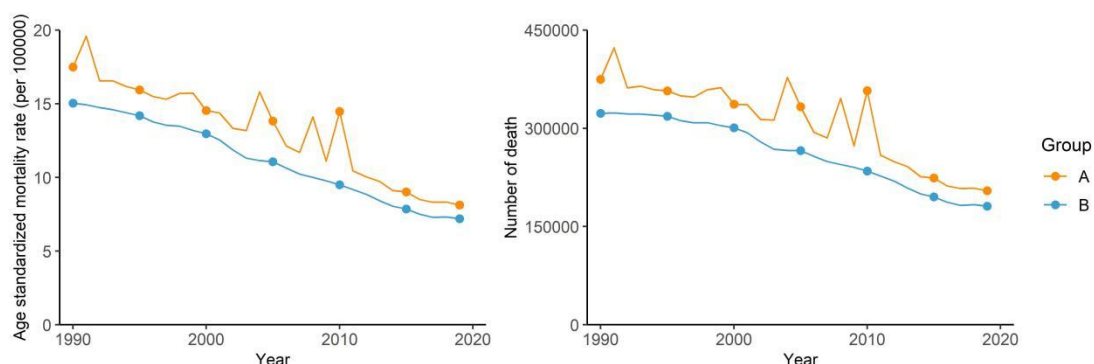
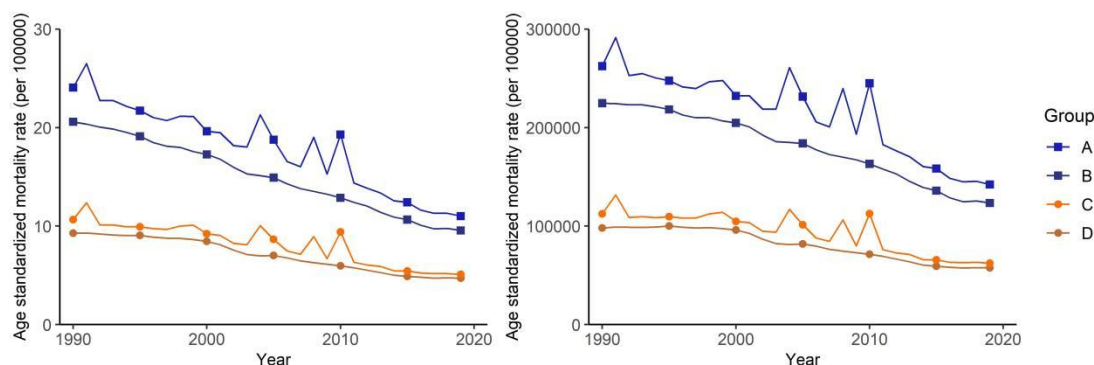


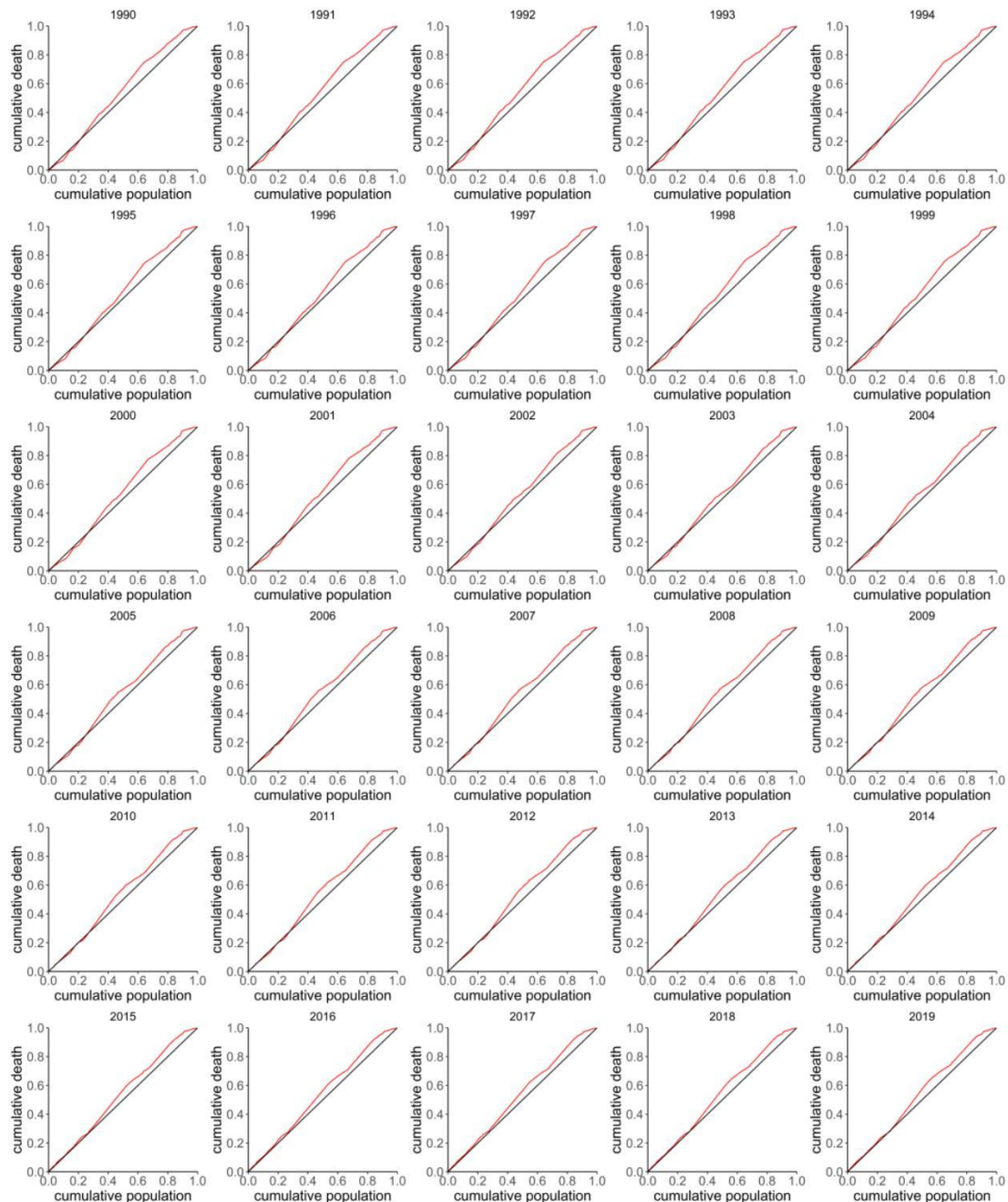


Supplementary Figure 1: Global age-standardized mortality rate of NTUIs among children and adolescents aged 5 – 24 years, 1990 – 2019. Group A represents the ASMR and number of deaths caused by NTUIs, while group B represents the rate and number for NTUIs excluded the death caused by “exposure to forces of nature” and “other unintentional injuries.” ASMR: Age-standardized mortality rate; NTUIs: Non-transport unintentional injuries.



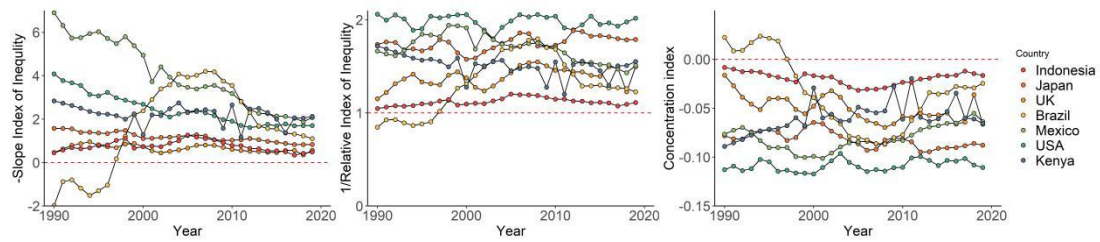
Supplementary Figure 2: Global gender-specific age-standardized mortality rate of NTUIs among children and adolescents aged 5 – 24 years, 1990 – 2019. Group A represents the ASMR and number of deaths caused by NTUIs among male children and adolescents, while group B represents the rate and number for NTUIs excluded the death caused by “exposure to forces of nature” and “other unintentional injuries” among male children and adolescents. Group C represents the ASMR and number of deaths caused by NTUIs among female children and adolescents, while group D

represents the rate and number for NTUIs excluded the death caused by “exposure to forces of nature” and “other unintentional injuries” among female children and adolescents. ASMR: Age-standardized mortality rate; NTUIs: Non-transport unintentional injuries.

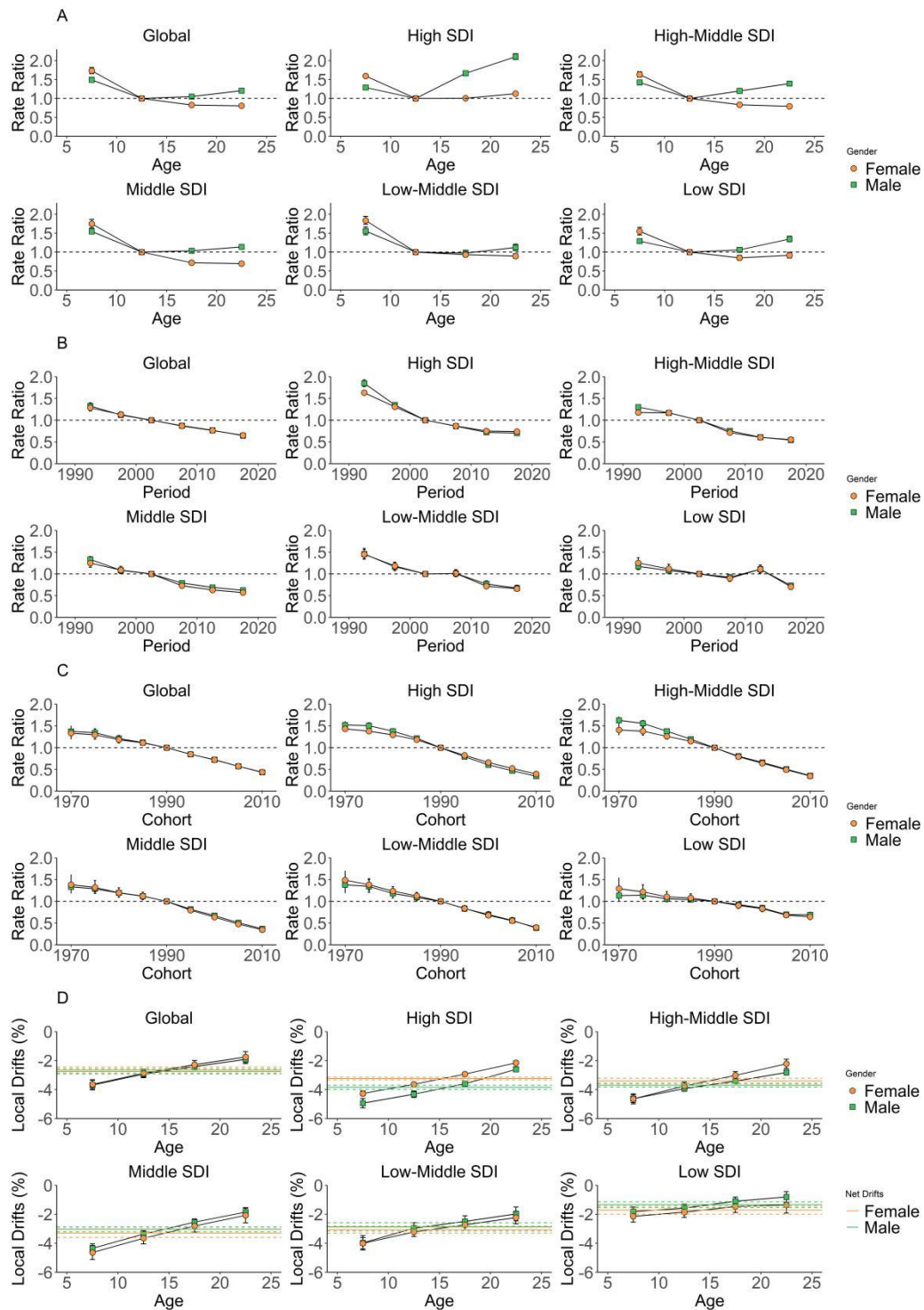


Supplementary Figure 3: Global concentration curve between death number of NTUIs and number of people in different SDI level, 1990 – 2019. Death caused by “exposure to forces of nature” and “other unintentional injuries” was excluded for

analysis. NTUIs: Non-transport unintentional injuries; SDI: Socio-demographic index.

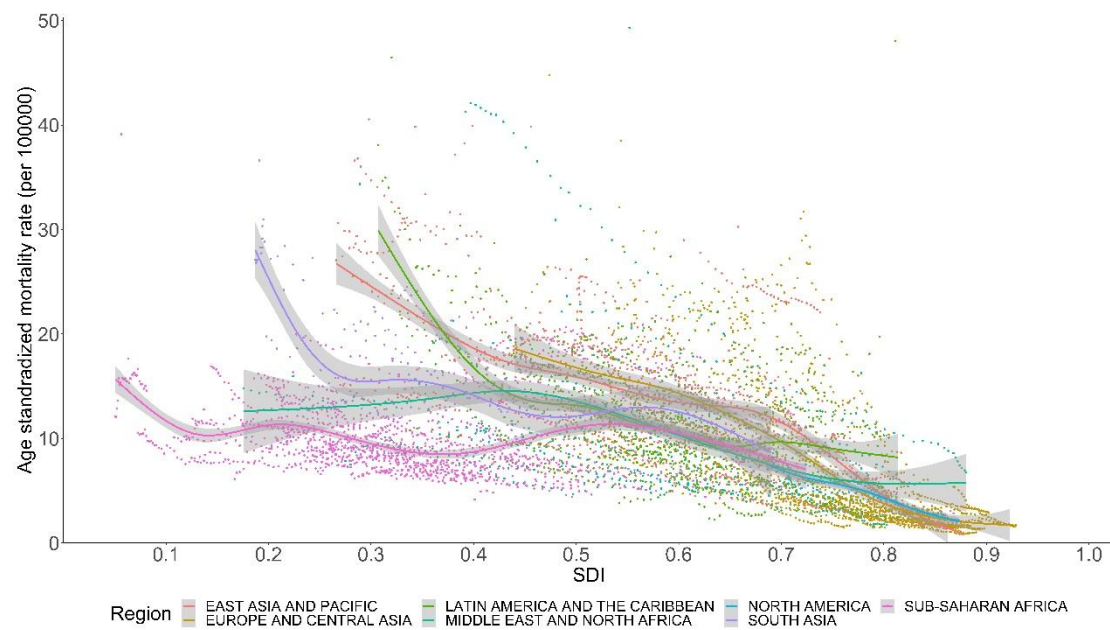


Supplementary Figure 4: The trends of slope index of inequality, relative index of inequality, and concentration index for seven countries, 1990 – 2019. Death caused by “exposure to forces of nature” and “other unintentional injuries” was excluded for analysis.

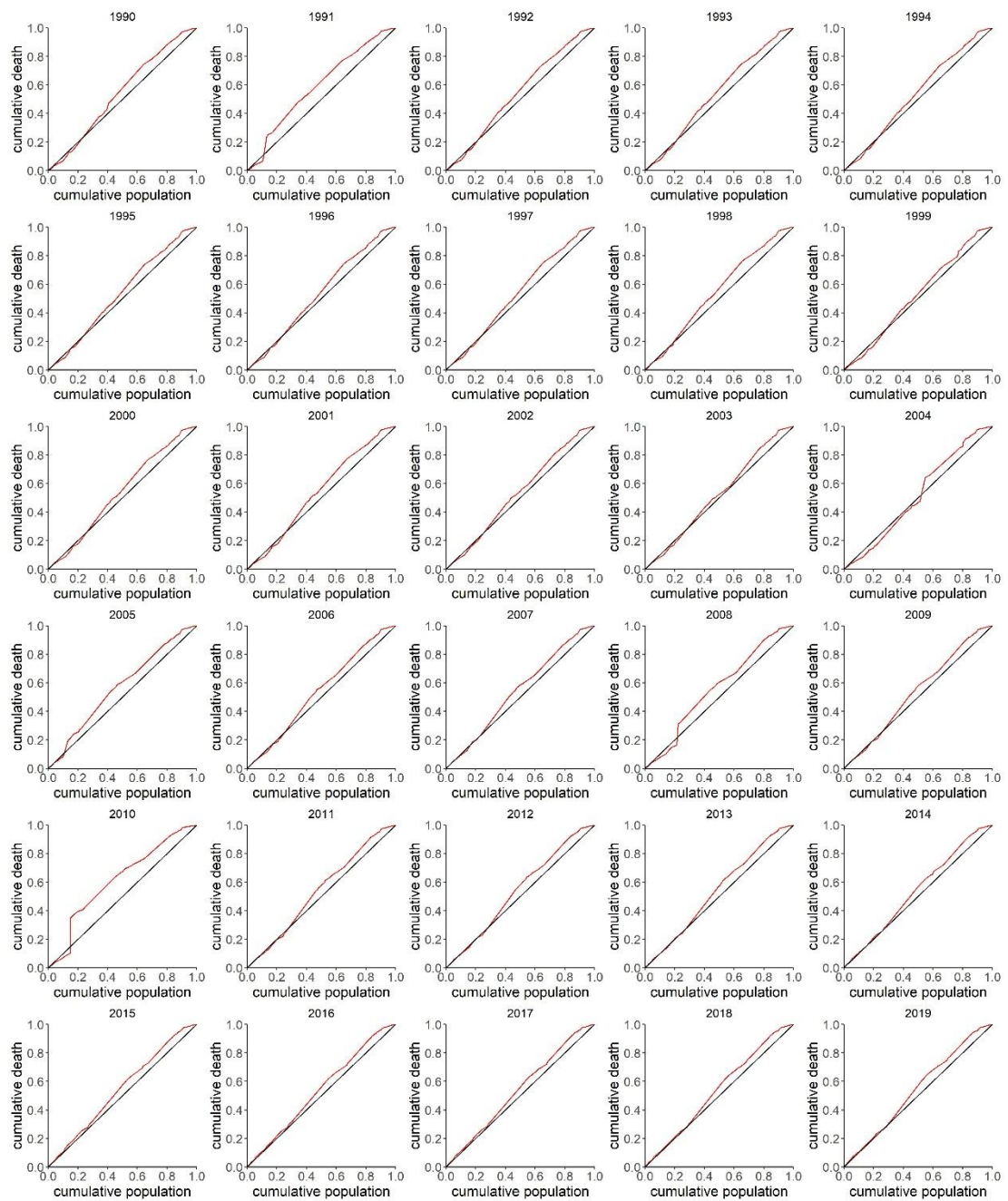


Supplementary Figure 5: Trends in NTUIs mortality by SDI quintiles, 1990 – 2019. (A) Age rate ratio of NTUIs in 1990 cohort by SDI levels, adjusted for period effect. (B) Mortality rate ratio of NTUIs by SDI levels and period from 1990 to 2020. (C) Mortality rate ratio of NTUIs by SDI levels and birth cohort from 1970 to 2010. (D) Age-specific annual percent change of NTUIs mortality rate by SDI levels, 1990 –

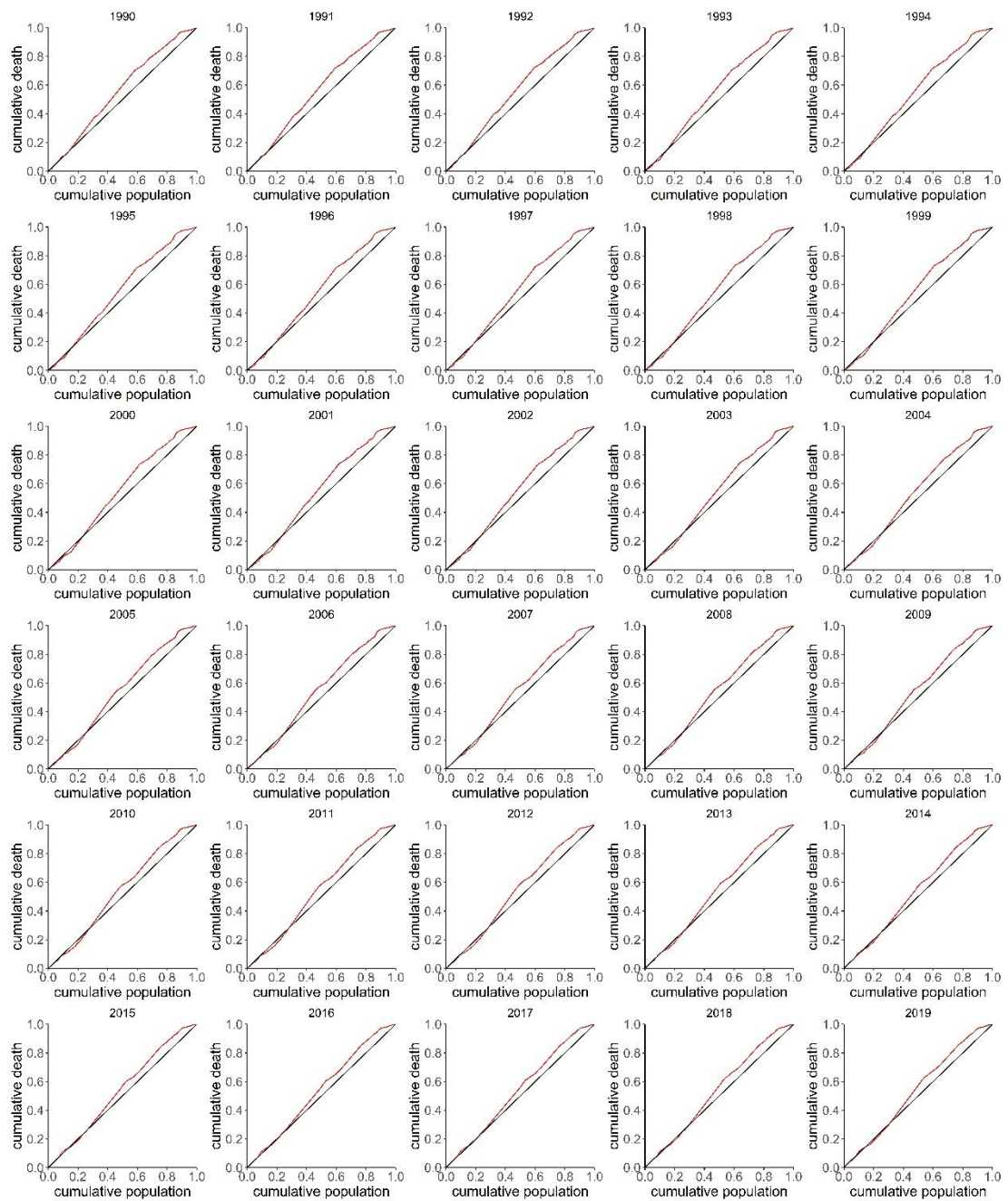
2019. NTUIs: Non-transport unintentional injuries; SDI: Socio-demographic index.



Supplementary Figure 6: Country-level association between ASMRs of NTUIs and SDI in 1990 – 2019, by region. We only plot the countries with NTUIs ASMRs of <50 per 100,000 for the beauty of the figure, and 18 points was not displayed in the figure due to this. ASMRs: Age-standardized mortality rates; NTUIs: Non-transport unintentional injuries; SDI: Socio-demographic index.



Supplementary Figure 7: Global concentration curve between death number of NTUIs and number of people in different SDI level, 1990 – 2019. NTUIs: Non-transport unintentional injuries; SDI: Socio-demographic index.



Supplementary Figure 8: Global concentration curve between death number of NTUIs and number of people in different HDI level, 1990 – 2019. Death caused by “exposure to forces of nature” and “other unintentional injuries” was excluded for analysis. HDI: Human development index; NTUIs: Non-transport unintentional injuries.

Supplementary Table 1: Overall NTUIs mortality among children and adolescents aged 5–24 in 2019 and annual change percentage of mortality during 1990–2019 by country and territory.

SDI 2019	SDI quintile	Country/territory	Age-standardized mortality rate per 100,000 population in 2019	Estimated annual change of mortality, % per year (95% CI)
0.343	Low SDI	Afghanistan	15.73	-2.44(-3.18, -1.71)
0.681	Middle SDI	Albania	7.45	-4.39(-5.23, -3.56)
0.652	Middle SDI	Algeria	7.08	-3.64(-4.03, -3.26)
0.712	High-Middle SDI	American Samoa	12.30	-0.40(-1.72, 0.92)
0.894	High SDI	Andorra	1.34	-1.82(-1.92, -1.71)
0.470	Low-Middle SDI	Angola	6.63	-2.18(-2.42, -1.94)
0.743	High-Middle SDI	Antigua and Barbuda	11.35	-1.71(-2.44, -0.99)
0.708	High-Middle SDI	Argentina	6.65	-2.25(-2.46, -2.04)
0.689	Middle SDI	Armenia	5.65	-6.15(-7.17, -5.14)
0.839	High SDI	Australia	1.70	-3.12(-3.37, -2.88)
0.849	High SDI	Austria	2.07	-3.16(-3.40, -2.92)
0.683	Middle SDI	Azerbaijan	9.10	-3.41(-4.06, -2.76)
0.796	High-Middle SDI	Bahamas	19.76	-0.24(-0.93, 0.46)
0.751	High-Middle SDI	Bahrain	4.16	-1.57(-2.01, -1.13)
0.483	Low-Middle SDI	Bangladesh	9.35	-4.04(-5.40, -2.69)
0.742	High-Middle SDI	Barbados	5.76	-2.07(-2.41, -1.74)
0.745	High-Middle SDI	Belarus	8.69	-3.80(-4.32, -3.28)
0.851	High SDI	Belgium	1.77	-3.06(-3.24, -2.89)
0.603	Low-Middle SDI	Belize	12.03	-1.79(-2.46, -1.13)
0.352	Low SDI	Benin	7.41	-0.91(-1.06, -0.76)
0.813	High SDI	Bermuda	3.95	-2.42(-3.01, -1.83)
0.455	Low-Middle SDI	Bhutan	9.59	-1.52(-2.52, -0.52)
0.566	Low-Middle SDI	Bolivia (Plurinational State of)	9.97	-2.93(-3.10, -2.77)
0.718	High-Middle SDI	Bosnia and Herzegovina	3.89	-3.49(-4.39, -2.60)
0.634	Middle SDI	Botswana	12.71	-1.33(-1.67, -0.99)
0.640	Middle SDI	Brazil	6.26	-2.80(-2.95, -2.66)
0.823	High SDI	Brunei Darussalam	5.65	-3.70(-4.08, -3.31)
0.764	High-Middle SDI	Bulgaria	6.61	-3.65(-3.95, -3.36)
0.257	Low SDI	Burkina Faso	7.57	-0.14(-0.27, -0.01)
0.284	Low SDI	Burundi	10.09	-1.35(-1.49, -1.21)

SDI 2019	SDI quintile	Country/territory	Age-standardized mortality rate per 100,000 population in 2019	Estimated annual change of mortality, % per year (95% CI)
0.408	Low SDI	Cote d'Ivoire	7.36	-0.80(-1.02, -0.59)
0.525	Low-Middle SDI	Cabo Verde	8.56	0.20(-0.64, 1.03)
0.469	Low-Middle SDI	Cambodia	12.48	-2.97(-3.17, -2.77)
0.490	Low-Middle SDI	Cameroon	7.34	-0.31(-0.63, 0.01)
0.873	High SDI	Canada	2.19	-3.10(-3.33, -2.87)
0.274	Low SDI	Central African Republic	12.22	-0.81(-0.94, -0.68)
0.238	Low SDI	Chad	10.62	0.30(0.03, 0.58)
0.759	High-Middle SDI	Chile	3.67	-3.78(-4.20, -3.36)
0.686	Middle SDI	China	8.77	-3.08(-3.44, -2.72)
0.633	Middle SDI	Colombia	5.19	-3.25(-3.65, -2.85)
0.455	Low-Middle SDI	Comoros	7.53	-1.62(-2.49, -0.74)
0.568	Low-Middle SDI	Congo	5.09	-2.20(-2.85, -1.55)
0.764	High-Middle SDI	Cook Islands	3.05	-3.72(-4.90, -2.54)
0.680	Middle SDI	Costa Rica	4.86	-2.74(-3.17, -2.31)
0.794	High-Middle SDI	Croatia	2.37	-5.83(-6.54, -5.13)
0.668	Middle SDI	Cuba	4.71	-3.44(-3.74, -3.15)
0.841	High SDI	Cyprus	2.11	-3.03(-3.52, -2.53)
0.828	High SDI	Czechia	2.72	-4.28(-4.40, -4.16)
0.558	Low-Middle SDI	Democratic People's Republic of Korea	12.15	-1.20(-1.42, -0.97)
0.382	Low SDI	Democratic Republic of the Congo	6.64	-0.78(-0.99, -0.57)
0.890	High SDI	Denmark	1.02	-3.70(-4.20, -3.19)
0.459	Low-Middle SDI	Djibouti	7.00	-1.20(-2.41, 0.01)
0.729	High-Middle SDI	Dominica	11.16	-0.27(-0.94, 0.40)
0.592	Low-Middle SDI	Dominican Republic	8.69	-0.49(-1.03, 0.04)
0.640	Middle SDI	Ecuador	9.37	-1.93(-2.28, -1.58)
0.658	Middle SDI	Egypt	4.58	-2.71(-2.97, -2.45)
0.573	Low-Middle SDI	El Salvador	5.46	-3.42(-4.47, -2.37)
0.685	Middle SDI	Equatorial Guinea	3.76	-5.03(-5.43, -4.63)
0.396	Low SDI	Eritrea	9.30	-0.90(-1.10, -0.69)
0.835	High SDI	Estonia	4.53	-6.90(-7.33, -6.47)
0.577	Low-Middle SDI	Eswatini	15.81	0.51(0.05, 0.96)
0.343	Low SDI	Ethiopia	7.44	-3.09(-3.33, -2.84)
0.664	Middle SDI	Fiji	13.71	-0.87(-1.22, -0.52)
0.856	High SDI	Finland	1.78	-2.68(-3.02, -2.34)
0.834	High SDI	France	2.22	-3.39(-3.59, -3.19)

SDI 2019	SDI quintile	Country/territory	Age-standardized mortality rate per 100,000 population in 2019	Estimated annual change of mortality, % per year (95% CI)
0.656	Middle SDI	Gabon	4.84	-2.11(-2.26, -1.95)
0.399	Low SDI	Gambia	6.02	-0.77(-1.33, -0.20)
0.702	High-Middle SDI	Georgia	9.00	-2.43(-3.53, -1.32)
0.898	High SDI	Germany	1.39	-3.60(-3.98, -3.22)
0.557	Low-Middle SDI	Ghana	5.89	-0.65(-0.91, -0.39)
0.794	High-Middle SDI	Greece	2.25	-2.74(-3.00, -2.48)
0.761	High-Middle SDI	Greenland	8.55	-3.60(-4.11, -3.09)
0.669	Middle SDI	Grenada	11.07	-0.68(-1.38, 0.02)
0.813	High SDI	Guam	4.86	-2.15(-2.33, -1.97)
0.526	Low-Middle SDI	Guatemala	14.42	-1.38(-1.71, -1.06)
0.325	Low SDI	Guinea	10.43	-0.04(-0.17, 0.09)
0.355	Low SDI	Guinea-Bissau	9.91	-1.39(-1.62, -1.17)
0.618	Middle SDI	Guyana	16.57	0.30(-0.10, 0.70)
0.432	Low SDI	Haiti	23.12	-0.49(-4.04, 3.07)
0.496	Low-Middle SDI	Honduras	6.67	-5.25(-7.41, -3.10)
0.791	High-Middle SDI	Hungary	2.28	-3.76(-4.06, -3.47)
0.869	High SDI	Iceland	1.51	-3.29(-3.81, -2.76)
0.566	Low-Middle SDI	India	11.07	-2.98(-3.32, -2.65)
0.660	Middle SDI	Indonesia	5.57	-2.89(-4.63, -1.15)
0.670	Middle SDI	Iran (Islamic Republic of)	8.37	-3.84(-5.11, -2.58)
0.671	Middle SDI	Iraq	16.80	-3.23(-3.49, -2.98)
0.867	High SDI	Ireland	1.68	-3.94(-4.35, -3.53)
0.803	High-Middle SDI	Israel	1.72	-3.54(-3.84, -3.24)
0.801	High-Middle SDI	Italy	1.49	-3.64(-3.89, -3.40)
0.684	Middle SDI	Jamaica	2.95	-2.25(-3.13, -1.36)
0.870	High SDI	Japan	1.54	-2.41(-2.90, -1.92)
0.731	High-Middle SDI	Jordan	5.64	-3.72(-4.24, -3.21)
0.723	High-Middle SDI	Kazakhstan	10.22	-3.30(-3.86, -2.73)
0.508	Low-Middle SDI	Kenya	5.58	0.28(-0.12, 0.68)
0.527	Low-Middle SDI	Kiribati	10.53	-0.79(-0.87, -0.71)
0.851	High SDI	Kuwait	2.77	-2.83(-3.22, -2.45)
0.596	Low-Middle SDI	Kyrgyzstan	6.05	-4.91(-5.36, -4.46)
0.490	Low-Middle SDI	Lao People's Democratic Republic	12.29	-3.09(-3.23, -2.96)
0.820	High SDI	Latvia	6.75	-5.46(-5.80, -5.13)
0.708	High-Middle SDI	Lebanon	5.25	-2.16(-2.46, -1.86)
0.507	Low-Middle SDI	Lesotho	17.65	1.15(0.71, 1.59)

SDI 2019	SDI quintile	Country/territory	Age-standardized mortality rate per 100,000 population in 2019	Estimated annual change of mortality, % per year (95% CI)
0.370	Low SDI	Liberia	6.99	-1.76(-2.08, -1.45)
0.709	High-Middle SDI	Libya	6.05	-2.17(-2.56, -1.77)
0.843	High SDI	Lithuania	6.06	-4.60(-5.02, -4.19)
0.895	High SDI	Luxembourg	2.06	-3.80(-4.35, -3.26)
0.396	Low SDI	Madagascar	6.66	-2.51(-2.99, -2.04)
0.384	Low SDI	Malawi	6.92	-1.92(-2.24, -1.60)
0.737	High-Middle SDI	Malaysia	5.86	-2.36(-2.66, -2.06)
0.562	Low-Middle SDI	Maldives	6.86	-4.11(-5.19, -3.03)
0.263	Low SDI	Mali	8.70	-1.15(-1.35, -0.95)
0.801	High-Middle SDI	Malta	2.50	-1.37(-1.66, -1.08)
0.544	Low-Middle SDI	Marshall Islands	15.92	-0.84(-1.08, -0.59)
0.496	Low-Middle SDI	Mauritania	4.43	-2.02(-2.23, -1.80)
0.705	High-Middle SDI	Mauritius	5.27	-1.75(-2.12, -1.38)
0.649	Middle SDI	Mexico	5.86	-3.34(-3.68, -3.01)
0.580	Low-Middle SDI	Micronesia (Federated States of)	16.32	-0.72(-1.64, 0.21)
0.902	High SDI	Monaco	2.93	-1.52(-1.59, -1.44)
0.606	Low-Middle SDI	Mongolia	14.48	-1.48(-1.85, -1.10)
0.791	High-Middle SDI	Montenegro	3.64	-2.84(-3.44, -2.24)
0.548	Low-Middle SDI	Morocco	7.99	-2.93(-3.36, -2.49)
0.307	Low SDI	Mozambique	10.35	-0.23(-0.65, 0.19)
0.521	Low-Middle SDI	Myanmar	16.66	-2.74(-4.71, -0.78)
0.612	Middle SDI	Namibia	9.83	-0.30(-0.81, 0.20)
0.618	Middle SDI	Nauru	17.84	-0.01(-0.58, 0.55)
0.422	Low SDI	Nepal	10.98	-1.54(-2.56, -0.51)
0.883	High SDI	Netherlands	0.90	-3.41(-3.63, -3.20)
0.840	High SDI	New Zealand	2.90	-2.25(-2.82, -1.68)
0.517	Low-Middle SDI	Nicaragua	5.84	-2.53(-3.44, -1.63)
0.162	Low SDI	Niger	7.61	-1.06(-1.27, -0.85)
0.515	Low-Middle SDI	Nigeria	4.64	-1.29(-1.47, -1.11)
0.711	High-Middle SDI	Niue	11.35	-0.96(-2.45, 0.52)
0.744	High-Middle SDI	North Macedonia	3.45	-4.87(-5.61, -4.12)
0.771	High-Middle SDI	Northern Mariana Islands	9.69	-0.13(-0.63, 0.38)
0.913	High SDI	Norway	1.90	-2.59(-2.90, -2.28)
0.783	High-Middle SDI	Oman	6.66	-2.02(-2.38, -1.66)
0.449	Low SDI	Pakistan	7.63	-0.33(-1.77, 1.11)
0.738	High-Middle SDI	Palau	22.06	-0.65(-0.82, -0.49)

SDI 2019	SDI quintile	Country/territory	Age-standardized mortality rate per 100,000 population in 2019	Estimated annual change of mortality, % per year (95% CI)
0.588	Low-Middle SDI	Palestine	4.83	-2.42(-2.92, -1.93)
0.686	Middle SDI	Panama	5.77	-2.84(-3.18, -2.50)
0.394	Low SDI	Papua New Guinea	12.66	-0.63(-1.71, 0.46)
0.638	Middle SDI	Paraguay	7.27	-1.43(-1.92, -0.95)
0.648	Middle SDI	Peru	8.72	-3.12(-3.40, -2.84)
0.623	Middle SDI	Philippines	8.47	-1.97(-2.69, -1.25)
0.802	High-Middle SDI	Poland	3.40	-4.14(-4.39, -3.90)
0.743	High-Middle SDI	Portugal	2.03	-5.73(-6.07, -5.39)
0.814	High SDI	Puerto Rico	2.48	-2.13(-4.47, 0.20)
0.830	High SDI	Qatar	5.62	-2.41(-2.82, -2.01)
0.878	High SDI	Republic of Korea	1.95	-8.56(-9.20, -7.93)
0.696	High-Middle SDI	Republic of Moldova	8.25	-4.01(-4.30, -3.72)
0.760	High-Middle SDI	Romania	6.04	-4.10(-4.38, -3.83)
0.805	High-Middle SDI	Russian Federation	10.39	-3.93(-4.61, -3.26)
0.429	Low SDI	Rwanda	5.94	-3.19(-3.55, -2.83)
0.746	High-Middle SDI	Saint Kitts and Nevis	9.07	0.97(0.08, 1.86)
0.670	Middle SDI	Saint Lucia	8.85	-0.97(-1.44, -0.50)
0.627	Middle SDI	Saint Vincent and the Grenadines	10.15	-1.30(-2.00, -0.61)
0.641	Middle SDI	Samoa	10.02	-0.73(-2.34, 0.87)
0.884	High SDI	San Marino	1.66	-1.10(-1.28, -0.92)
0.502	Low-Middle SDI	Sao Tome and Principe	5.43	-1.49(-1.83, -1.15)
0.805	High-Middle SDI	Saudi Arabia	10.08	-3.10(-3.45, -2.75)
0.389	Low SDI	Senegal	6.65	-0.74(-1.05, -0.43)
0.767	High-Middle SDI	Serbia	2.37	-5.01(-5.41, -4.61)
0.724	High-Middle SDI	Seychelles	11.17	-0.86(-1.53, -0.19)
0.347	Low SDI	Sierra Leone	8.81	0.09(-0.73, 0.91)
0.861	High SDI	Singapore	1.38	-3.90(-4.08, -3.71)
0.812	High SDI	Slovakia	4.39	-2.32(-2.53, -2.11)
0.840	High SDI	Slovenia	2.10	-3.19(-3.49, -2.90)
0.407	Low SDI	Solomon Islands	29.34	0.40(0.09, 0.72)
0.081	Low SDI	Somalia	14.58	0.13(-0.71, 0.98)
0.678	Middle SDI	South Africa	7.29	-3.06(-3.69, -2.43)
0.363	Low SDI	South Sudan	7.72	-0.34(-0.76, 0.09)
0.767	High-Middle SDI	Spain	1.68	-4.56(-4.92, -4.20)
0.690	High-Middle SDI	Sri Lanka	9.03	-3.12(-5.19, -1.04)
0.515	Low-Middle SDI	Sudan	11.88	-1.63(-1.75, -1.51)

SDI 2019	SDI quintile	Country/territory	Age-standardized mortality rate per 100,000 population in 2019	Estimated annual change of mortality, % per year (95% CI)
0.636	Middle SDI	Suriname	10.09	-1.38(-1.71, -1.05)
0.872	High SDI	Sweden	1.45	-2.25(-2.74, -1.76)
0.929	High SDI	Switzerland	1.71	-4.30(-4.55, -4.05)
0.619	Middle SDI	Syrian Arab Republic	4.86	-3.08(-3.58, -2.58)
0.539	Low-Middle SDI	Tajikistan	9.69	-3.93(-4.70, -3.15)
0.687	Middle SDI	Thailand	11.08	-3.39(-3.93, -2.85)
0.514	Low-Middle SDI	Timor-Leste	9.60	-2.20(-2.73, -1.67)
0.417	Low SDI	Togo	6.85	-0.93(-1.09, -0.77)
0.626	Middle SDI	Tokelau	6.64	-1.32(-1.51, -1.12)
0.636	Middle SDI	Tonga	9.05	0.44(-0.10, 0.98)
0.757	High-Middle SDI	Trinidad and Tobago	5.79	-2.66(-3.01, -2.31)
0.672	Middle SDI	Tunisia	7.86	-2.79(-2.86, -2.73)
0.748	High-Middle SDI	Turkey	4.01	-3.42(-4.72, -2.13)
0.670	Middle SDI	Turkmenistan	9.40	-3.30(-3.92, -2.68)
0.589	Low-Middle SDI	Tuvalu	11.94	-1.87(-3.44, -0.29)
0.404	Low SDI	Uganda	5.78	-0.68(-1.16, -0.20)
0.736	High-Middle SDI	Ukraine	14.35	-2.78(-3.91, -1.66)
0.880	High SDI	United Arab Emirates	6.78	-2.67(-2.84, -2.49)
0.847	High SDI	United Kingdom	1.49	-3.26(-3.57, -2.94)
0.423	Low SDI	United Republic of Tanzania	6.04	-1.08(-1.24, -0.92)
0.859	High SDI	United States of America	2.64	-3.09(-3.38, -2.80)
0.799	High-Middle SDI	United States Virgin Islands	5.36	-4.28(-5.42, -3.14)
0.697	High-Middle SDI	Uruguay	7.45	-2.83(-3.20, -2.46)
0.631	Middle SDI	Uzbekistan	9.97	-2.30(-2.75, -1.84)
0.485	Low-Middle SDI	Vanuatu	16.54	-0.51(-1.79, 0.77)
0.607	Low-Middle SDI	Venezuela (Bolivarian Republic of)	8.04	-2.19(-4.16, -0.23)
0.617	Middle SDI	Viet Nam	10.89	-2.21(-2.50, -1.92)
0.412	Low SDI	Yemen	10.67	-1.27(-1.50, -1.05)
0.505	Low-Middle SDI	Zambia	6.93	-1.45(-1.78, -1.13)
0.476	Low-Middle SDI	Zimbabwe	17.88	1.72(1.14, 2.31)

NTUIs: Non-transport unintentional injuries. SDI: Socio-demographic index.

Supplementary Table 2: Cause-specific deaths in each gender and age group by SDI quintiles in 2019.

Cause	Male				Female			
	5–9 years	10–14 years	15–19 years	20–24 years	5–9 years	10–14 years	15–19 years	20–24 years
Global								
Drowning	14,225.27	11,814.76	12,081.23	11,994.85	6246.61	4370.76	2862.49	2266.46
Falls	4102.42	4060.92	5185.22	8822.02	2218.90	1572.13	1964.21	2169.66
Animal contact	2857.59	3049.64	2128.57	2370.95	2908.78	2396.19	1757.96	1848.82
Exposure to mechanical forces	2042.08	1816.99	4438.20	7258.68	1354.58	800.94	1172.52	1233.82
Fire, heat, and hot substances	1772.27	1077.49	1531.59	2499.32	1671.67	1322.84	2577.18	3519.06
Foreign body	1452.72	1259.61	1270.24	2095.34	948.42	844.81	604.18	663.30
Poisonings	1366.97	1344.98	1663.42	2532.25	911.81	1035.72	1016.16	1162.93
Adverse effects of medical treatment	888.91	677.02	722.62	1172.72	735.80	561.52	710.42	1496.37
Environmental heat and cold exposure	253.45	217.57	536.73	866.65	199.52	112.61	186.97	202.55
High SDI group								
Drowning	213.78	195.69	438.52	539.23	82.76	65.04	65.16	77.30
Falls	63.69	79.86	280.26	645.53	35.91	32.41	72.27	117.20
Animal contact	6.84	4.80	4.92	6.04	4.81	4.30	3.89	4.21
Exposure to mechanical forces	51.27	70.65	187.96	376.55	27.53	21.76	27.14	39.07
Fire, heat, and hot substances	73.46	47.76	64.84	133.00	62.34	41.80	47.63	75.64
Foreign body	55.50	79.68	73.95	129.86	37.44	33.44	31.09	46.81
Poisonings	16.29	31.15	60.69	131.78	13.70	23.49	32.07	52.94
Adverse effects of medical treatment	19.04	20.42	27.00	47.97	16.57	16.96	24.08	36.07
Environmental heat and cold exposure	5.47	7.65	29.97	52.59	4.37	4.35	7.48	11.08

Cause	Male				Female			
	5–9 years	10–14 years	15–19 years	20–24 years	5–9 years	10–14 years	15–19 years	20–24 years
High-middle SDI group								
Drowning	1443.73	1368.42	1783.56	2087.76	418.19	358.57	275.64	250.70
Falls	353.13	326.63	746.53	1487.56	174.98	133.24	224.49	281.27
Animal contact	43.00	38.52	39.36	49.45	40.25	34.56	28.22	30.35
Exposure to mechanical forces	162.68	162.03	473.93	902.71	107.25	70.96	107.42	132.91
Fire, heat, and hot substances	136.41	94.33	155.00	310.30	121.53	88.13	171.57	237.63
Foreign body	167.25	164.23	187.45	376.34	90.38	75.73	62.35	82.92
Poisonings	130.62	135.89	232.98	466.35	99.72	112.80	157.00	205.03
Adverse effects of medical treatment	41.28	34.74	51.13	94.73	32.56	29.29	41.38	69.98
Environmental heat and cold exposure	14.76	18.24	88.57	172.98	9.03	8.32	24.29	34.31
Middle SDI group								
Drowning	4979.26	4124.86	4618.55	4164.60	1829.23	1361.09	857.91	684.20
Falls	1096.80	996.91	1767.70	2955.15	639.16	476.10	584.75	659.61
Animal contact	327.86	300.00	258.80	299.95	306.75	273.25	200.36	245.29
Exposure to mechanical forces	569.42	511.68	1441.79	2654.40	370.74	222.44	306.91	380.17
Fire, heat, and hot substances	355.49	236.87	407.99	736.03	377.16	350.68	746.47	1046.30
Foreign body	480.60	407.05	335.27	594.65	289.37	218.54	140.50	172.58
Poisonings	304.74	306.32	475.33	768.04	203.12	240.60	291.66	349.72
Adverse effects of medical treatment	136.24	113.71	140.75	242.77	107.12	99.09	133.43	255.87
Environmental heat and cold exposure	33.46	27.28	70.52	140.00	24.42	15.64	27.23	33.96
Low-middle SDI group								
Drowning	4686.25	4165.57	3723.24	3816.13	2389.70	1619.08	1201.70	924.69
Falls	1365.82	1561.31	1668.12	2694.59	752.24	558.19	781.32	812.55

Cause	Male				Female			
	5–9 years	10–14 years	15–19 years	20–24 years	5–9 years	10–14 years	15–19 years	20–24 years
Animal contact	1311.76	1697.51	1136.16	1338.41	1515.47	1355.57	1093.37	1198.73
Exposure to mechanical forces	497.09	501.40	1253.74	1906.42	458.15	259.74	443.89	427.91
Fire, heat, and hot substances	452.65	328.37	511.38	772.55	513.50	499.23	1163.08	1597.94
Foreign body	353.57	316.63	292.55	445.48	254.05	296.91	164.36	160.51
Poisonings	338.95	426.31	455.95	617.40	289.09	391.97	300.26	310.54
Adverse effects of medical treatment	250.98	238.01	240.74	423.32	237.93	182.99	260.38	686.11
Environmental heat and cold exposure	143.31	108.71	234.17	318.96	87.63	49.05	73.71	61.45

Death due to “exposure to forces of nature” and “other unintentional injuries” was excluded. SDI: Socio-demographic index.

Supplementary Table 3: The association between mortality rate and SDI, by gender, age group, and region.

Group (n)	β-coefficient (95% CI)	SE	P-value
Global (6120)	−3.65 (−3.75 to −3.54)	0.055	<0.001
Global male (6120)	−3.66 (−3.76 to −3.55)	0.055	<0.001
Global female (6120)	−3.72 (−3.83 to −3.60)	0.059	<0.001
Age 5–9 years (6120)	−4.77 (−4.89 to −4.75)	0.063	<0.001
Age 10–14 years (6120)	−3.90 (−4.02 to −3.78)	0.061	<0.001
Age 15–19 years (6120)	−3.30 (−3.41 to −3.18)	0.059	<0.001
Age 20–24 years (6120)	−3.06 (−3.17 to −2.95)	0.056	<0.001
East Asia and Pacific* (1110)	−3.97 (−4.24 to −6.75)	0.141	<0.001
Europe and Central Asia (1560)	−7.79 (−8.02 to −7.57)	0.115	<0.001
Latin America and Caribbean (1050)	−3.66 (−4.01 to −3.31)	0.178	<0.001
Middle East and North Africa* (630)	−2.88 (−3.03 to −2.72)	0.078	<0.001
North America* (90)	−7.08 (−7.82 to −6.34)	0.377	<0.001
South Asia (240)	−3.35 (−3.92 to −2.78)	0.293	<0.001
Sub-Saharan Africa (1440)	−1.91 (−2.03 to −1.80)	0.058	<0.001

The β-coefficient represents that the ASMR will decline for $(1 - e^{0.1 \cdot \beta\text{-coefficient}}) \times 100\%$ for every 0.1 increase in SDI. *In East Asia and Pacific, Middle East and North Africa, and North America, we choose the random-effect model because the *P*-value of the Hausman test >0.05, while in the remaining groups we choose the fix effect model. ASMR: Age-standardized mortality rate; CI: Concentration index; SDI: Socio-demographic index.

Supplementary Table 4: The changes of SII, RII, and CI, by gender, age group, and region, in 1990 and 2019.

Group	1990		2019		1/RII	CI*
	–SII (95% CI) (1/100,000)	1/RII CI	–SII (95% CI) (1/100,000)	1/RII		
Global	9.10 (4.51 – 13.68)	1.69 –0.09	4.24 (2.72 – 5.75)	1.71	–0.08	
Global male	7.36 (1.19 – 13.52)	1.36 –0.05	4.36 (2.28 – 6.45)	1.50	–0.06	
Global female	10.91 (7.53 – 14.28)	3.05 –0.17	4.41 (3.13 – 5.70)	2.54	–0.15	
Age 5–9 years	13.39 (7.25 – 19.53)	1.88 –0.10	6.10 (4.56 – 7.65)	1.60	–0.13	
Age 10–14 years	7.07 (2.83 – 11.30)	1.66 –0.08	4.68 (3.36 – 6.00)	1.66	–0.12	
Age 15–19 years	7.13 (2.65 – 11.61)	1.58 –0.07	2.89 (1.28 – 4.50)	1.75	–0.06	
Age 20–24 years	7.79 (2.73 – 12.85)	1.56 –0.07	3.93 (1.62 – 6.24)	1.86	–0.06	
East Asia and Pacific	16.01 (10.43 – 21.59)	2.42 –0.10	5.20 (1.88 – 8.52)	1.92	–0.09	
Europe and Central Asia	11.02 (4.18 – 17.87)	2.70 –0.15	7.74 (4.29 – 11.20)	6.69	–0.25	
Latin America and Caribbean	5.44 (0.46 – 10.42)	1.43 –0.06	5.35 (1.81 – 8.89)	2.19	–0.12	
Middle East and North Africa	–17.79 (–55.26 – 19.67)	0.53 0.10	–2.56 (–8.78 – 3.65)	0.72	0.06	
North America	2.20 (1.77 – 2.62)	1.43 –0.02	0.91 (–0.01 – 1.82)	1.42	–0.01	
South Asia	–14.42 (–29.95 – 1.11)	0.50 0.06	–3.09 (–8.90 – 2.72)	0.74	0.03	
Sub-Saharan Africa	4.05 (0.21 – 7.89)	1.46 –0.06	3.59 (1.58 – 5.60)	1.67	–0.08	

SII represents the absolute mortality rate difference between the lowest SDI group and the highest SDI group, RII and CI represent relative mortality rate difference. CI: Concentration index; RII: Relative index of inequality; SDI: Socio-demographic index; SII: Slope index of inequality.

Supplementary Table 5: The association between mortality rate and HDI by gender, age group, and region.

Group (n)	β-coefficient (95% CI)	SE	P-value
Global (5102)	−3.92 (−4.01 to −3.82)	0.048	<0.001
Global male (5102)	−3.97 (−4.07 to −3.87)	0.05	<0.001
Global female (5102)	−3.82 (−3.91 to −3.72)	0.048	<0.001
Age 5–9 years (5102)	−5.07 (−5.19 to −4.94)	0.064	<0.001
Age 10–14 years (5102)	−4.04 (−4.14 to −3.93)	0.055	<0.001
Age 15–19 years (5102)	−3.55 (−3.65 to −3.45)	0.051	<0.001
Age 20–24 years (5102)	−3.33 (−3.43 to −3.23)	0.051	<0.001
East Asia and Pacific* (719)	−3.98 (−4.20 to −3.76)	0.111	<0.001
Europe and Central Asia* (1374)	−6.48 (−6.66 to −6.30)	0.092	<0.001
Latin America and Caribbean (894)	−4.63 (−4.85 to −4.42)	0.109	<0.001
Middle East and North Africa* (586)	−3.83 (−4.09 to −3.56)	0.136	<0.001
North America (–)	–	–	–
South Asia* (220)	−3.02 (−3.25 to −2.78)	0.119	<0.001
Sub-Saharan Africa (1249)	−1.64 (−1.76 to −1.52)	0.061	<0.001

Death due to “exposure to forces of nature” and “other unintentional injuries” was excluded. The β-coefficient represents that the ASMR will decline for $(1 - e^{0.1 \cdot \beta\text{-coefficient}}) \times 100\%$ for every 0.1 increase in HDI. *In East Asia and Pacific, Europe and Central Asia, Middle East and North Africa, and North America, we choose the random-effect model because the *P*-value of the Hausman test >0.05, while in all remain group we choose the fix effect model. ASMR: Age-standardized mortality rate; CI: Concentration index; HDI: Human development index.

Supplementary Table 6: The changes of SII, RII, and CI calculated by HDI as a substitute of SDI by gender, age group, and region in 1990 and 2019.

Group	1990			2019		
	–SII (95% CI) (1/100,000)	1/RII	CI	–SII (95% CI) (1/100,000)	1/RII	CI*
Global	11.02 (7.60 – 14.44)	2.10	–0.12	3.57 (2.17 – 4.98)	1.67	–0.08
Global male	9.71 (4.73 – 14.70)	1.60	–0.08	3.31 (1.47 – 5.16)	1.42	–0.05
Global female	12.25 (9.73 – 14.78)	4.54	–0.22	4.06 (2.74 – 5.38)	2.53	–0.15
Age 5–9 years	19.49 (13.58 – 25.40)	2.82	–0.16	5.57 (4.14 – 7.00)	2.31	–0.13
Age 10–14 years	9.01 (5.90 – 12.13)	2.12	–0.12	3.89 (2.59 – 5.19)	1.97	–0.11
Age 15–19 years	7.27 (4.33 – 10.21)	1.75	–0.09	1.97 (0.50 – 3.44)	1.34	–0.05
Age 20–24 years	6.92 (3.32 – 10.52)	1.62	–0.08	3.28 (1.22 – 5.33)	1.44	–0.06
East Asia and Pacific	17.80 (10.95 – 24.65)	3.02	–0.12	3.34 (–0.40 – 7.08)	1.58	–0.06
Europe and Central Asia	12.33 (4.51 – 20.14)	4.10	–0.19	8.87 (6.22 – 11.53)	37.50	–0.31
Latin America and Caribbean	4.11 (–1.14 – 9.35)	1.38	–0.05	5.22 (1.70 – 8.75)	2.47	–0.13
Middle East and North Africa	–6.37 (–16.83 – 4.09)	0.65	0.07	3.38 (–0.91 – 7.68)	1.68	–0.08
North America	–	–	–	–	–	–
South Asia	–9.10 (–31.69 – 13.49)	0.62	0.04	–2.83 (–7.12 – 1.45)	0.74	0.03
Sub-Saharan Africa	0.11 (–3.86 – 4.09)	1.01	–0.01	2.24 (0.46 – 4.02)	1.45	–0.06

SII represents the absolute mortality rate difference between the lowest HDI group and the highest HDI group, RII and CI represent relative mortality rate difference. Death caused by “exposure to forces of nature” and “other unintentional injuries” was excluded for analysis. CI: Concentration index; HDI: Human development index; RII: Relative index of inequality; SDI: Socio-demographic index; SII: Slope index of inequality.