 3	High SDI	North Kalimantan	Subnational Level 1	High-middle SDI
Yamagata	Subnational Level 1	High SDI	North Somerset	Subnational Level 3	High SDI	Riau Islands	Subnational Level 1	High-middle SDI
Yamaguchi	Subnational Level 1	High SDI	Plymouth	Subnational Level 3	High SDI	Lampung	Subnational Level 1	Middle SDI
Yamanashi	Subnational Level 1	High SDI	Poole	Subnational Level 3	High SDI	Maluku	Subnational Level 1	Low-middle SDI
Republic of Korea	Country	High SDI	Somerset	Subnational Level 3	High SDI	North Maluku	Subnational Level 1	Low-middle SDI
Singapore	Country	High SDI	South Gloucestershire	Subnational Level 3	High SDI	West Nusa Tenggara	Subnational Level 1	Low-middle SDI
High-income North America	Region	-	Swindon	Subnational Level 3	High SDI	East Nusa Tenggara	Subnational Level 1	Low-middle SDI
Canada	Country	High SDI	Torbay	Subnational Level 3	High SDI	Papua	Subnational Level 1	Middle SDI
Greenland	Country	High-middle SDI	Wiltshire	Subnational Level 3	High SDI	West Papua	Subnational Level 1	Middle SDI
United States of America	Country	High SDI	West Midlands	Subnational Level 2	High SDI	Riau	Subnational Level 1	High-middle SDI
Alabama	Subnational Level 1	High SDI	Birmingham	Subnational Level 3	High SDI	West Sulawesi	Subnational Level 1	Low-middle SDI
Alaska	Subnational Level 1	High SDI	Coventry	Subnational Level 3	High SDI	South Sulawesi	Subnational Level 1	Middle SDI
Arizona	Subnational Level 1	High SDI	Dudley	Subnational Level 3	High SDI	Central Sulawesi	Subnational Level 1	Middle SDI
Arkansas	Subnational Level 1	High SDI	Herefordshire, County of	Subnational Level 3	High SDI	Southeast Sulawesi	Subnational Level 1	Middle SDI
California	Subnational Level 1	High SDI	Sandwell	Subnational Level 3	High SDI	North Sulawesi	Subnational Level 1	Middle SDI
Colorado	Subnational Level 1	High SDI	Shropshire	Subnational Level 3	High SDI	West Sumatra	Subnational Level 1	Middle SDI
Connecticut	Subnational Level 1	High SDI	Solihull	Subnational Level 3	High SDI	South Sumatra	Subnational Level 1	Middle SDI
Delaware	Subnational Level 1	High SDI	Staffordshire	Subnational Level 3	High SDI	North Sumatra	Subnational Level 1	Middle SDI
District of Columbia	Subnational Level 1	High SDI	Stoke-on-Trent	Subnational Level 3	High SDI	Yogyakarta	Subnational Level 1	Middle SDI
Florida	Subnational Level 1	High SDI	Telford and Wrekin	Subnational Level 3	High SDI	Lao People's Democratic Republic	Country	Low-middle SDI
Georgia	Subnational Level 1	High SDI	Walsall	Subnational Level 3	High SDI	Malaysia	Country	High-middle SDI
Hawaii	Subnational Level 1	High SDI	Warwickshire	Subnational Level 3	High SDI	Maldives	Country	Low-middle SDI
Idaho	Subnational Level 1	High SDI	Wolverhampton	Subnational Level 3	High SDI	Mauritius	Country	High-middle SDI
Illinois	Subnational Level 1	High SDI	Worcestershire	Subnational Level 3	High SDI	Myanmar	Country	Low-middle SDI
Indiana	Subnational Level 1	High SDI	Yorkshire and the Humber	Subnational Level 2	High SDI	Philippines	Country	Middle SDI
Iowa	Subnational Level 1	High SDI	Barnsley	Subnational Level 3	High SDI	Seychelles	Country	High-middle SDI
Kansas	Subnational Level 1	High SDI	Bradford	Subnational Level 3	High SDI	Sri Lanka	Country	High-middle SDI
Kentucky	Subnational Level 1	High SDI	Calderdale	Subnational Level 3	High SDI	Thailand	Country	Middle SDI
Louisiana	Subnational Level 1	High SDI	Doncaster	Subnational Level 3	High SDI	Timor-Leste	Country	Low-middle SDI
Maine	Subnational Level 1	High SDI	East Riding of Yorkshire	Subnational Level 3	High SDI	Viet Nam	Country	Middle SDI
Maryland	Subnational Level 1	High SDI	Kingston upon Hull, City of	Subnational Level 3	High SDI	Sub-Saharan Africa	Super region	-
Massachusetts	Subnational Level 1	High SDI	Kirklees	Subnational Level 3	High SDI	Central Sub-Saharan Africa	Region	-
Michigan	Subnational Level 1	High SDI	Leeds	Subnational Level 3	High SDI	Angola	Country	Low-middle SDI
Minnesota	Subnational Level 1	High SDI	North East Lincolnshire	Subnational Level 3	High SDI	Central African Republic	Country	Low SDI
Mississippi	Subnational Level 1	High-middle SDI	North Lincolnshire	Subnational Level 3	High SDI	Congo	Country	Low-middle SDI
Missouri	Subnational Level 1	High SDI	North Yorkshire	Subnational Level 3	High SDI	Democratic Republic of the Congo	Country	Low SDI
Montana	Subnational Level 1	High SDI	Rotherham	Subnational Level 3	High SDI	Equatorial Guinea	Country	Middle SDI
Nebraska	Subnational Level 1	High SDI	Sheffield	Subnational Level 3	High SDI	Gabon	Country	Middle SDI
Nevada	Subnational Level 1	High SDI	Wakefield	Subnational Level 3	High SDI	Eastern Sub-Saharan Africa	Region	-
New Hampshire	Subnational Level 1	High SDI	York	Subnational Level 3	High SDI	Burundi	Country	Low SDI
New Jersey	Subnational Level 1	High SDI	Northern Ireland	Subnational Level 1	High SDI	Comoros	Country	Low SDI
New Mexico	Subnational Level 1	High SDI	Scotland	Subnational Level 1	High SDI	Djibouti	Country	Low-middle SDI
New York	Subnational Level 1	High SDI	Wales	Subnational Level 1	High SDI	Eritrea	Country	Low SDI
North Carolina	Subnational Level 1	High SDI	Latin America and Caribbean	Super region	-	Ethiopia	Country	Low SDI
North Dakota	Subnational Level 1	High SDI	Andean Latin America	Region	-	Kenya	Country	Low-middle SDI
Ohio	Subnational Level 1	High SDI	Bolivia (Plurinational State of)	Country	Low-middle SDI	Baringo	Subnational Level 1	Low-middle SDI
OKlahoma	Subnational Level 1	High SDI	Ecuador	Country	Middle SDI	Bomet	Subnational Level 1	Low-middle SDI
Oregon	Subnational Level 1	High SDI	Peru	Country	Middle SDI	Bungoma	Subnational Level 1	Low-middle SDI
Pennsylvania	Subnational Level 1	High SDI	Caribbean	Region	-	Busia	Subnational Level 1	Low-middle SDI
Rhode Island	Subnational Level 1	High SDI	Antigua and Barbuda	Country	High-middle SDI	Elgeyo-Marakwet	Subnational Level 1	Low-middle SDI
South Carolina	Subnational Level 1	High SDI	Bahamas	Country	High-middle SDI	Embu	Subnational Level 1	Low-middle SDI
South Dakota	Subnational Level 1	High SDI	Barbados	Country	High-middle SDI	Garissa	Subnational Level 1	Low-middle SDI
Tennessee	Subnational Level 1	High SDI	Belize	Country	Low-middle SDI	HomaBay	Subnational Level 1	Low-middle SDI
Texas	Subnational Level 1	High SDI	Bermuda	Country	High SDI	Isiolo	Subnational Level 1	Low-middle SDI
Utah	Subnational Level 1	High SDI	Cuba	Country	Middle SDI	Kajiado	Subnational Level 1	Low-middle SDI
Vermont	Subnational Level 1	High SDI	Dominica	Country	High-middle SDI	Kakamega	Subnational Level 1	Low-middle SDI
Virginia	Subnational Level 1	High SDI	Dominican Republic	Country	Low-middle SDI	Kericho	Subnational Level 1	Low-middle SDI
Washington	Subnational Level 1	High SDI	Grenada	Country	Middle SDI	Kiambu	Subnational Level 1	Low-middle SDI
West Virginia	Subnational Level 1	High SDI	Guyana	Country	Middle SDI	Kilifi	Subnational Level 1	Low-middle SDI
Wisconsin	Subnational Level 1	High SDI	Haiti	Country	Low SDI	Kirinyaga	Subnational Level 1	Low-middle SDI

Supplementary Table 2. GBD location hierarchy, with SDI quintile

Geography	Level in hierarchy	SDI quintile	Geography	Level in hierarchy	SDI quintile	Geography	Level in hierarchy	SDI quintile
Wyoming	Subnational Level 1	High SDI	Jamaica	Country	Middle SDI	Kisili	Subnational Level 1	Low-middle SDI
Southern Latin America	Region	-	Puerto Rico	Country	High SDI	Kisumu	Subnational Level 1	Low-middle SDI
Argentina	Country	High-middle SDI	Saint Kitts and Nevis	Country	High-middle SDI	Kitui	Subnational Level 1	Low-middle SDI
Chile	Country	High-middle SDI	Saint Lucia	Country	Middle SDI	Kwale	Subnational Level 1	Low-middle SDI
Uruguay	Country	High-middle SDI	Saint Vincent and the Grenadines	Country	Middle SDI	Lalkipia	Subnational Level 1	Low-middle SDI
Western Europe	Region	-	Suriname	Country	Middle SDI	Lamu	Subnational Level 1	Low-middle SDI
Andorra	Country	High SDI	Trinidad and Tobago	Country	High-middle SDI	Machakos	Subnational Level 1	Low-middle SDI
Austria	Country	High SDI	United States Virgin Islands	Country	High-middle SDI	Makueni	Subnational Level 1	Low-middle SDI
Belgium	Country	High SDI	Central Latin America	Region	-	Mandera	Subnational Level 1	Low-middle SDI
Cyprus	Country	High SDI	Colombia	Country	Middle SDI	Marsabit	Subnational Level 1	Low-middle SDI
Denmark	Country	High SDI	Costa Rica	Country	Middle SDI	Meru	Subnational Level 1	Low-middle SDI
Finland	Country	High SDI	El Salvador	Country	Low-middle SDI	Migori	Subnational Level 1	Low-middle SDI
France	Country	High SDI	Guatemala	Country	Low-middle SDI	Mombasa	Subnational Level 1	Low-middle SDI
Germany	Country	High SDI	Honduras	Country	Low-middle SDI	Murang'a	Subnational Level 1	Low-middle SDI
Greece	Country	High-middle SDI	Mexico	Country	Middle SDI	Nairobi	Subnational Level 1	Low-middle SDI
Iceland	Country	High SDI	Aguscalientes	Subnational Level 1	Middle SDI	Nakuru	Subnational Level 1	Low-middle SDI
Ireland	Country	High SDI	Baja California	Subnational Level 1	Middle SDI	Nandi	Subnational Level 1	Low-middle SDI
Israel	Country	High-middle SDI	Baja California Sur	Subnational Level 1	Middle SDI	Narok	Subnational Level 1	Low-middle SDI
Italy	Country	High-middle SDI	Campeche	Subnational Level 1	Middle SDI	Nyamira	Subnational Level 1	Low-middle SDI
Luxembourg	Country	High SDI	Chiapas	Subnational Level 1	Middle SDI	Nyandarua	Subnational Level 1	Low-middle SDI
Malta	Country	High-middle SDI	Chihuahua	Subnational Level 1	Middle SDI	Nyeri	Subnational Level 1	Low-middle SDI
Monaco	Country	High SDI	Coahuila	Subnational Level 1	Middle SDI	Samburu	Subnational Level 1	Low-middle SDI
Netherlands	Country	High SDI	Colima	Subnational Level 1	Middle SDI	Siaya	Subnational Level 1	Low-middle SDI
Norway	Country	High SDI	Durango	Subnational Level 1	Middle SDI	Taita Taveta	Subnational Level 1	Low-middle SDI
Portugal	Country	High-middle SDI	Guanajuato	Subnational Level 1	Middle SDI	Tana River	Subnational Level 1	Low-middle SDI
San Marino	Country	High SDI	Guerrero	Subnational Level 1	Middle SDI	TharakaNithi	Subnational Level 1	Low-middle SDI
Spain	Country	High-middle SDI	Hidalgo	Subnational Level 1	Middle SDI	TransNzola	Subnational Level 1	Low-middle SDI
Sweden	Country	High SDI	Jalisco	Subnational Level 1	Middle SDI	Turkana	Subnational Level 1	Low-middle SDI
Stockholm	Subnational Level 1	High SDI	México	Subnational Level 1	Middle SDI	UasinGishu	Subnational Level 1	Low-middle SDI
Sweden except Stockholm	Subnational Level 1	High SDI	Mexico City	Subnational Level 1	Middle SDI	Vihiga	Subnational Level 1	Low-middle SDI
Switzerland	Country	High SDI	Michoacán de Ocampo	Subnational Level 1	Middle SDI	Wajir	Subnational Level 1	Low-middle SDI
United Kingdom	Country	High SDI	Morelos	Subnational Level 1	Middle SDI	WestPokot	Subnational Level 1	Low-middle SDI
England	Subnational Level 1	High SDI	Nayarit	Subnational Level 1	Middle SDI	Madagascar	Country	Low SDI
East Midlands	Subnational Level 2	High SDI	Nuevo León	Subnational Level 1	Middle SDI	Malawi	Country	Low SDI
Derby	Subnational Level 3	High SDI	Oaxaca	Subnational Level 1	Middle SDI	Mozambique	Country	Low SDI
Derbyshire	Subnational Level 3	High SDI	Puebla	Subnational Level 1	Middle SDI	Rwanda	Country	Low SDI
Leicester	Subnational Level 3	High SDI	Querétaro	Subnational Level 1	Middle SDI	Somalia	Country	Low SDI
Leicestershire	Subnational Level 3	High SDI	Quintana Roo	Subnational Level 1	Middle SDI	South Sudan	Country	Low SDI
Lincolnshire	Subnational Level 3	High SDI	San Luis Potosí	Subnational Level 1	Middle SDI	Uganda	Country	Low SDI
Northamptonshire	Subnational Level 3	High SDI	Sinaloa	Subnational Level 1	Middle SDI	United Republic of Tanzania	Country	Low SDI
Nottingham	Subnational Level 3	High SDI	Sonora	Subnational Level 1	Middle SDI	Zambia	Country	Low-middle SDI
Nottinghamshire	Subnational Level 3	High SDI	Tabasco	Subnational Level 1	Middle SDI	Southern Sub-Saharan Africa	Region	-
Rutland	Subnational Level 3	High SDI	Tamaulipas	Subnational Level 1	Middle SDI	Botswana	Country	Middle SDI
East of England	Subnational Level 2	High SDI	Tlaxcala	Subnational Level 1	Middle SDI	Eswatini	Country	Low-middle SDI
Bedford	Subnational Level 3	High SDI	Veracruz de Ignacio de la Llave	Subnational Level 1	Middle SDI	Lesotho	Country	Low-middle SDI
Cambridgeshire	Subnational Level 3	High SDI	Yucatán	Subnational Level 1	Middle SDI	Namibia	Country	Middle SDI
Central Bedfordshire	Subnational Level 3	High SDI	Zacatecas	Subnational Level 1	Middle SDI	South Africa	Country	Middle SDI
Essex	Subnational Level 3	High SDI	Nicaragua	Country	Low-middle SDI	Zimbabwe	Country	Low-middle SDI
Hertfordshire	Subnational Level 3	High SDI	Panama	Country	Middle SDI	Western Sub-Saharan Africa	Region	-
Luton	Subnational Level 3	High SDI	Venezuela (Bolivarian Republic of)	Country	Low-middle SDI	Benin	Country	Low SDI
Norfolk	Subnational Level 3	High SDI	Tropical Latin America	Region	-	Burkina Faso	Country	Low SDI
Peterborough	Subnational Level 3	High SDI	Brazil	Country	Middle SDI	Cabo Verde	Country	Low-middle SDI
Southend-on-Sea	Subnational Level 3	High SDI	Acre	Subnational Level 1	Low-middle SDI	Cameroon	Country	Low-middle SDI
Suffolk	Subnational Level 3	High SDI	Alagoas	Subnational Level 1	Low-middle SDI	Chad	Country	Low SDI
Thurrock	Subnational Level 3	High SDI	Amapá	Subnational Level 1	Middle SDI	Côte d'Ivoire	Country	Low SDI
Greater London	Subnational Level 2	High SDI	Amazonas	Subnational Level 1	Low-middle SDI	Gambia	Country	Low SDI
Barking and Dagenham	Subnational Level 3	High SDI	Bahia	Subnational Level 1	Low-middle SDI	Ghana	Country	Low-middle SDI
Barnet	Subnational Level 3	High SDI	Ceará	Subnational Level 1	Low-middle SDI	Guinea	Country	Low SDI
Bexley	Subnational Level 3	High SDI	Distrito Federal	Subnational Level 1	High-middle SDI	Guinea-Bissau	Country	Low SDI
Brent	Subnational Level 3	High SDI	Espirito Santo	Subnational Level 1	Middle SDI	Liberia	Country	Low SDI
Bromley	Subnational Level 3	High SDI	Goiás	Subnational Level 1	Middle SDI	Mali	Country	Low SDI
Camden	Subnational Level 3	High SDI	Maranhão	Subnational Level 1	Low SDI	Mauritania	Country	Low-middle SDI
Croydon	Subnational Level 3	High SDI	Mato Grosso	Subnational Level 1	Middle SDI	Niger	Country	Low SDI
Ealing	Subnational Level 3	High SDI	Mato Grosso do Sul	Subnational Level 1	Middle SDI	Nigeria	Country	Low-middle SDI
Enfield	Subnational Level 3	High SDI	Minas Gerais	Subnational Level 1	Middle SDI	Sao Tome and Principe	Country	Low-middle SDI
Greenwich	Subnational Level 3	High SDI	Pará	Subnational Level 1	Low-middle SDI	Senegal	Country	Low SDI
Hackney	Subnational Level 3	High SDI	Paraíba	Subnational Level 1	Low-middle SDI	Sierra Leone	Country	Low SDI
Hammersmith and Fulham	Subnational Level 3	High SDI	Paraná	Subnational Level 1	Middle SDI	Togo	Country	Low SDI

Supplementary Table 3. List of GBD causes, with levels

Cause name	Level in hierarchy	Cause name	Level in hierarchy	Cause name	Level in hierarchy
All causes	0	Testicular cancer	3	Bacterial skin diseases	3
Communicable, maternal, neonatal, and nutritional	1	Kidney cancer	3	Cellulitis	4
HIV/AIDS and sexually transmitted infections	2	Bladder cancer	3	Pyoderma	4
HIV/AIDS	3	Brain and central nervous system cancer	3	Scabies	3
HIV/AIDS - Drug-susceptible	4	Thyroid cancer	3	Fungal skin diseases	3
HIV/AIDS - Multidrug-resistant Tuberculosis	4	Mesothelioma	3	Viral skin diseases	3
HIV/AIDS - Extensively drug-resistant	4	Hodgkin lymphoma	3	Acne vulgaris	3
HIV/AIDS resulting in other diseases	4	Non-Hodgkin lymphoma	3	Alopecia areata	3
Sexually transmitted infections excluding HIV	3	Multiple myeloma	3	Pruritus	3
Syphilis	4	Leukemia	3	Urticaria	3
Chlamydial infection	4	Acute lymphoid leukemia	4	Decubitus ulcer	3
Gonococcal infection	4	Chronic lymphoid leukemia	4	Other skin and subcutaneous diseases	3
Trichomoniasis	4	Acute myeloid leukemia	4	Sense organ diseases	2
Genital herpes	4	Chronic myeloid leukemia	4	Blindness and vision loss	3
Other sexually transmitted infections	4	Other leukemia	4	Glaucoma	4
Respiratory infections and tuberculosis	2	Other malignant neoplasms	3	Cataract	4
Tuberculosis	3	Other neoplasms	3	Age-related macular degeneration	4
Latent tuberculosis infection	4	Myelodysplastic, myeloproliferative, Benign and in situ intestinal neoplasms	4	Refraction disorders	4
Drug-susceptible tuberculosis	4	Benign and in situ cervical and uterine	4	Near vision loss	4
Multidrug-resistant tuberculosis without	4	Other benign and in situ neoplasms	4	Other vision loss	4
Extensively drug-resistant tuberculosis	4	Cardiovascular diseases	2	Age-related and other hearing loss	3
Lower respiratory infections	3	Rheumatic heart disease	3	Other sense organ diseases	3
Upper respiratory infections	3	Ischemic heart disease	3	Musculoskeletal disorders	2
Otitis media	3	Stroke	3	Rheumatoid arthritis	3
Enteric infections	2	Ischemic stroke	4	Osteoarthritis	3
Diarrheal diseases	3	Intracerebral hemorrhage	4	Osteoarthritis hip	4
Typhoid and paratyphoid	3	Subarachnoid hemorrhage	4	Osteoarthritis knee	4
Typhoid fever	4	Hypertensive heart disease	3	Osteoarthritis hand	4
Paratyphoid fever	4	Non-rheumatic valvular heart disease	3	Osteoarthritis other	4
Invasive Non-typhoidal Salmonella (INTS)	3	Non-rheumatic calcific aortic valve disease	4	Low back pain	3
Other intestinal infectious diseases	3	Non-rheumatic degenerative mitral	4	Neck pain	3
Neglected tropical diseases and malaria	2	Other non-rheumatic valve diseases	4	Gout	3
Malaria	3	Cardiomyopathy and myocarditis	3	Other musculoskeletal disorders	3
Chagas disease	3	Myocarditis	4	Other non-communicable diseases	2
Leishmaniasis	3	Alcoholic cardiomyopathy	4	Congenital birth defects	3
Visceral leishmaniasis	4	Other cardiomyopathy	4	Neural tube defects	4
Cutaneous and mucocutaneous	4	Atrial fibrillation and flutter	3	Congenital heart anomalies	4
African trypanosomiasis	3	Aortic aneurysm	3	Orofacial clefts	4
Schistosomiasis	3	Peripheral artery disease	3	Down syndrome	4
Cysticercosis	3	Endocarditis	3	Turner syndrome	4
Cystic echinococcosis	3	Other cardiovascular and circulatory diseases	3	Klinefelter syndrome	4
Lymphatic filariasis	3	Chronic respiratory diseases	2	Other chromosomal abnormalities	4
Onchocerciasis	3	Chronic obstructive pulmonary disease	3	Congenital musculoskeletal and urogenital congenital anomalies	4
Trachoma	3	Pneumoconiosis	3	Digestive congenital anomalies	4
Dengue	3				

Supplementary Table 3. List of GBD causes, with levels

Cause name	Level in hierarchy	Cause name	Level in hierarchy	Cause name	Level in hierarchy
Yellow fever	3	Silicosis	4	Other congenital birth defects	4
Rabies	3	Asbestosis	4	Urinary diseases and male infertility	3
Intestinal nematode infections	3	Coal workers pneumoconiosis	4	Urinary tract infections and interstitial	4
Ascariasis	4	Other pneumoconiosis	4	Urolithiasis	4
Trichuriasis	4	Asthma	3	Benign prostatic hyperplasia	4
Hookworm disease	4	Interstitial lung disease and pulmonary	3	Male infertility	4
Food-borne trematodiasis	3	Other chronic respiratory diseases	3	Other urinary diseases	4
Leprosy	3	Digestive diseases	2	Gynecological diseases	3
Ebola	3	Cirrhosis and other chronic liver diseases	3	Uterine fibroids	4
Zika virus	3	Cirrhosis and other chronic liver diseases	4	Polycystic ovarian syndrome	4
Guinea worm disease	3	Cirrhosis and other chronic liver diseases	4	Female infertility	4
Other neglected tropical diseases	3	Cirrhosis and other chronic liver diseases	4	Endometriosis	4
Other infectious diseases	2	Cirrhosis and other chronic liver diseases	4	Genital prolapse	4
Meningitis	3	Cirrhosis and other chronic liver diseases	4	Premenstrual syndrome	4
Encephalitis	3	Upper digestive system diseases	3	Other gynecological diseases	4
Diphtheria	3	Peptic ulcer disease	4	Hemoglobinopathies and hemolytic anemias	3
Whooping cough	3	Gastritis and duodenitis	4	Thalassemias	4
Tetanus	3	Gastroesophageal reflux disease	4	Thalassemias trait	4
Measles	3	Appendicitis	3	Sickle cell disorders	4
Varicella and herpes zoster	3	Paralytic ileus and intestinal obstruction	3	Sickle cell trait	4
Acute hepatitis	3	Inguinal, femoral, and abdominal hernia	3	G6PD deficiency	4
Acute hepatitis A	4	Inflammatory bowel disease	3	G6PD trait	4
Acute hepatitis B	4	Vascular intestinal disorders	3	Other hemoglobinopathies	4
Acute hepatitis C	4	Gallbladder and biliary diseases	3	Endocrine, metabolic, blood, and immune	3
Acute hepatitis E	4	Pancreatitis	3	Oral disorders	3
Other unspecified infectious diseases	3	Other digestive diseases	3	Caries of deciduous teeth	4
Maternal and neonatal disorders	2	Neurological disorders	2	Caries of permanent teeth	4
Maternal disorders	3	Alzheimer's disease and other dementias	3	Periodontal diseases	4
Maternal hemorrhage	4	Parkinson's disease	3	Edentulism	4
Maternal sepsis and other maternal	4	Idiopathic epilepsy	3	Other oral disorders	4
Maternal hypertensive disorders	4	Multiple sclerosis	3	Sudden infant death syndrome	3
Maternal obstructed labor and uterine	4	Motor neuron disease	3	Injuries	1
Maternal abortion and miscarriage	4	Headache disorders	3	Transport injuries	2
Ectopic pregnancy	4	Migraine	4	Road injuries	3
Indirect maternal deaths	4	Tension-type headache	4	Pedestrian road injuries	4
Late maternal deaths	4	Other neurological disorders	3	Cyclist road injuries	4
Maternal deaths aggravated by	4	Mental disorders	2	Motorcyclist road injuries	4
Other maternal disorders	4	Schizophrenia	3	Motor vehicle road injuries	4
Neonatal disorders	3	Depressive disorders	3	Other road injuries	4
Neonatal preterm birth	4	Major depressive disorder	4	Other transport injuries	3
Neonatal encephalopathy due to	4	Dysthymia	4	Unintentional injuries	2
Neonatal sepsis and other neonatal	4	Bipolar disorder	3	Falls	3
Hemolytic disease and other neonatal	4	Anxiety disorders	3	Drowning	3
Other neonatal disorders	4	Eating disorders	3	Fire, heat, and hot substances	3
Nutritional deficiencies	2	Anorexia nervosa	4	Poisonings	3

Supplementary Table 3. List of GBD causes, with levels

Cause name	Level in hierarchy	Cause name	Level in hierarchy	Cause name	Level in hierarchy
Protein-energy malnutrition	3	Bulimia nervosa	4	Poisoning by carbon monoxide	4
Iodine deficiency	3	Autism spectrum disorders	3	Poisoning by other means	4
Vitamin A deficiency	3	Attention-deficit/hyperactivity	3	Exposure to mechanical forces	3
Dietary iron deficiency	3	Conduct disorder	3	Unintentional firearm injuries	4
Other nutritional deficiencies	3	Idiopathic developmental	3	Other exposure to mechanical forces	4
Non-communicable diseases	1	Other mental disorders	3	Adverse effects of medical treatment	3
Neoplasms	2	Substance use disorders	2	Animal contact	3
Lip and oral cavity cancer	3	Alcohol use disorders	3	Venomous animal contact	4
Nasopharynx cancer	3	Drug use disorders	3	Non-venomous animal contact	4
Other pharynx cancer	3	Opioid use disorders	4	Foreign body	3
Esophageal cancer	3	Cocaine use disorders	4	Pulmonary aspiration and foreign body in	4
Stomach cancer	3	Amphetamine use disorders	4	Foreign body in eyes	4
Colon and rectum cancer	3	Cannabis use disorders	4	Foreign body in other body part	4
Liver cancer	3	Other drug use disorders	4	Environmental heat and cold exposure	3
Liver cancer due to hepatitis B	4	Diabetes and kidney diseases	2	Exposure to forces of nature	3
Liver cancer due to hepatitis C	4	Diabetes mellitus	3	Other unintentional injuries	3
Liver cancer due to alcohol use	4	Diabetes mellitus type 1	4	Self-harm and interpersonal violence	2
Liver cancer due to NASH	4	Diabetes mellitus type 2	4	Self-harm	3
Liver cancer due to other causes	4	Chronic kidney disease	3	Self-harm by firearm	4
Gallbladder and biliary tract cancer	3	Chronic kidney disease due to diabetes	4	Self-harm by other specified means	4
Pancreatic cancer	3	Chronic kidney disease due to diabetes	4	Interpersonal violence	3
Larynx cancer	3	Chronic kidney disease due to hypertension	4	Physical violence by firearm	4
Tracheal, bronchus, and lung cancer	3	Chronic kidney disease due to	4	Physical violence by sharp object	4
Malignant skin melanoma	3	Chronic kidney disease due to other and	4	Sexual violence	4
Non-melanoma skin cancer	3	Acute glomerulonephritis	3	Physical violence by other means	4
Non-melanoma skin cancer (squamous-cell)	4	Skin and subcutaneous diseases	2	Conflict and terrorism	3
Non-melanoma skin cancer (basal-cell)	4	Dermatitis	3	Executions and police conflict	3
Breast cancer	3	Atopic dermatitis	4	Total cancers	1
Cervical cancer	3	Contact dermatitis	4	Total burden related to hepatitis B	1
Uterine cancer	3	Seborrhoeic dermatitis	4	Total burden related to hepatitis C	1
Ovarian cancer	3	Psoriasis	3	Total burden related to Non-alcoholic fatty liver	1
Prostate cancer	3				

Supplementary Table 4. Cause-specific mortality rate for 70-79 years, 80-94 years, and 95+ years in 2019, and percentage change from 1990 to 2019 in death number and rate in 70+ years, global, for all GBD causes

Causes	Males					Females				
	Deaths per 100,000, 2019			Percentage change in 70+, 1990-2019		Deaths per 100,000, 2019			Percentage change in 70+, 1990-2019	
	70 to 79	80 to 94	95 plus	Number	Rate	70 to 79	80 to 94	95 plus	Number	Rate
Chronic kidney disease due to diabetes mellitus type 2	38.3 (27.6 to 50.5)	84.4 (65.4 to 129)	273 (148 to 428)	220 (178 to 260)	-29.4 (-12.2 to 45.4)	31.3 (21.9 to 39.8)	76.2 (53 to 103)	231 (125 to 349)	228 (185 to 260)	-48.3 (-30.9 to 64.9)
Chronic kidney disease due to hypertension	41 (32.3 to 51.4)	144 (116 to 174)	582 (419 to 768)	204 (169 to 233)	22.7 (8.93 to 34.5)	30.1 (23.6 to 38.5)	102 (77.8 to 125)	418 (279 to 558)	208 (174 to 236)	41.2 (25.6 to 54.2)
Chronic kidney disease due to glomerulonephritis	13.6 (7.69 to 20.8)	33.7 (18.7 to 53.8)	87.2 (38.6 to 174)	176 (144 to 208)	11.7 (-1.46 to 24.6)	9 (5.16 to 14.1)	20.5 (11.3 to 32.8)	54.3 (23.5 to 112)	178 (150 to 210)	27.7 (14.4 to 42)
Chronic kidney disease due to other and unspecified causes	22.9 (13.9 to 35.3)	74.3 (46.6 to 106)	275 (142 to 426)	189 (155 to 222)	16.9 (3.1 to 30.1)	17.8 (11 to 26.4)	56 (36.4 to 78.4)	215 (113 to 325)	193 (157 to 226)	34.2 (17.9 to 49.4)
Acute glomerulonephritis	0.88 (0.454 to 1.09)	2.07 (1.12 to 2.49)	2.2 (1.64 to 2.66)	33.9 (-41.6 to 78.9)	-45.9 (-76.4 to -27.7)	0.644 (0.469 to 0.802)	1.42 (1.08 to 1.74)	2.38 (1.75 to 2.9)	29.4 (8.17 to 64.7)	-40.7 (-57.9 to -24.5)
Skin and subcutaneous diseases	6.97 (4.48 to 10.1)	22.5 (14.4 to 34.5)	99.9 (52.8 to 163)	153 (103 to 207)	2.16 (-17.8 to 24.2)	6.65 (5.06 to 8.47)	25.3 (17.8 to 34.7)	112 (66.4 to 162)	162 (132 to 194)	19.9 (6.27 to 34.6)
Dermatitis										
Atopic dermatitis										
Contact dermatitis										
Seborrhoeic dermatitis										
Pсориаз										
Bacterial skin diseases	5.13 (3.19 to 7.33)	14 (7.73 to 22)	60 (26.3 to 102)	182 (129 to 268)	14 (-7.42 to 48.9)	4.74 (3.66 to 6.2)	14.4 (9.94 to 20.9)	58.8 (33.2 to 89)	232 (180 to 291)	52.4 (28.2 to 79.3)
Cellulitis	1.23 (0.544 to 2.21)	3.51 (1.38 to 6.53)	16.4 (5.16 to 30.5)	222 (94.7 to 356)	30 (-21.3 to 84.5)	1.2 (0.664 to 1.71)	3.72 (2.02 to 5.84)	16.2 (7.31 to 27.3)	242 (166 to 295)	56.7 (21.9 to 81)
Pyoderma	0.91 (2.25 to 5.38)	10.5 (5.76 to 15.8)	43.6 (19.2 to 72.2)	171 (120 to 269)	9.58 (-11.2 to 49.1)	1.54 (2.9 to 4.62)	10.7 (7.59 to 15)	42.6 (24.8 to 61.1)	229 (180 to 299)	10.9 (28.1 to 82.8)
Scabies										
Fungal skin diseases										
Viral skin diseases										
Acne vulgaris										
Alopecia areata										
Pruritus										
Urticaria										
Decubitus ulcer	1.63 (0.949 to 2.68)	7.61 (4.56 to 12.5)	36.3 (17.2 to 65.2)	111 (40.2 to 204)	-14.9 (-43.3 to 23)	1.68 (1.08 to 2.05)	9.77 (6.39 to 13)	49.8 (28.2 to 65.8)	95.5 (59.3 to 131)	-10.4 (-27 to 5.81)
Other skin and subcutaneous diseases	0.208 (0.135 to 0.323)	0.918 (0.556 to 1.53)	3.67 (1.48 to 7.15)	96.5 (23.7 to 148)	-20.6 (-50 to 0.429)	0.233 (0.18 to 0.378)	1.09 (0.731 to 1.89)	3.85 (1.8 to 6.46)	105 (46 to 146)	-5.98 (-33.1 to 12.9)
Sense organ diseases										
Blindness and vision loss										
Glaucoma										
Cataract										
Age-related macular degeneration										
Refraction disorders										
Near vision loss										
Other vision loss										
Age-related and other hearing loss										
Other sense organ diseases										
Musculoskeletal disorders	6.96 (6.15 to 7.86)	19.1 (15.6 to 21.4)	48.4 (33.5 to 57.6)	162 (137 to 203)	5.96 (-4.14 to 22.5)	10.9 (7.76 to 13.4)	27.8 (18 to 32.8)	77.1 (41.6 to 99.4)	158 (109 to 199)	18.3 (4.29 to 37.2)
Rheumatoid arthritis	3.31 (2.84 to 3.76)	7.65 (6.44 to 8.6)	11.3 (8.22 to 13.9)	147 (119 to 193)	-0.00665 (-11.5 to 18.4)	5.79 (3.94 to 7.13)	12 (7.52 to 14.6)	17.8 (10.8 to 23.6)	124 (70.1 to 176)	2.59 (-22 to 26.5)
Osteoarthritis										
Osteoarthritis hip										
Osteoarthritis knee										
Osteoarthritis hand										
Osteoarthritis other										
Low back pain										
Neck pain										
Gout										
Other musculoskeletal disorders	3.65 (3.15 to 4.21)	11.4 (9 to 12.8)	37.1 (25.1 to 44.5)	175 (147 to 213)	11 (-0.0193 to 26.5)	5.07 (3.51 to 6.41)	15.8 (9.67 to 19.1)	59.3 (30.6 to 75.9)	197 (152 to 247)	36.1 (15.6 to 58.9)
Other non-communicable diseases	36.6 (30.3 to 39.9)	120 (95.8 to 132)	494 (338 to 565)	178 (149 to 203)	11.5 (0.8 to 22.5)	30.9 (26.8 to 33.4)	105 (82.6 to 117)	456 (312 to 525)	389 (149 to 227)	38.3 (14 to 56.1)
Congenital birth defects										
Neural tube defects										
Congenital heart anomalies										
Orofacial clefts										
Down syndrome										
Turner syndrome										
Klinefelter syndrome										
Other chromosomal abnormalities										
Congenital musculoskeletal and limb anomalies										
Urogenital congenital anomalies										
Digestive congenital anomalies										
Other congenital birth defects										
Urinary diseases and male infertility	23.5 (18.8 to 25.8)	85.7 (67.1 to 94.4)	356 (240 to 409)	172 (138 to 202)	10.1 (-3.59 to 22.1)	18.1 (15.1 to 19.8)	68.5 (52.4 to 76.3)	317 (216 to 365)	225 (158 to 254)	49.2 (18.1 to 62.2)

Supplementary Table 4. Cause-specific mortality rate for 70-79 years, 80-94 years, and 95+ years in 2019, and percentage change from 1990 to 2019 in death number and rate in 70+ years, global, for all GBD causes

Causes	Males					Females				
	Deaths per 100,000, 2019			Percentage change in 70+, 1990-2019		Deaths per 100,000, 2019			Percentage change in 70+, 1990-2019	
	70 to 79	80 to 94	95 plus	Number	Rate	70 to 79	80 to 94	95 plus	Number	Rate
Other unintentional injuries	2.29 (1.61 to 2.56)	3.73 (2.67 to 4.18)	9.07 (6.74 to 10.8)	49.2 (13 to 74.8)	-39.7 (-54.3 to -29.3)	0.903 (0.808 to 1.01)	2.12 (1.75 to 2.4)	5.09 (3.79 to 5.87)	46.6 (27.2 to 68.7)	-33.2 (-41.7 to -22.7)
Self-harm and interpersonal violence	37.6 (32.5 to 41.7)	57.6 (49 to 64.2)	70.4 (56.2 to 79.7)	71 (57.8 to 95.6)	-30.9 (-36.2 to -20.9)	17.3 (15.6 to 19.1)	22.6 (18.9 to 25.5)	18.9 (14.4 to 21.6)	34.3 (11 to 37.6)	-43 (-49.1 to -36.9)
Self-harm	30.3 (25.3 to 34)	51 (42.8 to 57.3)	52.6 (41.4 to 61.3)	67.6 (52.9 to 93.8)	-32.2 (-38.2 to -21.6)	13.4 (11.9 to 15.1)	19.2 (15.7 to 21.9)	16.1 (12 to 18.6)	14.4 (0.0522 to 29.2)	-47.5 (-54.1 to -40.8)
Self-harm by firearm	3.16 (2.71 to 3.48)	5.54 (4.69 to 6.35)	8.5 (6.73 to 11)	36.2 (14.5 to 47.9)	-44.9 (-53.7 to -40.2)	0.239 (0.218 to 0.262)	0.264 (0.219 to 0.298)	0.521 (0.381 to 0.616)	37.3 (26.3 to 46.5)	-37.1 (-42.1 to -32.8)
Self-harm by other specified means	27.2 (21.9 to 30.9)	45.4 (37.6 to 51.4)	44.1 (34 to 51.3)	72.3 (55.5 to 104)	-30.3 (-37.1 to -17.6)	13.1 (11.6 to 14.9)	18.9 (15.5 to 21.6)	15.6 (11.6 to 18.1)	14.1 (-0.353 to 29)	-47.7 (-54.3 to -40.8)
Interpersonal violence	5.55 (5.17 to 6.06)	2.95 (2.59 to 3.26)	11.7 (8.86 to 13.7)	60.3 (45.1 to 86.9)	-35.2 (-41.1 to -24.4)	2.46 (2.27 to 2.65)	1.46 (1.23 to 1.59)	1.55 (1.17 to 1.78)	34.7 (25.9 to 45.1)	-38.2 (-42.3 to -33.5)
Physical violence by firearm	1.4 (1.28 to 1.53)	0.793 (0.678 to 0.89)	4.32 (3.14 to 5.27)	85.4 (64.4 to 111)	-25.1 (-33.5 to -14.8)	0.355 (0.329 to 0.382)	0.193 (0.16 to 0.213)	0.298 (0.212 to 0.359)	55.6 (42.9 to 70)	-28.7 (-34.8 to -22.1)
Physical violence by sharp object	1.29 (1.08 to 1.48)	0.835 (0.714 to 0.965)	3.34 (2.52 to 3.93)	56.7 (36.1 to 86.7)	-36.7 (-45 to -24.5)	0.625 (0.577 to 0.672)	0.436 (0.373 to 0.479)	0.411 (0.312 to 0.483)	38.8 (24.1 to 51.5)	-36.4 (-43.1 to -30.5)
Sexual violence										
Physical violence by other means	2.86 (2.6 to 3.19)	1.33 (1.15 to 1.51)	4.03 (3.09 to 4.66)	51.4 (34.1 to 80.1)	-38.8 (-45.8 to -27.2)	1.48 (1.35 to 1.61)	0.828 (0.706 to 0.904)	0.841 (0.636 to 0.952)	28.9 (19.3 to 38.9)	-40.9 (-45.3 to -36.3)
Conflict and terrorism	1.61 (1.46 to 1.77)	3.51 (3.19 to 3.87)	5.62 (5.2 to 6.18)	225 (220 to 226)	31.2 (29.2 to 32)	1.39 (1.26 to 1.53)	1.9 (1.73 to 2.09)	1.15 (1.04 to 1.27)	344 (339 to 346)	104 (101 to 104)
Executions and police conflict	0.0776 (0.0612 to 0.0969)	0.117 (0.0986 to 0.139)	0.524 (0.356 to 0.828)	217 (147 to 408)	-77.9 (-0.136 to 105)	0.045 (0.0398 to 0.0547)	0.0572 (0.0513 to 0.0655)	0.0587 (0.0413 to 0.0937)	347 (239 to 446)	105 (55.4 to 150)
Total cancers	1080 (1000 to 1170)	2010 (1800 to 2160)	3210 (2500 to 3580)	133 (118 to 150)	-8.88 (-12.7 to 1.14)	621 (569 to 666)	1120 (925 to 1230)	2130 (1540 to 2420)	110 (94.1 to 124)	-3.89 (-11 to 2.5)
Total burden related to hepatitis B	42.4 (34.4 to 51.1)	54.9 (44.2 to 66.3)	65.6 (41.1 to 96.9)	50.3 (32.1 to 73.1)	-39.2 (-46.6 to -30)	16.5 (12.6 to 20.5)	22.8 (17.1 to 28.8)	29.2 (17.2 to 44.3)	44.8 (8.1 to 44.3)	-42.8 (-50.4 to -33.9)
Total burden related to hepatitis C	44 (36.9 to 52.1)	76.3 (63.2 to 90.1)	137 (93.9 to 180)	122 (103 to 147)	-10.1 (-18.1 to -0.227)	27.5 (22.8 to 32.8)	50 (39.1 to 58.9)	96.5 (64.3 to 127)	86.7 (64.8 to 108)	-14.4 (-24.4 to -4.82)
Total burden related to Non-alcoholic fatty liver disease (NAFLD)	13.1 (9.11 to 18.1)	22.9 (15.8 to 31.6)	42.4 (20.7 to 73.3)	139 (114 to 168)	-3.3 (-13.3 to 8.2)	12.1 (8.49 to 16.5)	21.5 (14.7 to 29.3)	36.1 (18.4 to 58.4)	112 (86.5 to 136)	-2.93 (-14.5 to 8.19)

Supplementary Table 5. Cause-specific rate of YLDs for 70-79 years, 80-94 years, and 95+ years in 2019, and percentage change from 1990 to 2019 in YLD number and rate in 70+ years, global, for all GBD causes

Causes	Males					Females				
	YLDs per 100,000, 2019			Percentage change in 70+, 1990-2019		YLDs per 100,000, 2019			Percentage change in 70+, 1990-2019	
	70 to 79	80 to 94	95 plus	Number	Rate	70 to 79	80 to 94	95 plus	Number	Rate
Other unintentional injuries	99.9 (67 to 145)	123 (82.1 to 177)	105 (132 to 267)	88.9 (87.2 to 90.8)	-23.6 (-24.3 to -22.9)	96.6 (64.8 to 138)	126 (85.8 to 177)	106 (137 to 271)	74.4 (71.3 to 76.5)	-20 (-21.5 to -19.1)
Self-harm and interpersonal violence	134 (98.5 to 177)	127 (93.3 to 167)	148 (109 to 197)	118 (109 to 126)	-12.1 (-15.5 to -8.53)	88.7 (68.6 to 112)	81.3 (62.2 to 103)	64.7 (47.5 to 86.1)	82.4 (75.8 to 89.6)	-16.4 (-19.4 to -13.1)
Self-harm	18 (12.8 to 24.3)	18.7 (13.2 to 25.3)	19.1 (13.3 to 26.2)	104 (99.7 to 108)	-17.6 (-19.3 to -15.8)	24.1 (17.3 to 31.8)	23.2 (16.6 to 31.1)	20.9 (14.7 to 28.8)	60.1 (56.8 to 63.5)	-26.6 (-28.1 to -25.1)
Self-harm by firearm	2.65 (1.9 to 3.61)	2.96 (2.06 to 4.12)	2.67 (1.77 to 3.81)	105 (99.7 to 109)	-17 (-19.3 to -15.3)	2.36 (1.72 to 3.16)	2.22 (1.59 to 3.03)	1.3 (0.88 to 1.83)	111 (104 to 116)	-3.41 (-6.33 to -0.954)
Self-harm by other specified means	15.4 (10.7 to 20.7)	15.7 (10.9 to 21.4)	16.4 (11.3 to 22.8)	104 (99.1 to 108)	-17.7 (-19.5 to -15.8)	21.7 (15.3 to 28.8)	21 (14.9 to 28.2)	19.6 (13.8 to 27)	56.1 (53 to 59.2)	-28.4 (-29.9 to -27)
Interpersonal violence	92.2 (67.8 to 124)	85.1 (61.9 to 117)	103 (72.9 to 143)	115 (112 to 119)	-12.9 (-14.3 to -11.5)	52.3 (40.1 to 66.8)	46.7 (35.4 to 60.3)	35.3 (25.4 to 49.2)	94.8 (89.2 to 102)	-10.7 (-12.2 to -7.41)
Physical violence by firearm	5.16 (3.61 to 7.22)	5.11 (3.5 to 7.23)	9.72 (6.56 to 13.7)	195 (190 to 201)	19.4 (17.3 to 21.7)	1.68 (1.18 to 2.25)	1.74 (1.23 to 2.42)	2.38 (1.59 to 3.4)	141 (137 to 145)	-0.5 (-8.64 to -12.5)
Physical violence by sharp object	13.9 (9.65 to 19.7)	14.2 (9.7 to 20.3)	24.4 (16.5 to 34.9)	86.3 (82 to 90.2)	-24.7 (-26.4 to -23.1)	4.66 (3.26 to 6.45)	5.05 (3.48 to 7.05)	6.1 (4.13 to 8.69)	57.1 (53.4 to 60.8)	-28 (-29.7 to -26.3)
Sexual violence	7.64 (4.87 to 11.3)	5.46 (3.5 to 8.12)	0.272 (0.148 to 0.47)	161 (159 to 165)	5.63 (4.51 to 6.94)	16 (10.3 to 23.6)	11.3 (7.36 to 16.6)	0.753 (0.419 to 1.29)	147 (144 to 150)	13.1 (11.9 to 14.4)
Physical violence by other means	65.4 (45.6 to 90.5)	60.3 (41.8 to 84.1)	68.7 (48.3 to 96.5)	114 (111 to 117)	-13.5 (-14.9 to -12.1)	29.9 (21.3 to 40.7)	28.6 (20.1 to 39.3)	26.1 (18.4 to 36.2)	81.5 (78 to 85)	-16.8 (-18.4 to -15.2)
Conflict and terrorism	23.8 (15 to 39.7)	23.1 (15.5 to 34.7)	25.2 (17.3 to 35.2)	135 (91.7 to 189)	-9.1 (-22.5 to 16.9)	12.1 (7.45 to 20.4)	11.1 (7.07 to 16.8)	8.15 (5.35 to 11.9)	81.5 (50.1 to 120)	-16.8 (-31.2 to 1.01)
Executions and police conflict	0.448 (0.258 to 0.803)	0.493 (0.314 to 0.785)	0.642 (0.4 to 1)	720 (526 to 994)	231 (153 to 342)	0.221 (0.136 to 0.36)	0.293 (0.181 to 0.455)	0.288 (0.176 to 0.46)	388 (221 to 593)	124 (47.2 to 218)
Total cancers	721 (520 to 913)	921 (681 to 1170)	723 (521 to 913)	391 (268 to 216)	17.5 (8.4 to 27.8)	425 (318 to 546)	529 (377 to 665)	518 (373 to 658)	141 (124 to 158)	-0.5 (-2.55 to 18.2)
Total burden related to hepatitis B	11.8 (7.97 to 16.8)	10 (6.81 to 14.6)	3.86 (2.32 to 5.97)	86.5 (72.4 to 125)	-20.6 (-30.3 to 9.16)	5.76 (3.73 to 8.45)	4.53 (2.92 to 6.73)	2.27 (1.28 to 3.64)	57.6 (39.2 to 80)	-27.8 (-36.2 to -17.5)
Total burden related to hepatitis C	10.7 (7.13 to 15.2)	13.5 (9.39 to 18.3)	9.3 (6.2 to 13.1)	176 (159 to 198)	11.8 (4.7 to 20.6)	7.62 (5.1 to 11)	9.13 (6.2 to 12.8)	7.57 (5.12 to 10.6)	118 (102 to 135)	-0.0976 (-7.59 to 7.95)
Total burden related to Non-alcoholic fatty liver disease (NAFLD)	2.91 (1.65 to 4.68)	3.1 (1.8 to 4.9)	1.7 (0.862 to 3.18)	168 (148 to 195)	8.36 (0.441 to 19.1)	3.34 (1.84 to 5.33)	3.2 (1.85 to 5.09)	1.88 (0.96 to 3.43)	126 (110 to 144)	3.69 (-3.6 to 12)

Supplementary Table 6: Life expectancy, Health-adjusted life expectancy, and proportion of years spent in ill health in all reporting locations, in 1990, 2005, 2019

location	LE-70			HALE-70			PYIH-70		
	1990	2005	2019	1990	2005	2019	1990	2005	2019
<i>Sao Tome and Principe</i>	11.3 (10.8 to 11.7)	11.1 (10.7 to 11.4)	11.2 (11.1 to 11.9)	8.34 (7.5 to 9.12)	8.1 (7.34 to 8.89)	8.17 (7.36 to 9.03)	0.26 (0.22 to 0.31)	0.27 (0.22 to 0.32)	0.27 (0.24 to 0.33)
<i>Senegal</i>	10.2 (9.89 to 10.5)	11 (10.7 to 11.3)	11.7 (10.9 to 12.1)	7.52 (6.76 to 8.23)	8.02 (7.14 to 8.8)	8.6 (7.6 to 9.46)	0.27 (0.22 to 0.32)	0.27 (0.22 to 0.33)	0.27 (0.22 to 0.3)
<i>Sierra Leone</i>	9.67 (9.16 to 10.3)	9.78 (9.35 to 10.2)	11.1 (10.1 to 11.6)	7.16 (6.4 to 7.95)	7.2 (6.47 to 7.92)	8.16 (7.12 to 9.07)	0.26 (0.23 to 0.3)	0.26 (0.22 to 0.31)	0.26 (0.22 to 0.3)
<i>Togo</i>	10.2 (9.74 to 10.7)	10.3 (9.72 to 10.8)	11.4 (10.5 to 11.8)	7.57 (6.79 to 8.31)	7.64 (6.83 to 8.42)	8.42 (7.4 to 9.29)	0.26 (0.22 to 0.3)	0.26 (0.22 to 0.3)	0.26 (0.22 to 0.3)

Supplementary Table 7: Life expectancy, Health-adjusted life expectancy, and proportion of years spent in ill health in all reporting locations, in 1990, 2005, 2019, Males

location	LE-70			HALE-70			PYIH-70		
	1990	2005	2019	1990	2005	2019	1990	2005	2019
Zambia	8.68 (8.38 to 9.14)	8.13 (7.8 to 8.53)	9.67 (9.08 to 10.3)	6.45 (5.76 to 7.14)	6 (5.36 to 6.6)	7.2 (6.39 to 8.01)	0.26 (0.22 to 0.31)	0.26 (0.23 to 0.31)	0.26 (0.22 to 0.3)
Southern Sub-Saharan Africa	11.5 (11.2 to 11.7)	9.62 (9.47 to 9.74)	11.2 (11 to 11.4)	8.27 (7.45 to 9.06)	6.91 (6.22 to 7.54)	8.02 (7.19 to 8.79)	0.28 (0.23 to 0.34)	0.28 (0.23 to 0.34)	0.28 (0.23 to 0.34)
Botswana	8.72 (8.29 to 9.28)	7.72 (7.27 to 8)	9.44 (8.88 to 10.1)	6.29 (5.54 to 7.06)	5.5 (4.84 to 6.09)	6.67 (5.83 to 7.5)	0.28 (0.24 to 0.33)	0.29 (0.24 to 0.34)	0.29 (0.26 to 0.34)
Eswatini	8.48 (8.09 to 9.12)	7.1 (6.6 to 7.6)	8.28 (7.68 to 8.6)	6.12 (5.47 to 6.81)	5.01 (4.33 to 5.61)	5.87 (5.1 to 6.53)	0.28 (0.25 to 0.32)	0.29 (0.26 to 0.34)	0.29 (0.24 to 0.34)
Lesotho	8.49 (8.02 to 8.8)	7.09 (6.8 to 7.34)	7.7 (7.12 to 8.13)	6.21 (5.56 to 6.83)	5.13 (4.58 to 5.66)	5.53 (4.84 to 6.16)	0.27 (0.22 to 0.31)	0.28 (0.23 to 0.33)	0.28 (0.24 to 0.32)
Namibia	8.8 (8.5 to 9.18)	8.44 (8.17 to 8.65)	9.54 (9.1 to 9.95)	6.37 (5.68 to 7.04)	6.06 (5.43 to 6.69)	6.86 (6.08 to 7.63)	0.28 (0.23 to 0.33)	0.28 (0.23 to 0.33)	0.28 (0.23 to 0.33)
South Africa	12.4 (12.1 to 12.8)	10.3 (10.1 to 10.4)	11.8 (11.6 to 12.1)	8.93 (8.02 to 9.79)	7.36 (6.62 to 8.05)	8.46 (7.56 to 9.26)	0.28 (0.23 to 0.34)	0.28 (0.23 to 0.34)	0.29 (0.24 to 0.35)
Zimbabwe	9.44 (9.08 to 9.84)	8.01 (7.65 to 8.32)	9.03 (8.65 to 9.61)	6.95 (6.24 to 7.61)	5.84 (5.21 to 6.46)	6.62 (5.89 to 7.32)	0.26 (0.23 to 0.31)	0.27 (0.22 to 0.32)	0.27 (0.24 to 0.32)
Western Sub-Saharan Africa	9.62 (9.06 to 10.2)	9.85 (9.21 to 10.6)	10.9 (10.1 to 11.6)	7.09 (6.25 to 7.9)	7.29 (6.42 to 8.19)	8.08 (7.15 to 9)	0.26 (0.23 to 0.31)	0.26 (0.23 to 0.3)	0.26 (0.22 to 0.3)
Benin	9.27 (8.83 to 9.74)	9.44 (8.79 to 10)	10.4 (9.49 to 11.3)	6.83 (6.11 to 7.52)	7.04 (6.29 to 7.77)	7.74 (6.75 to 8.71)	0.26 (0.23 to 0.31)	0.25 (0.23 to 0.28)	0.26 (0.23 to 0.29)
Burkina Faso	9.04 (8.58 to 9.52)	9.26 (8.82 to 9.69)	9.82 (9.2 to 10.4)	6.64 (5.91 to 7.37)	6.88 (6.17 to 7.56)	7.34 (6.54 to 8.1)	0.27 (0.23 to 0.31)	0.26 (0.22 to 0.3)	0.25 (0.22 to 0.29)
Cabo Verde	13.1 (12.8 to 13.4)	11.9 (11.2 to 12.7)	10.6 (10.5 to 10.9)	9.85 (8.93 to 10.7)	8.85 (7.89 to 9.85)	7.94 (7.18 to 8.63)	0.25 (0.2 to 0.3)	0.25 (0.22 to 0.29)	0.25 (0.21 to 0.31)
Cameroon	9.67 (9.17 to 10.1)	8.94 (8.58 to 9.5)	10.3 (9.44 to 11)	7.05 (6.28 to 7.81)	6.47 (5.79 to 7.22)	7.53 (6.58 to 8.42)	0.27 (0.23 to 0.32)	0.28 (0.24 to 0.32)	0.27 (0.24 to 0.3)
Chad	9.43 (8.91 to 9.95)	9.07 (8.58 to 9.62)	10.2 (9.36 to 10.9)	6.99 (6.24 to 7.77)	6.66 (5.93 to 7.36)	7.5 (6.6 to 8.38)	0.26 (0.22 to 0.3)	0.27 (0.23 to 0.31)	0.26 (0.23 to 0.29)
Côte d'Ivoire	8.88 (8.44 to 9.27)	8.68 (8.24 to 9.05)	10.3 (9.64 to 10.9)	6.38 (5.65 to 7.11)	6.37 (5.7 to 7.02)	7.57 (6.68 to 8.38)	0.28 (0.23 to 0.33)	0.27 (0.22 to 0.31)	0.26 (0.23 to 0.31)
Gambia	9.49 (8.74 to 10.3)	9.7 (9.22 to 10.4)	10.2 (9.66 to 11)	7.18 (6.32 to 8.02)	7.29 (6.54 to 8.07)	7.66 (6.84 to 8.46)	0.24 (0.22 to 0.28)	0.25 (0.22 to 0.29)	0.25 (0.23 to 0.29)
Ghana	9.59 (8.92 to 10.3)	9.35 (8.98 to 9.8)	10.1 (9.59 to 10.5)	7.22 (6.43 to 8.08)	7 (6.29 to 7.67)	7.56 (6.76 to 8.28)	0.25 (0.21 to 0.28)	0.25 (0.22 to 0.3)	0.25 (0.21 to 0.3)
Guinea	10 (9.48 to 10.5)	9.55 (9.02 to 10.1)	10.2 (9.39 to 11)	7.51 (6.72 to 8.29)	7.17 (6.45 to 7.89)	7.59 (6.64 to 8.56)	0.25 (0.21 to 0.29)	0.25 (0.22 to 0.29)	0.25 (0.22 to 0.29)
Guinea-Bissau	7.54 (7.09 to 8.09)	8.11 (7.7 to 8.52)	9.19 (8.51 to 9.95)	5.61 (5 to 6.24)	6.07 (5.45 to 6.63)	6.87 (6.06 to 7.7)	0.26 (0.23 to 0.3)	0.25 (0.22 to 0.29)	0.25 (0.23 to 0.29)
Liberia	9.75 (9.13 to 10.3)	10.4 (9.8 to 11.1)	11.4 (10.4 to 12.1)	7.12 (6.31 to 7.89)	7.6 (6.71 to 8.46)	8.27 (7.17 to 9.31)	0.27 (0.23 to 0.31)	0.27 (0.23 to 0.31)	0.28 (0.23 to 0.31)
Mali	9.57 (9.12 to 10.1)	10.7 (10.1 to 11.2)	11.3 (10.3 to 12.2)	7.07 (6.32 to 7.83)	7.9 (7.11 to 8.7)	8.44 (7.39 to 9.43)	0.26 (0.22 to 0.31)	0.26 (0.22 to 0.3)	0.25 (0.22 to 0.28)
Mauritania	9.77 (9.37 to 10.3)	11.8 (11 to 12.3)	12.5 (11.8 to 13)	7.38 (6.65 to 8.11)	8.88 (7.92 to 9.79)	9.42 (8.47 to 10.3)	0.24 (0.21 to 0.29)	0.25 (0.21 to 0.28)	0.24 (0.21 to 0.28)
Niger	9.19 (8.82 to 9.61)	10 (9.59 to 10.5)	10.7 (9.76 to 11.6)	6.95 (6.27 to 7.6)	7.6 (6.88 to 8.29)	8.12 (7.15 to 9.06)	0.24 (0.21 to 0.29)	0.24 (0.21 to 0.28)	0.24 (0.22 to 0.27)
Nigeria	9.83 (8.73 to 11.1)	10.2 (8.88 to 11.9)	11.4 (9.94 to 13.1)	7.22 (6.12 to 8.39)	7.56 (6.36 to 8.87)	8.46 (7.15 to 9.85)	0.27 (0.25 to 0.3)	0.26 (0.26 to 0.28)	0.26 (0.25 to 0.28)
Sao Tome and Principe	11 (10.3 to 11.6)	10.6 (10.2 to 11)	10.6 (10.4 to 11.3)	8.17 (7.28 to 9.01)	7.84 (7.07 to 8.61)	7.77 (6.97 to 8.57)	0.25 (0.22 to 0.29)	0.26 (0.22 to 0.31)	0.27 (0.24 to 0.33)
Senegal	9.55 (9.06 to 10.1)	10.3 (9.87 to 10.8)	11.1 (10.3 to 11.6)	7.07 (6.36 to 7.82)	7.57 (6.73 to 8.38)	8.22 (7.27 to 9.07)	0.26 (0.22 to 0.3)	0.27 (0.22 to 0.32)	0.26 (0.22 to 0.29)
Sierra Leone	8.97 (8.4 to 9.64)	9.22 (8.74 to 9.71)	10.7 (9.73 to 11.3)	6.69 (5.97 to 7.46)	6.84 (6.11 to 7.54)	7.97 (6.95 to 8.89)	0.25 (0.23 to 0.29)	0.26 (0.22 to 0.3)	0.25 (0.22 to 0.29)
Togo	9.56 (8.99 to 10.1)	8.99 (8.52 to 9.39)	10 (9.35 to 10.6)	7.15 (6.41 to 7.89)	6.73 (6.05 to 7.4)	7.51 (6.64 to 8.27)	0.25 (0.22 to 0.29)	0.25 (0.21 to 0.29)	0.25 (0.22 to 0.29)

Supplementary Table 8: Life expectancy, Health-adjusted life expectancy, and proportion of years spent in ill health in all reporting locations, in 1990, 2005, 2019, Females

location	LE-70			HALE-70			PYIH-70		
	1990	2005	2019	1990	2005	2019	1990	2005	2019
<i>Sao Tome and Principe</i>	11.6 (11.3 to 11.8)	11.5 (11.2 to 11.8)	11.8 (11.5 to 12.4)	8.46 (7.61 to 9.25)	8.36 (7.55 to 9.15)	8.55 (7.7 to 9.44)	0.27 (0.22 to 0.33)	0.27 (0.22 to 0.32)	0.28 (0.24 to 0.33)
<i>Senegal</i>	11 (10.7 to 11.3)	11.7 (11.4 to 12)	12.3 (11.4 to 12.7)	8.05 (7.16 to 8.83)	8.5 (7.57 to 9.33)	8.97 (7.95 to 9.86)	0.27 (0.22 to 0.33)	0.28 (0.22 to 0.33)	0.27 (0.22 to 0.3)
<i>Sierra Leone</i>	10.6 (10.2 to 11.2)	10.4 (10 to 10.8)	11.4 (10.5 to 11.9)	7.76 (6.98 to 8.59)	7.6 (6.83 to 8.32)	8.34 (7.3 to 9.27)	0.27 (0.23 to 0.31)	0.27 (0.23 to 0.32)	0.27 (0.22 to 0.31)
<i>Togo</i>	10.9 (10.5 to 11.2)	11.5 (10.8 to 12.1)	12.2 (11.3 to 12.7)	7.98 (7.17 to 8.74)	8.43 (7.53 to 9.32)	9 (7.9 to 9.95)	0.27 (0.22 to 0.32)	0.27 (0.23 to 0.3)	0.26 (0.22 to 0.3)

Supplementary Table 9. Data coverage index for all risk factors for 204 reporting locations, 1990–2005, 2005–2019 and in total by all ages and for the 70+ age

	1990-2005		2005-2019		1990-2019	
	All ages	70+	All ages	70+	All ages	70+
Armenia	58.54%	46.34%	63.41%	56.10%	65.85%	56.10%
Azerbaijan	56.10%	48.78%	60.98%	53.66%	60.98%	56.10%
Georgia	56.10%	51.22%	63.41%	53.66%	63.41%	53.66%
Kazakhstan	63.41%	58.54%	60.98%	53.66%	68.29%	58.54%
Kyrgyzstan	51.22%	48.78%	63.41%	53.66%	63.41%	53.66%
Mongolia	53.66%	46.34%	58.54%	51.22%	60.98%	51.22%
Tajikistan	48.78%	39.02%	56.10%	48.78%	58.54%	48.78%
Turkmenistan	41.46%	24.39%	36.59%	36.59%	51.22%	36.59%
Uzbekistan	53.66%	46.34%	56.10%	41.46%	58.54%	53.66%
Albania	56.10%	46.34%	63.41%	53.66%	68.29%	53.66%
Bosnia and Herzegovina	53.66%	53.66%	58.54%	53.66%	58.54%	56.10%
Bulgaria	53.66%	51.22%	60.98%	56.10%	63.41%	58.54%
Croatia	60.98%	56.10%	58.54%	53.66%	70.73%	60.98%
Czechia	63.41%	58.54%	56.10%	51.22%	65.85%	58.54%
Hungary	63.41%	58.54%	63.41%	58.54%	70.73%	60.98%
Montenegro	41.46%	36.59%	58.54%	53.66%	60.98%	53.66%
North Macedonia	48.78%	41.46%	63.41%	51.22%	65.85%	51.22%
Poland	58.54%	51.22%	63.41%	56.10%	65.85%	56.10%
Romania	60.98%	51.22%	65.85%	58.54%	68.29%	58.54%
Serbia	53.66%	41.46%	70.73%	60.98%	75.61%	60.98%
Slovakia	58.54%	58.54%	63.41%	56.10%	68.29%	60.98%
Slovenia	60.98%	56.10%	63.41%	56.10%	68.29%	60.98%
Belarus	51.22%	48.78%	60.98%	53.66%	60.98%	53.66%
Estonia	58.54%	53.66%	63.41%	58.54%	70.73%	63.41%
Latvia	53.66%	53.66%	65.85%	56.10%	70.73%	60.98%
Lithuania	46.34%	39.02%	63.41%	58.54%	65.85%	58.54%
Republic of Moldova	56.10%	46.34%	60.98%	53.66%	60.98%	53.66%
Russian Federation	68.29%	60.98%	65.85%	58.54%	75.61%	60.98%
Ukraine	60.98%	58.54%	65.85%	58.54%	68.29%	60.98%
Australia	78.05%	60.98%	65.85%	53.66%	78.05%	60.98%
New Zealand	63.41%	51.22%	63.41%	53.66%	70.73%	58.54%
Brunei Darussalam	43.90%	41.46%	43.90%	36.59%	46.34%	41.46%
Japan	70.73%	58.54%	58.54%	53.66%	70.73%	58.54%
Republic of Korea	63.41%	56.10%	65.85%	56.10%	65.85%	58.54%
Singapore	46.34%	43.90%	46.34%	43.90%	48.78%	43.90%
Canada	75.61%	51.22%	65.85%	51.22%	75.61%	53.66%
Greenland	9.76%	0.00%	17.07%	14.63%	21.95%	14.63%
United States of America	82.93%	73.17%	73.17%	65.85%	82.93%	75.61%
Argentina	75.61%	56.10%	65.85%	58.54%	78.05%	60.98%
Chile	65.85%	60.98%	56.10%	51.22%	70.73%	63.41%
Uruguay	56.10%	51.22%	60.98%	53.66%	63.41%	56.10%
Andorra	14.63%	12.20%	9.76%	4.88%	17.07%	12.20%
Austria	65.85%	58.54%	65.85%	58.54%	70.73%	63.41%

Supplementary Table 9. Data coverage index for all risk factors for 204 reporting locations, 1990–2005, 2005–2019 and in total by all ages and for the 70+ age group

	1990-2005		2005-2019		1990-2019	
	All ages	70+	All ages	70+	All ages	70+
Belgium	56.10%	51.22%	63.41%	56.10%	65.85%	56.10%
Cyprus	46.34%	39.02%	58.54%	53.66%	60.98%	53.66%
Denmark	70.73%	56.10%	68.29%	56.10%	75.61%	58.54%
Finland	70.73%	56.10%	68.29%	56.10%	73.17%	58.54%
France	73.17%	56.10%	65.85%	56.10%	75.61%	60.98%
Germany	65.85%	56.10%	70.73%	60.98%	73.17%	63.41%
Greece	65.85%	58.54%	68.29%	60.98%	70.73%	63.41%
Iceland	46.34%	43.90%	53.66%	43.90%	56.10%	48.78%
Ireland	63.41%	58.54%	63.41%	58.54%	70.73%	63.41%
Israel	63.41%	51.22%	53.66%	51.22%	65.85%	53.66%
Italy	73.17%	65.85%	65.85%	56.10%	73.17%	65.85%
Luxembourg	48.78%	43.90%	58.54%	53.66%	60.98%	53.66%
Malta	41.46%	39.02%	58.54%	53.66%	58.54%	53.66%
Monaco	0.00%	0.00%	14.63%	0.00%	14.63%	0.00%
Netherlands	65.85%	53.66%	70.73%	58.54%	73.17%	58.54%
Norway	68.29%	53.66%	63.41%	53.66%	70.73%	58.54%
Portugal	58.54%	58.54%	68.29%	60.98%	68.29%	60.98%
San Marino	12.20%	0.00%	14.63%	2.44%	14.63%	2.44%
Spain	78.05%	73.17%	70.73%	63.41%	78.05%	73.17%
Sweden	65.85%	60.98%	68.29%	60.98%	70.73%	65.85%
Switzerland	58.54%	51.22%	58.54%	48.78%	63.41%	51.22%
United Kingdom	65.85%	48.78%	58.54%	51.22%	68.29%	53.66%
Bolivia (Plurinational State of)	60.98%	51.22%	58.54%	46.34%	63.41%	51.22%
Ecuador	60.98%	56.10%	63.41%	51.22%	68.29%	56.10%
Peru	65.85%	56.10%	68.29%	60.98%	70.73%	60.98%
Antigua and Barbuda	48.78%	41.46%	41.46%	36.59%	48.78%	41.46%
Bahamas	46.34%	41.46%	41.46%	36.59%	46.34%	41.46%
Barbados	48.78%	43.90%	56.10%	51.22%	56.10%	51.22%
Belize	53.66%	48.78%	58.54%	58.54%	60.98%	58.54%
Bermuda	36.59%	34.15%	41.46%	39.02%	41.46%	39.02%
Cuba	56.10%	43.90%	53.66%	43.90%	60.98%	46.34%
Dominica	48.78%	41.46%	29.27%	21.95%	48.78%	41.46%
Dominican Republic	58.54%	56.10%	60.98%	56.10%	63.41%	58.54%
Grenada	46.34%	41.46%	46.34%	29.27%	46.34%	41.46%
Guyana	53.66%	46.34%	56.10%	36.59%	56.10%	48.78%
Haiti	58.54%	46.34%	46.34%	39.02%	60.98%	51.22%
Jamaica	58.54%	46.34%	56.10%	51.22%	63.41%	51.22%
Puerto Rico	36.59%	34.15%	36.59%	29.27%	41.46%	36.59%
Saint Kitts and Nevis	34.15%	17.07%	21.95%	17.07%	34.15%	17.07%
Saint Lucia	51.22%	46.34%	53.66%	36.59%	53.66%	48.78%
Saint Vincent and the Grenadines	34.15%	29.27%	41.46%	26.83%	46.34%	31.71%
Suriname	48.78%	43.90%	51.22%	46.34%	51.22%	46.34%
Trinidad and Tobago	48.78%	48.78%	53.66%	46.34%	53.66%	51.22%

Supplementary Table 9. Data coverage index for all risk factors for 204 reporting locations, 1990–2005, 2005–2019 and in total by all ages and for the 70+ age group

	1990-2005		2005-2019		1990-2019	
	All ages	70+	All ages	70+	All ages	70+
United States Virgin Islands	9.76%	9.76%	12.20%	9.76%	14.63%	12.20%
Colombia	68.29%	58.54%	70.73%	58.54%	70.73%	60.98%
Costa Rica	60.98%	56.10%	60.98%	56.10%	68.29%	60.98%
El Salvador	58.54%	51.22%	58.54%	51.22%	58.54%	53.66%
Guatemala	65.85%	56.10%	60.98%	48.78%	65.85%	56.10%
Honduras	58.54%	46.34%	63.41%	53.66%	65.85%	53.66%
Mexico	60.98%	60.98%	70.73%	58.54%	70.73%	63.41%
Nicaragua	60.98%	51.22%	58.54%	53.66%	60.98%	58.54%
Panama	58.54%	51.22%	56.10%	51.22%	60.98%	51.22%
Venezuela (Bolivarian Republic of)	65.85%	58.54%	53.66%	48.78%	68.29%	60.98%
Brazil	68.29%	60.98%	70.73%	60.98%	73.17%	63.41%
Paraguay	56.10%	51.22%	58.54%	48.78%	60.98%	53.66%
Afghanistan	29.27%	24.39%	63.41%	36.59%	63.41%	36.59%
Algeria	53.66%	48.78%	51.22%	39.02%	56.10%	51.22%
Bahrain	24.39%	21.95%	21.95%	14.63%	26.83%	21.95%
Egypt	68.29%	58.54%	70.73%	58.54%	73.17%	60.98%
Iran (Islamic Republic of)	51.22%	41.46%	58.54%	48.78%	60.98%	48.78%
Iraq	58.54%	48.78%	58.54%	51.22%	60.98%	53.66%
Jordan	58.54%	48.78%	60.98%	39.02%	63.41%	51.22%
Kuwait	46.34%	29.27%	48.78%	36.59%	51.22%	41.46%
Lebanon	53.66%	41.46%	48.78%	34.15%	58.54%	41.46%
Libya	39.02%	31.71%	48.78%	34.15%	53.66%	36.59%
Morocco	63.41%	56.10%	60.98%	48.78%	68.29%	58.54%
Oman	51.22%	48.78%	43.90%	39.02%	53.66%	48.78%
Palestine	53.66%	43.90%	58.54%	51.22%	58.54%	51.22%
Qatar	21.95%	17.07%	26.83%	19.51%	29.27%	19.51%
Saudi Arabia	58.54%	48.78%	58.54%	48.78%	63.41%	48.78%
Sudan	17.07%	9.76%	34.15%	12.20%	36.59%	12.20%
Syrian Arab Republic	53.66%	48.78%	53.66%	46.34%	53.66%	51.22%
Tunisia	56.10%	43.90%	58.54%	41.46%	63.41%	48.78%
Turkey	75.61%	60.98%	68.29%	60.98%	75.61%	63.41%
United Arab Emirates	63.41%	58.54%	51.22%	43.90%	65.85%	58.54%
Yemen	58.54%	46.34%	56.10%	51.22%	60.98%	51.22%
Bangladesh	68.29%	48.78%	65.85%	51.22%	70.73%	51.22%
Bhutan	12.20%	9.76%	36.59%	31.71%	39.02%	34.15%
India	75.61%	63.41%	80.49%	63.41%	80.49%	65.85%
Nepal	56.10%	51.22%	63.41%	51.22%	65.85%	53.66%
Pakistan	58.54%	53.66%	65.85%	56.10%	68.29%	58.54%
China	75.61%	65.85%	73.17%	58.54%	78.05%	68.29%
Democratic People's Republic of Korea	34.15%	29.27%	39.02%	34.15%	39.02%	34.15%
Taiwan (Province of China)	65.85%	51.22%	58.54%	48.78%	65.85%	51.22%
American Samoa	29.27%	14.63%	19.51%	14.63%	29.27%	14.63%
Cook Islands	7.32%	2.44%	19.51%	2.44%	19.51%	2.44%

Supplementary Table 9. Data coverage index for all risk factors for 204 reporting locations, 1990–2005, 2005–2019 and in total by all ages and for the 70+ age group

	1990-2005		2005-2019		1990-2019	
	All ages	70+	All ages	70+	All ages	70+
Fiji	53.66%	39.02%	51.22%	29.27%	56.10%	39.02%
Guam	19.51%	7.32%	19.51%	7.32%	19.51%	7.32%
Kiribati	41.46%	34.15%	46.34%	39.02%	48.78%	39.02%
Marshall Islands	21.95%	14.63%	21.95%	17.07%	26.83%	17.07%
Micronesia (Federated States of)	12.20%	4.88%	21.95%	4.88%	26.83%	4.88%
Nauru	4.88%	0.00%	19.51%	2.44%	19.51%	2.44%
Niue	17.07%	2.44%	7.32%	4.88%	19.51%	4.88%
Northern Mariana Islands	17.07%	14.63%	17.07%	2.44%	17.07%	14.63%
Palau	17.07%	2.44%	14.63%	2.44%	17.07%	4.88%
Papua New Guinea	48.78%	41.46%	48.78%	26.83%	56.10%	43.90%
Samoa	56.10%	41.46%	46.34%	41.46%	56.10%	41.46%
Solomon Islands	39.02%	21.95%	51.22%	29.27%	53.66%	29.27%
Tokelau	0.00%	0.00%	4.88%	2.44%	4.88%	2.44%
Tonga	21.95%	17.07%	14.63%	7.32%	29.27%	19.51%
Tuvalu	14.63%	0.00%	19.51%	2.44%	19.51%	2.44%
Vanuatu	29.27%	24.39%	53.66%	46.34%	56.10%	46.34%
Cambodia	60.98%	48.78%	63.41%	51.22%	65.85%	51.22%
Indonesia	68.29%	58.54%	68.29%	58.54%	73.17%	60.98%
Lao People's Democratic Republic	46.34%	41.46%	56.10%	36.59%	58.54%	41.46%
Malaysia	68.29%	63.41%	58.54%	48.78%	73.17%	63.41%
Maldives	48.78%	39.02%	58.54%	48.78%	60.98%	48.78%
Mauritius	53.66%	51.22%	56.10%	48.78%	60.98%	53.66%
Myanmar	56.10%	51.22%	58.54%	36.59%	60.98%	51.22%
Philippines	63.41%	60.98%	73.17%	58.54%	75.61%	60.98%
Seychelles	29.27%	12.20%	34.15%	26.83%	34.15%	26.83%
Sri Lanka	60.98%	53.66%	56.10%	41.46%	65.85%	53.66%
Thailand	70.73%	60.98%	70.73%	60.98%	75.61%	65.85%
Timor-Leste	41.46%	31.71%	56.10%	43.90%	58.54%	43.90%
Viet Nam	63.41%	58.54%	73.17%	58.54%	73.17%	60.98%
Angola	53.66%	46.34%	51.22%	31.71%	56.10%	46.34%
Central African Republic	41.46%	34.15%	43.90%	36.59%	46.34%	36.59%
Congo	36.59%	34.15%	48.78%	31.71%	51.22%	36.59%
Democratic Republic of the Congo	34.15%	29.27%	56.10%	36.59%	58.54%	36.59%
Equatorial Guinea	12.20%	9.76%	9.76%	4.88%	17.07%	12.20%
Gabon	46.34%	43.90%	53.66%	34.15%	53.66%	43.90%
Burundi	41.46%	36.59%	56.10%	34.15%	58.54%	36.59%
Comoros	39.02%	39.02%	43.90%	36.59%	43.90%	41.46%
Djibouti	43.90%	29.27%	39.02%	36.59%	51.22%	36.59%
Eritrea	24.39%	14.63%	12.20%	9.76%	24.39%	17.07%
Ethiopia	60.98%	51.22%	63.41%	51.22%	65.85%	53.66%
Kenya	58.54%	39.02%	56.10%	39.02%	70.73%	41.46%
Madagascar	58.54%	48.78%	58.54%	46.34%	63.41%	48.78%
Malawi	60.98%	53.66%	58.54%	53.66%	60.98%	56.10%

Supplementary Table 9. Data coverage index for all risk factors for 204 reporting locations, 1990–2005, 2005–2019 and in total by all ages and for the 70+ age group

	1990-2005		2005-2019		1990-2019	
	All ages	70+	All ages	70+	All ages	70+
Mozambique	60.98%	48.78%	60.98%	51.22%	65.85%	53.66%
Rwanda	53.66%	46.34%	58.54%	48.78%	58.54%	48.78%
Somalia	31.71%	26.83%	41.46%	34.15%	41.46%	34.15%
South Sudan	9.76%	9.76%	26.83%	12.20%	26.83%	12.20%
Uganda	63.41%	51.22%	68.29%	51.22%	68.29%	53.66%
United Republic of Tanzania	63.41%	51.22%	68.29%	51.22%	68.29%	53.66%
Zambia	60.98%	53.66%	58.54%	48.78%	63.41%	56.10%
Botswana	58.54%	46.34%	53.66%	53.66%	60.98%	56.10%
Eswatini	41.46%	39.02%	60.98%	36.59%	60.98%	41.46%
Lesotho	56.10%	43.90%	53.66%	46.34%	58.54%	46.34%
Namibia	60.98%	51.22%	58.54%	51.22%	63.41%	53.66%
South Africa	68.29%	63.41%	73.17%	63.41%	75.61%	68.29%
Zimbabwe	63.41%	43.90%	60.98%	51.22%	65.85%	53.66%
Benin	48.78%	36.59%	56.10%	51.22%	60.98%	51.22%
Burkina Faso	56.10%	48.78%	58.54%	48.78%	58.54%	51.22%
Cabo Verde	29.27%	24.39%	46.34%	29.27%	48.78%	29.27%
Cameroon	46.34%	39.02%	58.54%	48.78%	60.98%	53.66%
Chad	41.46%	41.46%	43.90%	41.46%	46.34%	43.90%
Côte d'Ivoire	48.78%	39.02%	65.85%	36.59%	68.29%	41.46%
Gambia	41.46%	34.15%	58.54%	48.78%	60.98%	48.78%
Ghana	63.41%	53.66%	65.85%	53.66%	68.29%	53.66%
Guinea	41.46%	36.59%	41.46%	34.15%	46.34%	39.02%
Guinea-Bissau	39.02%	34.15%	36.59%	31.71%	39.02%	34.15%
Liberia	34.15%	24.39%	60.98%	51.22%	63.41%	51.22%
Mali	58.54%	53.66%	58.54%	36.59%	60.98%	53.66%
Mauritania	36.59%	36.59%	51.22%	34.15%	51.22%	39.02%
Niger	51.22%	31.71%	53.66%	39.02%	53.66%	39.02%
Nigeria	56.10%	46.34%	65.85%	51.22%	68.29%	56.10%
Sao Tome and Principe	46.34%	41.46%	56.10%	46.34%	58.54%	46.34%
Senegal	56.10%	43.90%	60.98%	56.10%	65.85%	58.54%
Sierra Leone	48.78%	46.34%	58.54%	51.22%	58.54%	51.22%
Togo	39.02%	34.15%	60.98%	36.59%	60.98%	39.02%

Supplementary Table 10. Data coverage index for all reporting locations for 69 risk factors, 1990–2005, 2005–2019 and in total by all ages and for the 70+ age group

	1990-2005		2005-2019		1990-2019	
	All ages	70+	All ages	70+	All ages	70+
Unsafe water source	68.97%	68.47%	76.35%	75.37%	83.25%	82.76%
Unsafe sanitation	68.97%	68.97%	61.08%	61.08%	75.86%	75.86%
No access to handwashing facility	8.37%	4.93%	32.51%	31.53%	34.98%	32.02%
Ambient particulate matter pollution	100.00%	0.00%	100.00%	0.00%	100.00%	0.00%
Household air pollution from solid fuels	100.00%	65.02%	100.00%	68.97%	100.00%	78.33%
Ambient ozone pollution	100.00%	1.48%	100.00%	0.99%	100.00%	1.48%
High temperature	90.15%	1.48%	90.15%	1.97%	90.15%	1.97%
Low temperature	90.15%	1.48%	90.15%	1.97%	90.15%	1.97%
Residential radon	25.12%	4.43%	19.70%	0.49%	33.50%	4.43%
Lead exposure	0.00%	0.00%	100.00%	0.00%	100.00%	0.00%
Occupational exposure to asbestos	100.00%	0.00%	100.00%	0.00%	100.00%	0.00%
Occupational exposure to arsenic	100.00%	71.92%	100.00%	69.95%	100.00%	77.83%
Occupational exposure to benzene	100.00%	71.92%	100.00%	69.95%	100.00%	77.83%
Occupational exposure to beryllium	100.00%	71.92%	100.00%	69.95%	100.00%	77.83%
Occupational exposure to cadmium	100.00%	71.92%	100.00%	69.95%	100.00%	77.83%
Occupational exposure to chromium	100.00%	71.92%	100.00%	69.95%	100.00%	77.83%
Occupational exposure to diesel engine exhaust	100.00%	71.92%	100.00%	69.95%	100.00%	77.83%
Occupational exposure to formaldehyde	100.00%	71.92%	100.00%	69.95%	100.00%	77.83%
Occupational exposure to nickel	100.00%	71.92%	100.00%	69.95%	100.00%	77.83%
Occupational exposure to polycyclic aromatic hydrocarbons	100.00%	71.92%	100.00%	69.95%	100.00%	77.83%
Occupational exposure to silica	100.00%	71.92%	100.00%	69.95%	100.00%	77.83%
Occupational exposure to sulfuric acid	100.00%	71.92%	100.00%	69.95%	100.00%	77.83%
Occupational exposure to trichloroethylene	100.00%	71.92%	100.00%	69.95%	100.00%	77.83%
Occupational asthmagens	100.00%	76.85%	100.00%	73.89%	100.00%	82.76%
Occupational particulate matter, gases, and fumes	100.00%	71.92%	100.00%	69.95%	100.00%	77.83%
Occupational noise	100.00%	71.92%	100.00%	69.95%	100.00%	77.83%
Occupational injuries	83.25%	75.37%	90.15%	71.92%	95.57%	81.28%
Occupational ergonomic factors	100.00%	71.92%	100.00%	69.95%	100.00%	77.83%
Non-exclusive breastfeeding	67.49%	66.50%	66.50%	65.52%	79.80%	79.80%
Discontinued breastfeeding	62.56%	61.08%	61.58%	60.59%	74.88%	74.38%
Child underweight	100.00%	0.00%	62.07%	0.00%	100.00%	0.00%
Child wasting	100.00%	0.00%	63.05%	0.00%	100.00%	0.00%
Child stunting	100.00%	0.00%	63.05%	0.00%	100.00%	0.00%
Short gestation	84.24%	0.00%	91.63%	0.00%	94.09%	0.00%
Low birth weight	84.24%	0.00%	91.63%	0.00%	94.09%	0.00%
Iron deficiency	64.04%	15.76%	41.87%	4.93%	73.40%	17.73%
Vitamin A deficiency	44.33%	4.93%	8.37%	0.00%	45.32%	4.93%
Zinc deficiency	85.71%	85.71%	85.71%	85.71%	85.71%	85.71%
Smoking	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Chewing tobacco	23.65%	12.81%	90.64%	40.39%	90.64%	41.87%
Secondhand smoke	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Alcohol use	100.00%	43.35%	100.00%	33.50%	100.00%	54.19%
Drug use	14.78%	2.96%	33.50%	1.48%	36.95%	3.94%
Diet low in fruits	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Diet low in vegetables	100.00%	88.18%	100.00%	88.18%	100.00%	88.18%

Supplementary Table 10. Data coverage index for all reporting locations for 69 risk factors, 1990–2005, 2005–2019 and in total by all ages and for the 70+ age group

	1990-2005		2005-2019		1990-2019	
	All ages	70+	All ages	70+	All ages	70+
Diet low in legumes	83.25%	82.27%	82.27%	82.27%	83.25%	82.27%
Diet low in whole grains	89.66%	89.66%	92.12%	92.12%	92.12%	92.12%
Diet low in nuts and seeds	79.31%	79.31%	79.31%	79.31%	79.31%	79.31%
Diet low in milk	88.67%	88.67%	88.67%	88.67%	88.67%	88.67%
Diet high in red meat	89.16%	89.16%	89.16%	89.16%	89.16%	89.16%
Diet high in processed meat	28.57%	28.57%	34.48%	33.50%	34.48%	33.50%
Diet high in sugar-sweetened beverages	28.57%	28.57%	33.50%	32.51%	33.99%	33.00%
Diet low in fiber	100.00%	100.00%	89.66%	89.66%	100.00%	100.00%
Diet low in calcium	87.19%	87.19%	86.70%	86.70%	87.19%	87.19%
Diet low in seafood omega-3 fatty acids	88.18%	87.68%	87.68%	87.68%	88.18%	87.68%
Diet low in polyunsaturated fatty acids	100.00%	87.68%	87.19%	87.19%	100.00%	87.68%
Diet high in trans fatty acids	33.99%	33.99%	34.98%	34.48%	34.98%	34.48%
Diet high in sodium	100.00%	4.93%	100.00%	9.85%	100.00%	11.82%
Intimate partner violence	41.38%	22.17%	60.10%	31.53%	64.53%	36.45%
Childhood sexual abuse	26.60%	6.90%	22.66%	4.93%	33.99%	9.36%
Bullying victimization	22.17%	0.00%	56.65%	0.00%	59.61%	0.00%
Unsafe sex	16.75%	16.75%	46.80%	46.80%	47.29%	47.29%
Low physical activity	47.78%	18.23%	50.74%	25.12%	64.04%	29.06%
High fasting plasma glucose	37.44%	26.60%	49.75%	31.03%	59.61%	39.90%
High LDL cholesterol	39.41%	26.60%	53.20%	28.08%	67.98%	38.92%
High systolic blood pressure	50.25%	38.92%	68.97%	39.41%	79.31%	52.71%
High body-mass index	79.31%	52.22%	87.68%	46.31%	92.61%	63.05%
Low bone mineral density	20.69%	19.21%	10.84%	9.36%	22.66%	21.67%
Kidney dysfunction	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Supplementary Table 11. Data coverage index for all non-fatal causes for 204 locations, 1990–2005, 2005–2019 and in total by all ages and for the 70+ age group

	1990-2005		2005-2019		1990-2019	
	All ages	70+	All ages	70+	All ages	70+
Armenia	7.58%	2.53%	7.58%	2.53%	8.59%	3.03%
Azerbaijan	7.07%	3.03%	6.57%	2.02%	8.08%	3.54%
Georgia	7.58%	4.55%	23.74%	20.71%	25.25%	22.22%
Kazakhstan	8.08%	4.55%	6.57%	3.54%	9.09%	5.56%
Kyrgyzstan	7.58%	3.03%	10.61%	7.07%	12.12%	8.08%
Mongolia	9.60%	5.05%	9.09%	5.05%	10.61%	6.06%
Tajikistan	6.06%	2.53%	6.57%	2.02%	7.07%	3.03%
Turkmenistan	5.05%	2.53%	5.56%	1.52%	5.56%	2.53%
Uzbekistan	7.07%	3.03%	6.06%	1.52%	7.07%	3.03%
Albania	6.06%	2.02%	10.61%	5.56%	11.62%	6.57%
Bosnia and Herzegovina	10.61%	5.56%	9.60%	4.55%	11.62%	6.57%
Bulgaria	24.75%	20.20%	22.73%	20.20%	26.77%	21.72%
Croatia	39.90%	36.87%	39.39%	36.36%	39.90%	36.87%
Czechia	26.26%	22.22%	39.90%	37.37%	42.42%	38.89%
Hungary	24.24%	19.70%	22.22%	19.19%	25.76%	21.21%
Montenegro	3.03%	0.51%	6.06%	2.02%	6.06%	2.02%
North Macedonia	5.56%	1.52%	6.06%	2.02%	6.57%	2.02%
Poland	34.34%	30.30%	33.84%	31.82%	35.35%	32.32%
Romania	10.61%	4.04%	34.34%	31.82%	38.89%	32.32%
Serbia	23.23%	18.69%	32.32%	29.80%	34.34%	31.31%
Slovakia	32.32%	29.80%	31.31%	29.80%	33.33%	30.81%
Slovenia	37.88%	35.86%	38.38%	36.87%	39.39%	37.37%
Belarus	20.71%	18.18%	22.22%	18.18%	23.23%	19.19%
Estonia	24.75%	21.21%	25.25%	21.72%	27.78%	24.24%
Latvia	32.32%	29.80%	32.83%	31.31%	33.84%	31.82%
Lithuania	34.85%	30.81%	33.84%	30.81%	35.35%	31.82%
Republic of Moldova	5.56%	3.03%	7.58%	4.04%	8.08%	4.55%
Russian Federation	11.11%	6.57%	11.11%	9.60%	15.15%	11.11%
Ukraine	17.68%	15.15%	16.67%	13.13%	18.69%	15.66%
Australia	39.90%	33.84%	35.86%	31.31%	41.41%	35.86%
New Zealand	30.30%	25.25%	30.30%	25.76%	33.33%	28.79%
Brunei Darussalam	5.56%	3.54%	20.71%	18.18%	21.21%	18.69%
Japan	26.26%	22.73%	26.26%	23.23%	28.79%	25.25%
Republic of Korea	33.84%	27.78%	34.85%	29.29%	38.38%	32.83%
Singapore	30.81%	24.24%	30.81%	27.27%	33.84%	28.28%
Canada	33.84%	29.80%	32.32%	29.29%	36.36%	32.83%
Greenland	15.66%	14.14%	18.18%	16.16%	18.18%	16.16%
United States of America	54.55%	46.46%	56.06%	49.49%	58.59%	50.51%
Argentina	30.81%	26.26%	29.80%	26.77%	33.33%	28.79%
Chile	44.44%	40.40%	43.94%	40.91%	47.98%	43.94%
Uruguay	27.27%	22.73%	24.24%	20.20%	28.79%	24.24%
Andorra	2.53%	1.01%	3.54%	1.52%	3.54%	1.52%
Austria	33.33%	31.31%	34.85%	31.31%	35.86%	32.32%

Supplementary Table 11. Data coverage index for all non-fatal causes for 204 locations, 1990–2005, 2005–2019 and in total by all ages and for the 70+ age group

	1990-2005		2005-2019		1990-2019	
	All ages	70+	All ages	70+	All ages	70+
Belgium	42.93%	38.38%	41.41%	38.38%	44.95%	40.40%
Cyprus	31.82%	29.29%	34.85%	31.31%	35.35%	31.82%
Denmark	42.42%	38.38%	40.91%	37.88%	42.93%	39.39%
Finland	47.98%	42.93%	42.93%	40.40%	48.48%	43.43%
France	36.36%	30.30%	35.35%	29.29%	39.90%	33.84%
Germany	36.36%	31.31%	42.93%	39.39%	45.45%	41.41%
Greece	13.64%	9.09%	16.16%	9.09%	19.19%	12.12%
Iceland	28.28%	22.73%	33.84%	31.31%	36.87%	32.83%
Ireland	30.30%	22.73%	28.28%	22.73%	31.82%	25.76%
Israel	31.82%	25.25%	29.80%	23.74%	33.84%	27.27%
Italy	27.78%	24.24%	30.81%	28.28%	34.85%	31.82%
Luxembourg	15.66%	13.64%	16.67%	14.14%	17.68%	15.15%
Malta	32.32%	29.29%	38.38%	35.86%	39.39%	36.36%
Monaco	1.01%	0.00%	1.52%	0.00%	1.52%	0.00%
Netherlands	40.91%	33.84%	39.39%	33.84%	43.94%	37.37%
Norway	30.30%	24.75%	30.81%	24.75%	33.33%	27.78%
Portugal	27.78%	24.24%	43.94%	41.41%	46.97%	43.43%
San Marino	1.52%	0.00%	1.52%	0.00%	1.52%	0.00%
Spain	38.89%	33.84%	38.89%	31.82%	44.95%	36.36%
Sweden	40.91%	37.88%	43.43%	40.91%	43.94%	40.91%
Switzerland	42.42%	38.89%	40.91%	39.39%	43.94%	40.40%
United Kingdom	5.05%	2.53%	19.19%	18.18%	20.71%	18.69%
Bolivia (Plurinational State of)	11.11%	6.06%	8.59%	4.55%	11.62%	7.07%
Ecuador	36.87%	33.84%	37.37%	34.34%	39.39%	36.87%
Peru	29.29%	23.23%	30.81%	25.25%	33.33%	27.78%
Antigua and Barbuda	3.54%	1.52%	4.04%	2.02%	4.04%	2.02%
Bahamas	4.55%	2.02%	5.56%	3.54%	6.06%	3.54%
Barbados	6.57%	3.54%	7.07%	4.55%	8.59%	5.05%
Belize	6.06%	2.53%	8.59%	4.55%	9.09%	5.05%
Bermuda	7.07%	6.06%	10.10%	9.09%	10.10%	9.09%
Cuba	27.78%	23.74%	28.79%	25.76%	31.31%	27.27%
Dominica	3.54%	1.52%	5.56%	3.03%	5.56%	3.03%
Dominican Republic	12.12%	6.57%	9.60%	5.56%	13.13%	8.08%
Grenada	16.67%	14.65%	6.06%	3.54%	19.19%	16.67%
Guyana	7.07%	3.54%	8.59%	4.04%	8.59%	4.55%
Haiti	7.58%	3.03%	8.08%	4.55%	9.60%	5.56%
Jamaica	22.22%	18.18%	23.23%	20.20%	24.24%	20.20%
Puerto Rico	22.22%	18.69%	25.25%	23.23%	26.77%	23.23%
Saint Kitts and Nevis	1.52%	0.00%	3.54%	2.02%	3.54%	2.02%
Saint Lucia	4.04%	2.02%	6.57%	2.53%	6.57%	2.53%
Saint Vincent and the Grenadines	4.04%	2.02%	5.56%	3.03%	5.56%	3.03%
Suriname	6.06%	2.02%	7.07%	3.03%	7.58%	3.54%
Trinidad and Tobago	21.72%	18.18%	21.72%	19.19%	22.73%	19.19%

Supplementary Table 11. Data coverage index for all non-fatal causes for 204 locations, 1990–2005, 2005–2019 and in total by all ages and for the 70+ age group

	1990-2005		2005-2019		1990-2019	
	All ages	70+	All ages	70+	All ages	70+
United States Virgin Islands	3.03%	0.51%	6.06%	3.54%	6.06%	3.54%
Colombia	31.82%	22.73%	31.31%	23.23%	33.84%	25.76%
Costa Rica	25.25%	20.71%	24.75%	21.21%	26.77%	21.72%
El Salvador	8.08%	3.54%	9.09%	5.56%	9.60%	5.56%
Guatemala	12.63%	7.58%	10.10%	6.57%	13.64%	9.09%
Honduras	9.09%	5.05%	9.09%	5.56%	10.61%	6.57%
Mexico	17.68%	13.64%	18.69%	14.65%	22.22%	18.69%
Nicaragua	8.08%	2.53%	9.09%	4.04%	10.10%	4.55%
Panama	24.24%	18.69%	25.25%	20.71%	26.77%	21.21%
Venezuela (Bolivarian Republic of)	11.62%	6.57%	11.62%	8.08%	14.65%	9.60%
Brazil	14.14%	9.60%	15.15%	9.60%	18.69%	13.13%
Paraguay	11.62%	6.57%	8.08%	4.55%	12.12%	7.58%
Afghanistan	5.05%	2.02%	7.07%	4.04%	7.07%	4.04%
Algeria	23.23%	18.18%	22.73%	19.19%	25.76%	20.71%
Bahrain	19.70%	16.67%	22.22%	19.19%	22.22%	19.19%
Egypt	31.82%	24.75%	28.79%	21.72%	35.86%	27.78%
Iran (Islamic Republic of)	34.85%	30.30%	34.85%	27.78%	41.41%	32.83%
Iraq	7.58%	1.52%	25.76%	21.21%	27.78%	21.72%
Jordan	22.22%	17.68%	29.29%	26.77%	31.31%	27.27%
Kuwait	26.77%	22.22%	23.74%	19.70%	27.78%	23.23%
Lebanon	19.19%	15.66%	25.25%	20.20%	27.78%	22.22%
Libya	20.71%	17.68%	21.72%	18.69%	22.73%	19.19%
Morocco	22.73%	18.18%	18.69%	15.15%	27.27%	23.23%
Oman	22.22%	18.18%	24.24%	19.70%	25.76%	20.20%
Palestine	4.55%	1.01%	21.21%	18.69%	21.72%	18.69%
Qatar	28.28%	25.76%	32.32%	28.79%	33.33%	28.79%
Saudi Arabia	27.78%	21.21%	26.26%	20.71%	31.31%	22.73%
Sudan	7.58%	4.04%	8.59%	5.05%	10.10%	6.06%
Syrian Arab Republic	6.57%	1.01%	6.57%	2.02%	7.58%	2.02%
Tunisia	24.24%	20.71%	23.74%	19.70%	27.27%	22.73%
Turkey	35.35%	26.77%	40.91%	34.85%	46.46%	38.38%
United Arab Emirates	11.11%	4.04%	6.57%	4.04%	12.12%	5.56%
Yemen	8.08%	2.53%	24.75%	19.70%	26.26%	20.20%
Bangladesh	20.20%	9.09%	12.63%	8.08%	22.22%	11.62%
Bhutan	6.06%	2.53%	6.57%	3.54%	7.58%	3.54%
India	44.44%	32.32%	54.04%	47.98%	57.58%	49.49%
Nepal	14.65%	8.59%	29.80%	25.76%	32.83%	27.27%
Pakistan	12.63%	7.07%	10.10%	5.05%	15.15%	8.59%
China	17.17%	11.62%	18.18%	14.65%	23.23%	18.18%
Democratic People's Republic of Korea	4.55%	1.52%	4.55%	1.52%	5.05%	2.02%
Taiwan (Province of China)	33.84%	28.28%	46.46%	42.93%	47.98%	43.94%
American Samoa	3.54%	1.01%	5.05%	2.53%	5.56%	2.53%
Cook Islands	3.03%	1.01%	3.03%	1.52%	3.54%	1.52%

Supplementary Table 11. Data coverage index for all non-fatal causes for 204 locations, 1990–2005, 2005–2019 and in total by all ages and for the 70+ age group

	1990-2005		2005-2019		1990-2019	
	All ages	70+	All ages	70+	All ages	70+
Fiji	22.73%	17.68%	22.73%	19.19%	24.75%	19.70%
Guam	3.03%	1.01%	4.55%	2.02%	4.55%	2.02%
Kiribati	5.05%	2.53%	4.55%	2.53%	5.05%	2.53%
Marshall Islands	5.05%	2.53%	5.05%	2.53%	6.06%	3.03%
Micronesia (Federated States of)	6.06%	3.54%	5.05%	3.03%	6.57%	4.04%
Nauru	2.02%	0.51%	2.02%	1.01%	2.53%	1.01%
Niue	1.52%	0.51%	2.02%	1.01%	2.02%	1.01%
Northern Mariana Islands	2.53%	0.51%	3.54%	1.52%	3.54%	1.52%
Palau	1.52%	0.51%	2.53%	1.01%	2.53%	1.01%
Papua New Guinea	7.58%	2.53%	7.58%	4.04%	9.09%	4.55%
Samoa	5.56%	3.03%	4.04%	2.53%	5.56%	3.03%
Solomon Islands	4.04%	2.02%	6.57%	3.54%	6.57%	3.54%
Tokelau	0.00%	0.00%	0.51%	0.51%	0.51%	0.51%
Tonga	8.59%	5.05%	6.57%	4.04%	9.60%	5.56%
Tuvalu	1.52%	0.51%	1.52%	0.51%	1.52%	0.51%
Vanuatu	6.06%	3.54%	7.07%	3.03%	7.58%	3.54%
Cambodia	12.63%	7.58%	8.59%	5.05%	13.13%	8.59%
Indonesia	9.09%	4.04%	9.09%	6.57%	11.62%	7.58%
Lao People's Democratic Republic	9.09%	5.56%	9.09%	5.05%	12.63%	8.08%
Malaysia	27.78%	23.23%	27.78%	23.23%	31.31%	26.26%
Maldives	6.06%	2.53%	7.58%	3.54%	8.59%	3.54%
Mauritius	19.70%	15.66%	17.68%	15.15%	21.21%	17.17%
Myanmar	8.59%	5.05%	7.07%	3.03%	9.60%	5.56%
Philippines	12.12%	6.06%	24.75%	21.21%	27.78%	22.73%
Seychelles	4.04%	1.52%	21.21%	18.69%	21.72%	18.69%
Sri Lanka	28.79%	22.73%	22.73%	16.67%	30.81%	24.24%
Thailand	37.37%	31.31%	28.79%	24.75%	39.90%	33.84%
Timor-Leste	6.06%	2.53%	8.08%	4.04%	8.59%	4.55%
Viet Nam	33.33%	25.76%	41.41%	36.87%	46.46%	40.91%
Angola	8.08%	2.02%	9.09%	4.55%	10.61%	4.55%
Central African Republic	9.09%	4.04%	9.09%	5.56%	11.11%	6.57%
Congo	10.61%	6.06%	9.60%	4.04%	14.14%	8.08%
Democratic Republic of the Congo	8.08%	3.54%	11.62%	7.58%	12.12%	8.08%
Equatorial Guinea	6.06%	1.52%	6.57%	3.03%	7.58%	3.03%
Gabon	7.07%	2.53%	10.61%	3.54%	12.63%	4.04%
Burundi	7.58%	3.54%	8.59%	3.54%	10.10%	5.05%
Comoros	8.59%	4.55%	6.57%	3.03%	9.60%	5.05%
Djibouti	5.05%	1.52%	5.05%	2.02%	5.56%	2.02%
Eritrea	5.05%	1.01%	7.58%	4.04%	8.59%	4.04%
Ethiopia	13.13%	8.08%	13.13%	7.58%	16.67%	11.62%
Kenya	25.76%	21.72%	13.64%	6.06%	27.78%	23.23%
Madagascar	8.59%	3.03%	8.59%	4.04%	11.11%	5.56%
Malawi	28.28%	23.23%	28.28%	24.24%	31.82%	27.27%

Supplementary Table 11. Data coverage index for all non-fatal causes for 204 locations, 1990–2005, 2005–2019 and in total by all ages and for the 70+ age group

	1990-2005		2005-2019		1990-2019	
	All ages	70+	All ages	70+	All ages	70+
Mozambique	12.12%	6.06%	11.11%	4.55%	15.66%	8.59%
Rwanda	6.57%	2.02%	13.64%	7.07%	14.14%	7.07%
Somalia	4.04%	1.01%	5.05%	2.02%	5.56%	2.02%
South Sudan	6.57%	2.02%	9.60%	4.55%	10.10%	5.05%
Uganda	27.78%	21.21%	31.82%	25.25%	33.33%	25.76%
United Republic of Tanzania	15.66%	7.07%	18.69%	11.11%	22.22%	13.64%
Zambia	10.61%	5.56%	10.10%	5.56%	13.13%	8.59%
Botswana	28.28%	24.24%	29.80%	25.76%	31.31%	26.77%
Eswatini	8.59%	4.55%	7.58%	3.03%	11.11%	5.56%
Lesotho	6.57%	2.02%	7.58%	3.54%	8.59%	4.04%
Namibia	23.74%	18.18%	21.72%	17.68%	25.76%	20.20%
South Africa	26.26%	21.21%	28.79%	25.76%	31.82%	27.78%
Zimbabwe	27.78%	21.21%	24.75%	20.71%	29.80%	23.74%
Benin	10.10%	4.55%	12.12%	7.07%	13.13%	7.58%
Burkina Faso	12.63%	7.07%	13.64%	8.59%	16.16%	10.61%
Cabo Verde	6.06%	2.02%	6.57%	3.54%	8.59%	4.04%
Cameroon	23.23%	18.69%	22.73%	17.68%	26.26%	20.71%
Chad	10.61%	5.56%	8.59%	4.04%	12.12%	7.07%
Côte d'Ivoire	12.12%	6.06%	10.61%	5.05%	14.14%	8.08%
Gambia	24.75%	19.19%	20.71%	16.16%	27.27%	21.21%
Ghana	16.16%	7.07%	21.72%	12.63%	23.23%	13.13%
Guinea	23.23%	18.18%	21.21%	16.67%	25.76%	20.71%
Guinea-Bissau	6.06%	2.02%	9.60%	5.56%	9.60%	5.56%
Liberia	5.05%	1.52%	8.59%	3.54%	9.09%	3.54%
Mali	28.79%	20.20%	22.73%	16.67%	33.84%	24.24%
Mauritania	8.59%	4.55%	7.58%	5.05%	10.61%	7.58%
Niger	21.21%	15.15%	21.21%	15.66%	22.73%	16.16%
Nigeria	15.15%	8.59%	13.64%	9.09%	19.70%	13.13%
Sao Tome and Principe	5.05%	1.52%	7.07%	2.53%	7.58%	2.53%
Senegal	13.13%	7.07%	12.63%	6.06%	16.67%	9.60%
Sierra Leone	6.57%	2.02%	9.60%	5.05%	9.60%	5.05%
Togo	8.59%	3.54%	9.60%	5.05%	11.11%	6.06%

Supplementary Table 12. Data coverage index for all locations for 286 non-fatal causes, 1990–2005, 2005–2019 and in total by all ages and for the 70+ age group

	1990-2005		2005-2019		1990-2019	
	All ages	70+	All ages	70+	All ages	70+
HIV/AIDS - Drug-susceptible Tuberculosis	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
HIV/AIDS - Multidrug-resistant Tuberculosis without extensive drug resistance	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
HIV/AIDS - Extensively drug-resistant Tuberculosis	26.89%	26.89%	63.45%	63.45%	63.87%	63.87%
HIV/AIDS resulting in other diseases	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Syphilis	100.00%	16.39%	100.00%	21.43%	100.00%	21.85%
Chlamydial infection	40.76%	3.36%	100.00%	3.78%	100.00%	5.88%
Gonococcal infection	36.55%	1.68%	100.00%	2.52%	100.00%	2.94%
Trichomoniasis	12.61%	0.84%	100.00%	2.94%	100.00%	3.36%
Genital herpes	27.31%	13.03%	13.03%	3.36%	29.83%	15.13%
Other sexually transmitted infections	2.10%	1.26%	0.84%	0.42%	2.10%	1.26%
Latent tuberculosis infection	14.71%	1.26%	11.76%	0.84%	19.75%	1.68%
Drug-susceptible tuberculosis	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Multidrug-resistant tuberculosis without extensive drug resistance	77.73%	77.73%	80.67%	80.67%	81.09%	81.09%
Extensively drug-resistant tuberculosis	0.84%	0.84%	34.45%	34.45%	35.29%	35.29%
Lower respiratory infections	51.68%	13.03%	71.85%	34.45%	73.53%	34.45%
Upper respiratory infections	22.27%	0.42%	22.69%	0.42%	29.41%	0.42%
Otitis media	7.56%	1.26%	100.00%	1.26%	100.00%	1.68%
Diarrheal diseases	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Typhoid fever	5.88%	5.88%	6.72%	6.30%	8.82%	8.40%
Paratyphoid fever	8.40%	8.40%	7.98%	7.56%	11.34%	10.92%
Invasive Non-typhoidal Salmonella (iNTS)	5.04%	3.36%	7.14%	5.88%	8.40%	6.30%
Other intestinal infectious diseases	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Malaria	100.00%	1.26%	100.00%	0.00%	100.00%	1.26%
Chagas disease	3.78%	2.52%	8.82%	8.82%	8.82%	8.82%
Visceral leishmaniasis	21.85%	21.43%	29.41%	29.41%	29.83%	29.83%
Cutaneous and mucocutaneous leishmaniasis	20.59%	19.75%	30.25%	30.25%	30.25%	30.25%
African trypanosomiasis	12.61%	10.50%	12.18%	10.92%	12.61%	11.76%
Schistosomiasis	65.13%	58.40%	64.29%	58.40%	68.91%	62.18%
Cysticercosis	4.62%	4.20%	2.94%	2.52%	5.46%	5.04%
Cystic echinococcosis	81.93%	17.23%	81.93%	18.91%	81.93%	22.69%
Lymphatic filariasis	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Onchocerciasis	12.61%	1.68%	12.61%	0.84%	12.61%	1.68%
Trachoma	9.66%	9.66%	19.75%	19.33%	21.01%	21.01%
Dengue	28.99%	28.99%	100.00%	100.00%	100.00%	100.00%
Yellow fever	74.79%	74.79%	81.93%	81.93%	81.93%	81.93%
Rabies	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Ascariasis	57.98%	57.14%	57.56%	56.30%	58.40%	57.14%
Trichuriasis	57.98%	57.14%	57.56%	56.30%	58.40%	57.14%
Hookworm disease	57.98%	57.14%	57.56%	56.30%	58.40%	57.14%
Food-borne trematodiasis	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Leprosy	52.10%	52.10%	72.27%	72.27%	72.27%	72.27%
Ebola	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Zika virus	0.00%	0.00%	62.61%	62.61%	62.61%	62.61%
Guinea worm disease	7.98%	7.98%	7.98%	7.98%	7.98%	7.98%
Other neglected tropical diseases	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Meningitis	100.00%	20.59%	100.00%	25.63%	100.00%	29.41%
Encephalitis	100.00%	11.76%	100.00%	16.81%	100.00%	18.49%
Diphtheria	100.00%	3.78%	100.00%	2.10%	100.00%	4.62%
Whooping cough	100.00%	0.00%	100.00%	0.00%	100.00%	0.00%
Tetanus	100.00%	5.46%	100.00%	2.94%	100.00%	5.88%
Measles	100.00%	0.00%	100.00%	0.00%	100.00%	0.00%

Supplementary Table 12. Data coverage index for all locations for 286 non-fatal causes, 1990–2005, 2005–2019 and in total by all ages and for the 70+ age group

	1990-2005		2005-2019		1990-2019	
	All ages	70+	All ages	70+	All ages	70+
Varicella and herpes zoster	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Acute hepatitis A	39.08%	21.85%	19.33%	9.66%	43.28%	25.63%
Acute hepatitis B	34.45%	17.65%	26.89%	8.82%	44.54%	23.11%
Acute hepatitis C	35.71%	20.17%	22.27%	17.65%	43.70%	28.99%
Acute hepatitis E	15.97%	11.34%	2.94%	2.52%	17.23%	12.18%
Other unspecified infectious diseases	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Maternal hemorrhage	21.85%	0.00%	28.99%	0.00%	34.45%	0.00%
Maternal sepsis and other maternal infections	16.81%	0.00%	24.37%	0.00%	28.57%	0.00%
Maternal hypertensive disorders	28.15%	0.00%	38.66%	0.00%	42.86%	0.00%
Maternal obstructed labor and uterine rupture	17.65%	0.00%	22.27%	0.42%	26.89%	0.42%
Maternal abortion and miscarriage	12.61%	0.00%	21.01%	0.00%	21.43%	0.00%
Ectopic pregnancy	9.24%	0.00%	18.07%	0.00%	18.49%	0.00%
Other maternal disorders	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Neonatal preterm birth	50.84%	0.00%	61.76%	0.00%	65.55%	0.00%
Neonatal encephalopathy due to birth asphyxia and trauma	18.49%	0.00%	19.33%	0.00%	22.27%	0.00%
Neonatal sepsis and other neonatal infections	13.87%	0.00%	18.49%	0.00%	19.75%	0.00%
Hemolytic disease and other neonatal jaundice	33.19%	0.00%	100.00%	0.00%	100.00%	0.00%
Other neonatal disorders	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Protein-energy malnutrition	59.24%	0.00%	56.30%	0.00%	64.29%	0.00%
Iodine deficiency	30.67%	11.34%	3.36%	0.84%	30.67%	11.34%
Vitamin A deficiency	37.39%	4.20%	7.14%	0.00%	38.66%	4.20%
Dietary iron deficiency	100.00%	0.00%	100.00%	0.00%	100.00%	0.00%
Other nutritional deficiencies	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Lip and oral cavity cancer	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Nasopharynx cancer	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Other pharynx cancer	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Esophageal cancer	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Stomach cancer	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Colon and rectum cancer	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Liver cancer due to hepatitis B	23.95%	22.69%	34.03%	33.19%	41.18%	39.50%
Liver cancer due to hepatitis C	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Liver cancer due to alcohol use	7.14%	6.72%	22.69%	22.69%	25.21%	24.79%
Liver cancer due to NASH	7.14%	6.72%	23.53%	23.53%	25.21%	24.79%
Hepatoblastoma	100.00%	0.00%	100.00%	0.00%	100.00%	0.00%
Liver cancer due to other causes (internal)	5.88%	5.88%	21.43%	21.43%	22.69%	22.69%
Gallbladder and biliary tract cancer	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Pancreatic cancer	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Larynx cancer	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Tracheal, bronchus, and lung cancer	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Malignant skin melanoma	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Non-melanoma skin cancer (squamous-cell carcinoma)	31.51%	31.51%	26.05%	26.05%	33.61%	33.61%
Non-melanoma skin cancer (basal-cell carcinoma)	29.41%	29.41%	23.53%	23.53%	31.51%	31.51%
Soft tissue and other extraosseous sarcomas	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Malignant neoplasm of bone and articular cartilage	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Breast cancer	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Cervical cancer	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Uterine cancer	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Ovarian cancer	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Prostate cancer	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Testicular cancer	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Kidney cancer	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Supplementary Table 12. Data coverage index for all locations for 286 non-fatal causes, 1990–2005, 2005–2019 and in total by all ages and for the 70+ age group

	1990-2005		2005-2019		1990-2019	
	All ages	70+	All ages	70+	All ages	70+
Bladder cancer	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Brain and central nervous system cancer	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Retinoblastoma	100.00%	0.00%	100.00%	0.00%	100.00%	0.00%
Other eye cancers	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Neuroblastoma and other peripheral nervous cell tumors	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Thyroid cancer	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Mesothelioma	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Hodgkin lymphoma	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Burkitt lymphoma	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Other non-Hodgkin lymphoma	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Multiple myeloma	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Acute lymphoid leukemia	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Chronic lymphoid leukemia	2.94%	2.94%	100.00%	100.00%	100.00%	100.00%
Acute myeloid leukemia	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Chronic myeloid leukemia	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Other leukemia	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Other malignant neoplasms (internal)	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Myelodysplastic, myeloproliferative, and other hematopoietic neoplasms	8.82%	8.82%	13.87%	13.87%	14.29%	14.29%
Benign and in situ intestinal neoplasms	9.24%	9.24%	14.71%	14.71%	15.13%	15.13%
Benign and in situ cervical and uterine neoplasms	8.82%	8.82%	13.87%	13.87%	14.29%	14.29%
Other benign and in situ neoplasms	9.24%	9.24%	14.71%	14.71%	15.13%	15.13%
Rheumatic heart disease	13.45%	7.14%	15.13%	10.08%	20.17%	10.92%
Ischemic heart disease	97.48%	97.48%	97.48%	97.48%	97.48%	97.48%
Ischemic stroke	22.27%	21.85%	23.53%	22.69%	28.99%	28.15%
Intracerebral hemorrhage	21.85%	21.43%	23.11%	22.69%	28.99%	28.15%
Subarachnoid hemorrhage	17.65%	17.23%	18.91%	18.49%	23.95%	23.11%
Hypertensive heart disease	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Non-rheumatic calcific aortic valve disease	8.40%	8.40%	11.76%	11.76%	12.18%	12.18%
Non-rheumatic degenerative mitral valve disease	6.72%	6.72%	10.50%	10.50%	10.50%	10.50%
Other non-rheumatic valve diseases	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Myocarditis	7.56%	7.56%	12.61%	12.61%	12.61%	12.61%
Alcoholic cardiomyopathy	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other cardiomyopathy	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Pulmonary Arterial Hypertension	7.98%	7.14%	9.66%	9.24%	10.08%	9.66%
Atrial fibrillation and flutter	13.03%	13.03%	15.97%	15.97%	18.49%	18.49%
Peripheral artery disease	3.78%	3.78%	2.94%	2.94%	5.88%	5.88%
Endocarditis	9.24%	9.24%	13.87%	13.87%	13.87%	13.87%
Other cardiovascular and circulatory diseases (internal)	0.42%	0.42%	0.42%	0.42%	0.42%	0.42%
Chronic obstructive pulmonary disease	12.18%	10.08%	17.65%	16.39%	21.85%	20.17%
Silicosis	7.98%	7.98%	13.03%	13.03%	13.03%	13.03%
Asbestosis	8.40%	8.40%	12.18%	12.18%	12.18%	12.18%
Coal workers pneumoconiosis	7.98%	7.98%	10.92%	10.92%	11.34%	11.34%
Other pneumoconiosis	8.40%	8.40%	13.03%	13.03%	13.45%	13.45%
Asthma	54.20%	30.25%	23.95%	16.39%	58.40%	36.97%
Interstitial lung disease and pulmonary sarcoidosis	13.87%	13.03%	15.97%	15.97%	18.91%	18.07%
Other chronic respiratory diseases	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Cirrhosis and other chronic liver diseases due to hepatitis B	9.24%	9.24%	4.62%	4.62%	10.08%	10.08%
Cirrhosis and other chronic liver diseases due to hepatitis C	10.50%	10.08%	4.62%	4.62%	11.34%	10.92%
Cirrhosis and other chronic liver diseases due to alcohol use	5.88%	5.88%	5.04%	5.04%	7.14%	7.14%
Cirrhosis and other chronic liver diseases due to NAFLD	5.04%	5.04%	7.14%	5.88%	8.82%	7.56%
Cirrhosis and other chronic liver diseases due to other causes	4.20%	3.78%	4.20%	3.78%	5.04%	4.62%

Supplementary Table 12. Data coverage index for all locations for 286 non-fatal causes, 1990–2005, 2005–2019 and in total by all ages and for the 70+ age group

	1990-2005		2005-2019		1990-2019	
	All ages	70+	All ages	70+	All ages	70+
Peptic ulcer disease	10.92%	9.66%	16.81%	15.97%	18.07%	16.39%
Gastritis and duodenitis	9.66%	9.66%	15.13%	15.13%	15.55%	15.55%
Gastroesophageal reflux disease	15.13%	14.71%	15.97%	14.71%	18.49%	17.23%
Appendicitis	9.24%	9.24%	15.13%	15.13%	15.55%	15.55%
Paralytic ileus and intestinal obstruction	9.24%	9.24%	15.13%	15.13%	15.55%	15.55%
Inguinal, femoral, and abdominal hernia	9.24%	9.24%	15.13%	15.13%	15.55%	15.55%
Inflammatory bowel disease	29.41%	28.57%	27.73%	24.79%	35.29%	34.03%
Vascular intestinal disorders	9.24%	9.24%	14.29%	14.29%	14.71%	14.71%
Gallbladder and biliary diseases	12.61%	12.61%	15.13%	15.13%	18.49%	18.49%
Pancreatitis	12.61%	12.61%	20.17%	20.17%	21.01%	21.01%
Other digestive diseases	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Alzheimer's disease and other dementias	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Parkinson's disease	11.76%	9.66%	100.00%	7.14%	100.00%	13.03%
Idiopathic epilepsy	100.00%	100.00%	24.79%	22.27%	100.00%	100.00%
Multiple sclerosis	14.29%	11.34%	14.29%	10.92%	18.91%	15.55%
Motor neuron disease	5.04%	4.62%	2.94%	2.94%	5.46%	5.04%
Migraine	25.21%	23.11%	14.29%	11.76%	34.03%	30.67%
Tension-type headache	19.33%	18.49%	9.24%	4.20%	26.47%	21.85%
Other neurological disorders	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Schizophrenia	10.92%	6.72%	7.56%	4.62%	12.61%	7.98%
Major depressive disorder	100.00%	100.00%	27.73%	22.27%	100.00%	100.00%
Dysthymia	8.40%	5.04%	8.40%	5.88%	12.61%	8.82%
Bipolar disorder	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Anxiety disorders	17.65%	13.45%	17.23%	12.18%	23.53%	18.91%
Anorexia nervosa	9.24%	1.26%	7.98%	1.68%	12.18%	2.52%
Bulimia nervosa	9.66%	3.78%	7.98%	2.52%	13.45%	5.46%
Autism spectrum disorders	14.71%	0.42%	10.08%	0.42%	19.33%	0.42%
Attention-deficit/hyperactivity disorder	100.00%	0.42%	12.18%	1.26%	100.00%	1.26%
Conduct disorder	100.00%	0.42%	5.04%	0.42%	100.00%	0.42%
Idiopathic developmental intellectual disability	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other mental disorders	0.84%	0.84%	0.42%	0.42%	0.84%	0.84%
Alcohol use disorders	18.07%	7.98%	17.65%	8.82%	22.69%	13.03%
Opioid use disorders	10.50%	1.68%	100.00%	100.00%	100.00%	100.00%
Cocaine use disorders	21.43%	6.30%	23.53%	2.10%	28.15%	7.56%
Amphetamine use disorders	16.81%	2.52%	20.17%	1.68%	23.95%	3.36%
Cannabis use disorders	32.35%	9.24%	45.38%	5.04%	50.00%	10.92%
Other drug use disorders	0.84%	0.84%	0.84%	0.84%	0.84%	0.84%
Diabetes mellitus type 1	27.73%	2.10%	13.45%	2.94%	28.99%	3.36%
Diabetes mellitus type 2	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Chronic kidney disease due to diabetes mellitus type 1	5.46%	5.46%	10.08%	10.08%	10.92%	10.92%
Chronic kidney disease due to diabetes mellitus type 2	5.46%	5.46%	10.08%	10.08%	10.92%	10.92%
Chronic kidney disease due to hypertension	14.29%	13.87%	20.59%	20.59%	22.27%	22.27%
Chronic kidney disease due to glomerulonephritis	14.29%	13.87%	20.59%	20.59%	22.27%	22.27%
Chronic kidney disease due to other and unspecified causes	14.29%	13.87%	20.59%	20.59%	22.27%	22.27%
Acute glomerulonephritis	7.56%	7.56%	12.61%	12.61%	13.03%	13.03%
Atopic dermatitis	50.84%	2.52%	24.37%	4.20%	53.78%	5.46%
Contact dermatitis	2.94%	1.68%	4.20%	2.10%	5.46%	2.94%
Seborrhoeic dermatitis	3.78%	1.68%	6.30%	2.94%	8.40%	4.20%
Psoriasis	26.47%	13.03%	8.82%	6.72%	29.41%	15.97%
Cellulitis	9.24%	9.24%	14.71%	14.71%	15.13%	15.13%
Pyoderma	10.50%	8.82%	15.97%	13.87%	17.23%	14.71%

Supplementary Table 12. Data coverage index for all locations for 286 non-fatal causes, 1990–2005, 2005–2019 and in total by all ages and for the 70+ age group

	1990-2005		2005-2019		1990-2019	
	All ages	70+	All ages	70+	All ages	70+
Scabies	8.40%	5.46%	9.24%	5.46%	12.18%	8.40%
Fungal skin diseases	6.72%	2.52%	7.56%	2.52%	10.08%	3.78%
Viral skin diseases	7.14%	2.52%	7.14%	3.78%	10.08%	5.88%
Acne vulgaris	5.88%	2.94%	9.24%	2.94%	11.76%	5.46%
Alopecia areata	2.10%	1.26%	5.04%	2.10%	5.46%	2.94%
Pruritus	2.52%	1.26%	3.36%	3.36%	5.04%	3.78%
Urticaria	5.46%	3.78%	5.04%	2.94%	8.40%	6.30%
Decubitus ulcer	9.24%	9.24%	14.29%	14.29%	14.71%	14.71%
Other skin and subcutaneous diseases	0.42%	0.00%	0.84%	0.42%	0.84%	0.42%
Glaucoma	12.18%	12.18%	28.15%	28.15%	32.35%	32.35%
Cataract	15.55%	15.13%	29.83%	29.83%	34.87%	34.87%
Age-related macular degeneration	10.50%	10.50%	27.73%	27.73%	31.09%	31.09%
Refraction disorders	26.47%	12.61%	27.73%	27.73%	40.76%	31.09%
Near vision loss	1.26%	1.26%	5.04%	4.62%	5.88%	5.46%
Other vision loss	8.40%	8.40%	22.69%	22.69%	26.05%	26.05%
Age-related and other hearing loss	10.08%	1.26%	2.94%	0.42%	11.34%	1.26%
Other sense organ diseases	0.42%	0.00%	0.84%	0.42%	0.84%	0.42%
Rheumatoid arthritis	9.66%	9.24%	9.24%	9.24%	14.29%	13.87%
Osteoarthritis hip	3.78%	3.78%	3.78%	3.78%	6.30%	6.30%
Osteoarthritis knee	2.94%	2.94%	5.88%	5.46%	7.56%	7.14%
Osteoarthritis hand	6.30%	2.94%	16.39%	5.04%	18.49%	6.72%
Osteoarthritis other	0.42%	0.00%	0.42%	0.00%	0.42%	0.00%
Low back pain	36.55%	32.35%	28.57%	22.69%	43.70%	40.34%
Neck pain	18.91%	18.91%	19.33%	19.33%	19.75%	19.75%
Gout	6.30%	6.30%	5.46%	5.46%	9.66%	9.66%
Other musculoskeletal disorders	4.62%	4.62%	4.20%	4.20%	6.72%	6.72%
Neural tube defects	100.00%	100.00%	100.00%	18.49%	100.00%	100.00%
Congenital heart anomalies	100.00%	100.00%	100.00%	15.55%	100.00%	100.00%
Orofacial clefts	25.21%	9.24%	31.93%	14.29%	35.29%	14.71%
Down syndrome	100.00%	100.00%	26.05%	3.78%	100.00%	100.00%
Turner syndrome	100.00%	100.00%	14.71%	10.92%	100.00%	100.00%
Klinefelter syndrome	100.00%	100.00%	14.29%	10.92%	100.00%	100.00%
Other chromosomal abnormalities	100.00%	100.00%	24.37%	16.81%	100.00%	100.00%
Congenital musculoskeletal and limb anomalies	25.63%	8.82%	31.51%	14.29%	35.29%	14.71%
Urogenital congenital anomalies	100.00%	8.40%	33.19%	13.45%	100.00%	13.87%
Digestive congenital anomalies	27.73%	9.24%	28.57%	13.87%	32.35%	14.29%
Other congenital birth defects	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Urinary tract infections	9.24%	9.24%	14.71%	14.71%	15.13%	15.13%
Urolithiasis	9.24%	9.24%	15.13%	15.13%	15.55%	15.55%
Benign prostatic hyperplasia	9.24%	9.24%	15.13%	15.13%	15.55%	15.55%
Male infertility	36.97%	0.00%	26.47%	0.00%	42.02%	0.00%
Other urinary diseases	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Uterine fibroids	10.08%	9.24%	17.23%	14.29%	18.07%	14.71%
Polycystic ovarian syndrome	5.04%	0.00%	16.81%	0.00%	17.23%	0.00%
Female infertility	36.97%	0.00%	26.47%	0.00%	42.02%	0.00%
Endometriosis	10.50%	0.00%	15.55%	0.00%	16.39%	0.00%
Genital prolapse	11.34%	10.50%	16.39%	15.97%	17.65%	16.39%
Premenstrual syndrome	5.04%	0.00%	5.04%	0.00%	7.98%	0.00%
Other gynecological diseases	9.24%	9.24%	15.13%	15.13%	15.55%	15.55%
Thalassemias	34.45%	2.52%	34.87%	5.46%	35.29%	5.46%
Thalassemias trait	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Supplementary Table 12: Data coverage index for all locations for 286 non-fatal causes, 1990–2005, 2005–2019 and in total by all ages and for the 70+ age group

	1990-2005		2005-2019		1990-2019	
	All ages	70+	All ages	70+	All ages	70+
Sickle cell disorders	40.34%	9.66%	44.96%	15.13%	45.38%	16.39%
Sickle cell trait	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
G6PD deficiency	100.00%	13.87%	100.00%	9.24%	100.00%	17.23%
G6PD trait	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other hemoglobinopathies and hemolytic anemias	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Endocrine, metabolic, blood, and immune disorders	9.24%	9.24%	15.13%	15.13%	15.55%	15.55%
Caries of deciduous teeth	23.11%	0.00%	23.95%	0.00%	32.77%	0.00%
Caries of permanent teeth	24.79%	5.04%	25.63%	5.88%	34.45%	8.82%
Periodontal diseases	14.29%	7.56%	6.72%	5.04%	16.81%	10.92%
Edentulism and severe tooth loss	33.19%	32.35%	23.53%	22.69%	37.82%	37.39%
Other oral disorders	0.42%	0.00%	0.42%	0.00%	0.42%	0.00%
Pedestrian road injuries	3.78%	3.36%	7.14%	5.88%	7.14%	6.30%
Cyclist road injuries	3.78%	3.36%	6.72%	5.88%	7.14%	6.30%
Motorcyclist road injuries	3.36%	3.36%	6.72%	5.88%	7.14%	6.30%
Motor vehicle road injuries	3.78%	3.36%	6.72%	5.88%	7.14%	6.30%
Other road injuries	3.36%	3.36%	5.04%	5.04%	5.46%	5.46%
Other transport injuries	3.78%	3.78%	5.88%	5.88%	6.30%	6.30%
Falls	9.24%	7.98%	11.34%	10.08%	14.29%	12.61%
Drowning	9.24%	8.40%	13.87%	13.45%	14.71%	14.29%
Fire, heat, and hot substances	7.14%	6.30%	10.50%	9.24%	12.61%	11.34%
Poisoning by carbon monoxide	3.36%	3.36%	5.46%	5.46%	5.88%	5.88%
Poisoning by other means	3.78%	3.78%	5.88%	5.88%	6.30%	6.30%
Unintentional firearm injuries	3.78%	3.78%	5.46%	5.46%	5.88%	5.88%
Other exposure to mechanical forces	3.78%	3.78%	6.30%	6.30%	6.72%	6.72%
Adverse effects of medical treatment	8.82%	8.82%	14.29%	14.29%	14.71%	14.71%
Venomous animal contact	3.78%	3.78%	6.30%	6.30%	6.72%	6.72%
Non-venomous animal contact	3.78%	3.78%	5.88%	5.88%	6.30%	6.30%
Pulmonary aspiration and foreign body in airway	4.20%	4.20%	6.30%	6.30%	6.72%	6.72%
Foreign body in eyes	4.20%	4.20%	6.30%	6.30%	6.30%	6.30%
Foreign body in other body part	4.62%	4.62%	7.14%	7.14%	7.56%	7.56%
Environmental heat and cold exposure	4.20%	3.78%	5.88%	5.88%	6.72%	6.30%
Exposure to forces of nature	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other unintentional injuries	3.78%	3.78%	5.88%	5.88%	6.72%	6.72%
Self-harm by firearm	6.30%	6.30%	9.66%	9.24%	9.66%	9.24%
Self-harm by other specified means	3.36%	3.36%	5.88%	5.46%	6.30%	5.88%
Physical violence by firearm	7.98%	7.98%	10.50%	10.50%	11.76%	11.76%
Physical violence by sharp object	4.20%	4.20%	8.82%	8.82%	9.24%	9.24%
Sexual violence	9.24%	0.42%	26.05%	1.68%	28.57%	1.68%
Physical violence by other means	3.78%	3.78%	6.30%	6.30%	6.72%	6.72%
Conflict and terrorism	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Executions and police conflict	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%