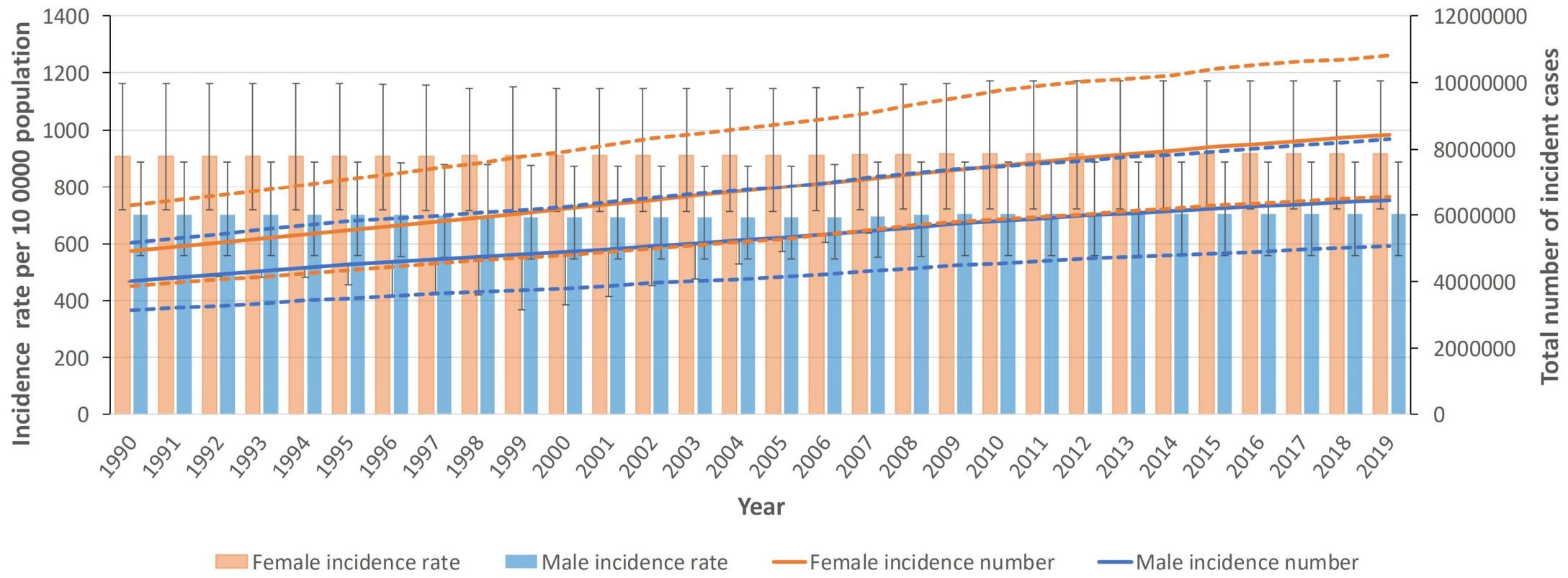
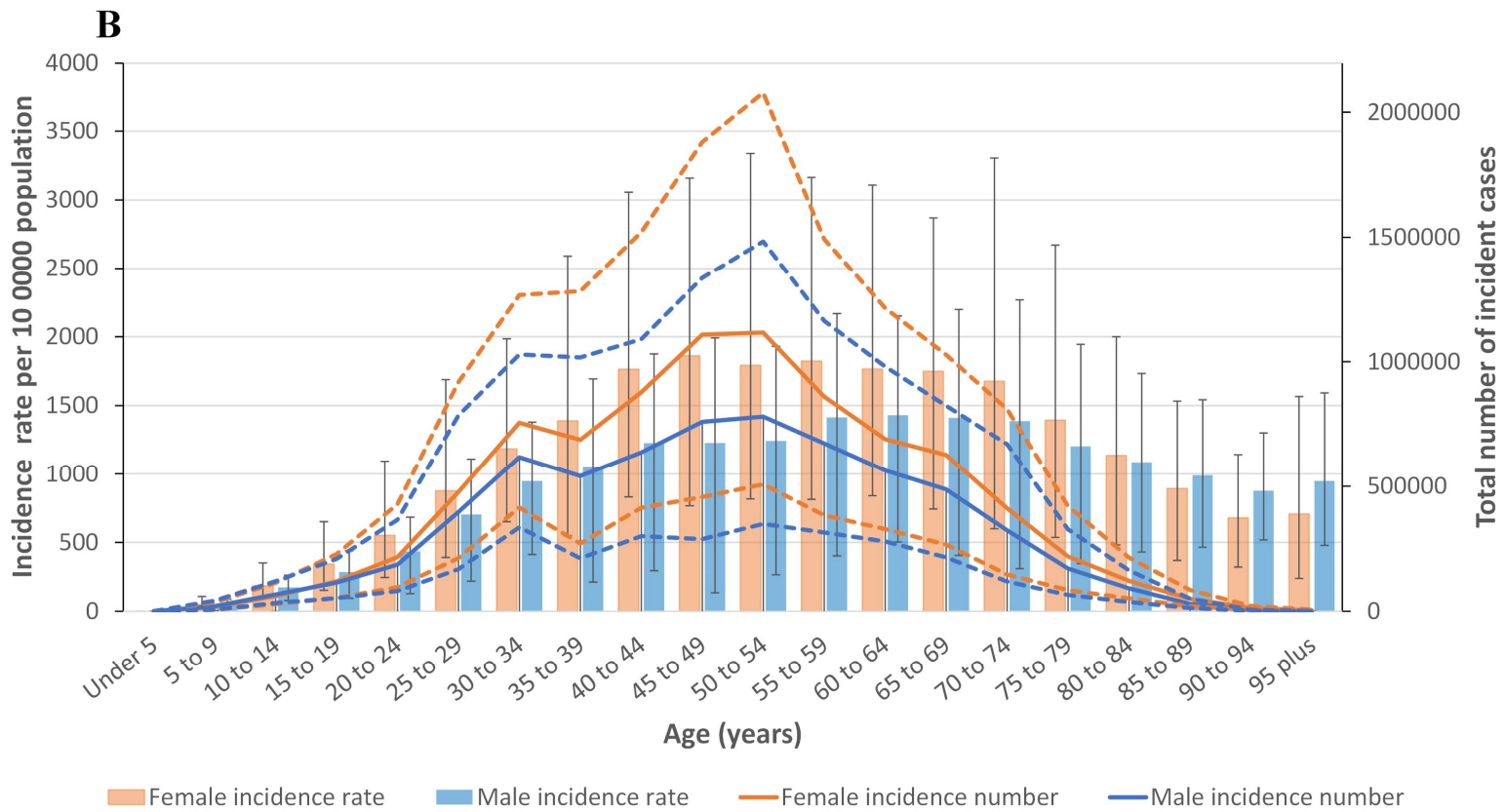
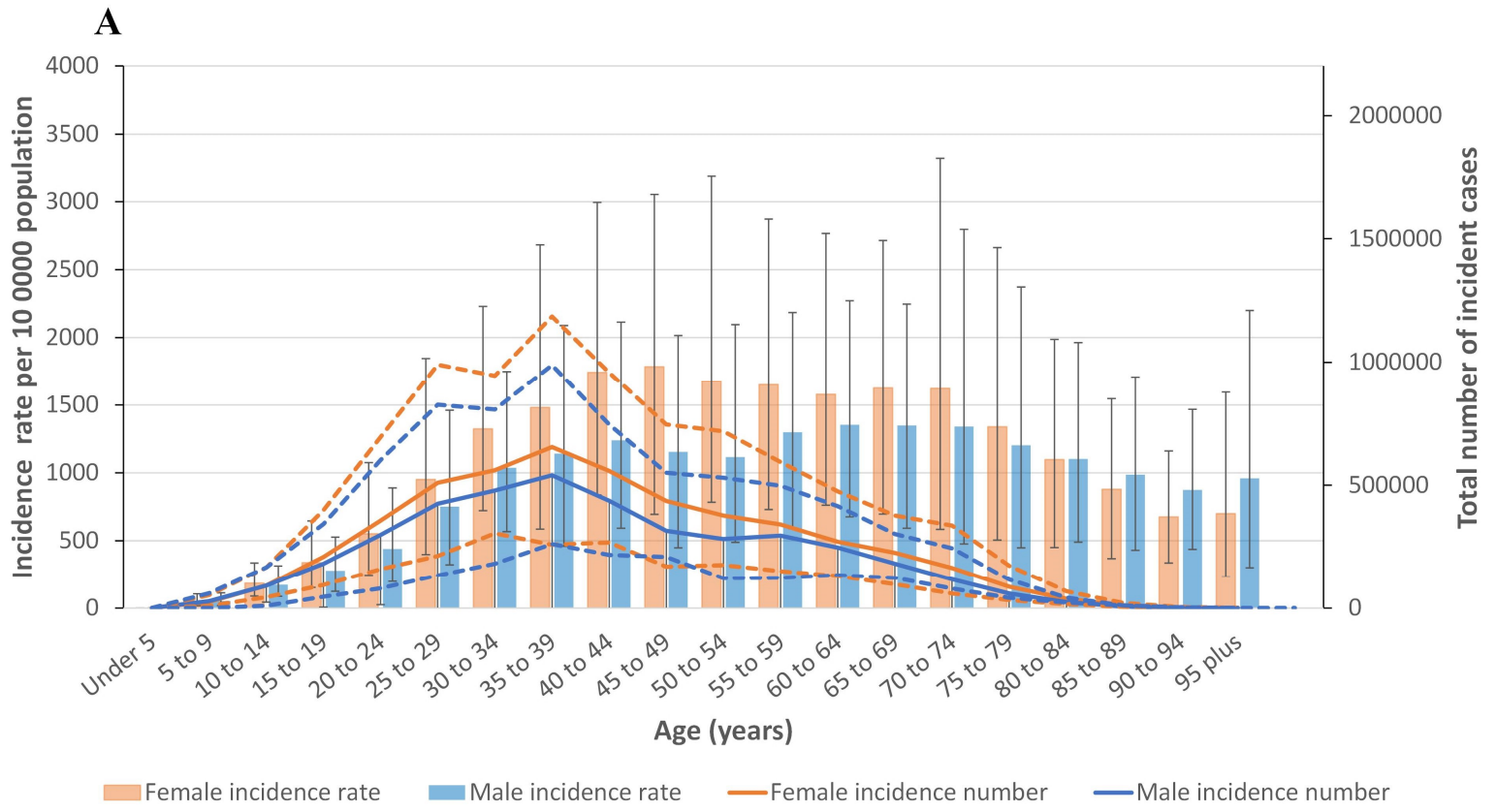


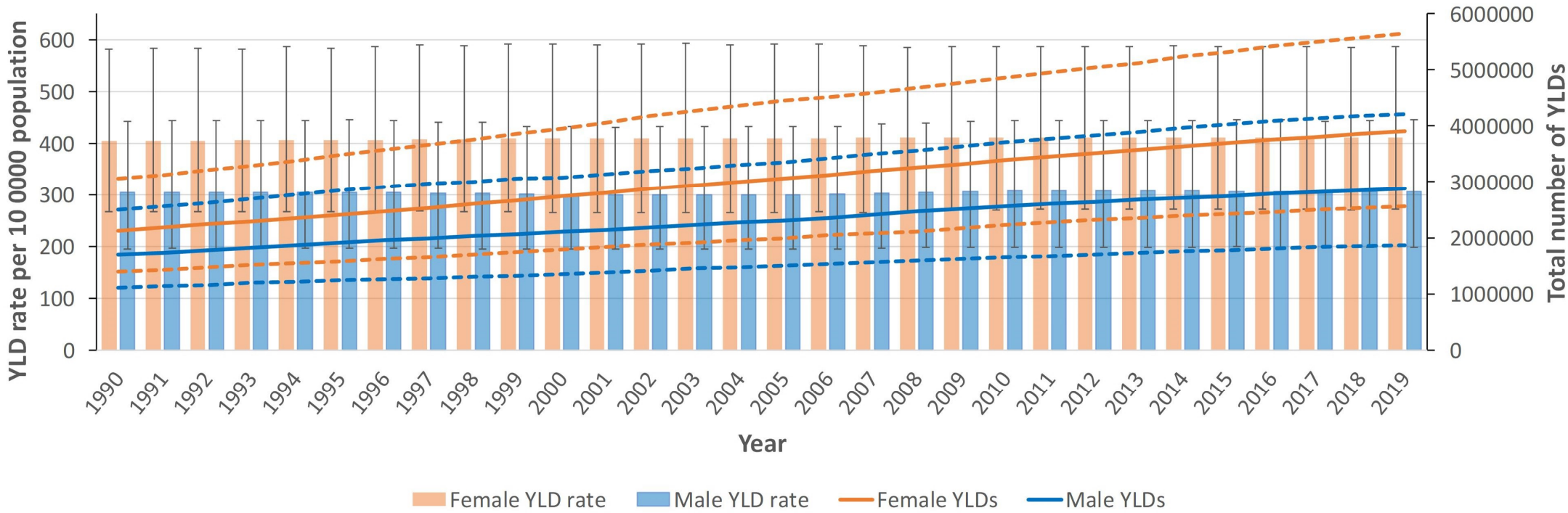
Supplementary Figure 1 Age standardized incidence (per 100 000 population) and number of incident cases of females and males in China from 1990 to 2019. Dotted lines indicate 95% upper and lower uncertainty intervals.



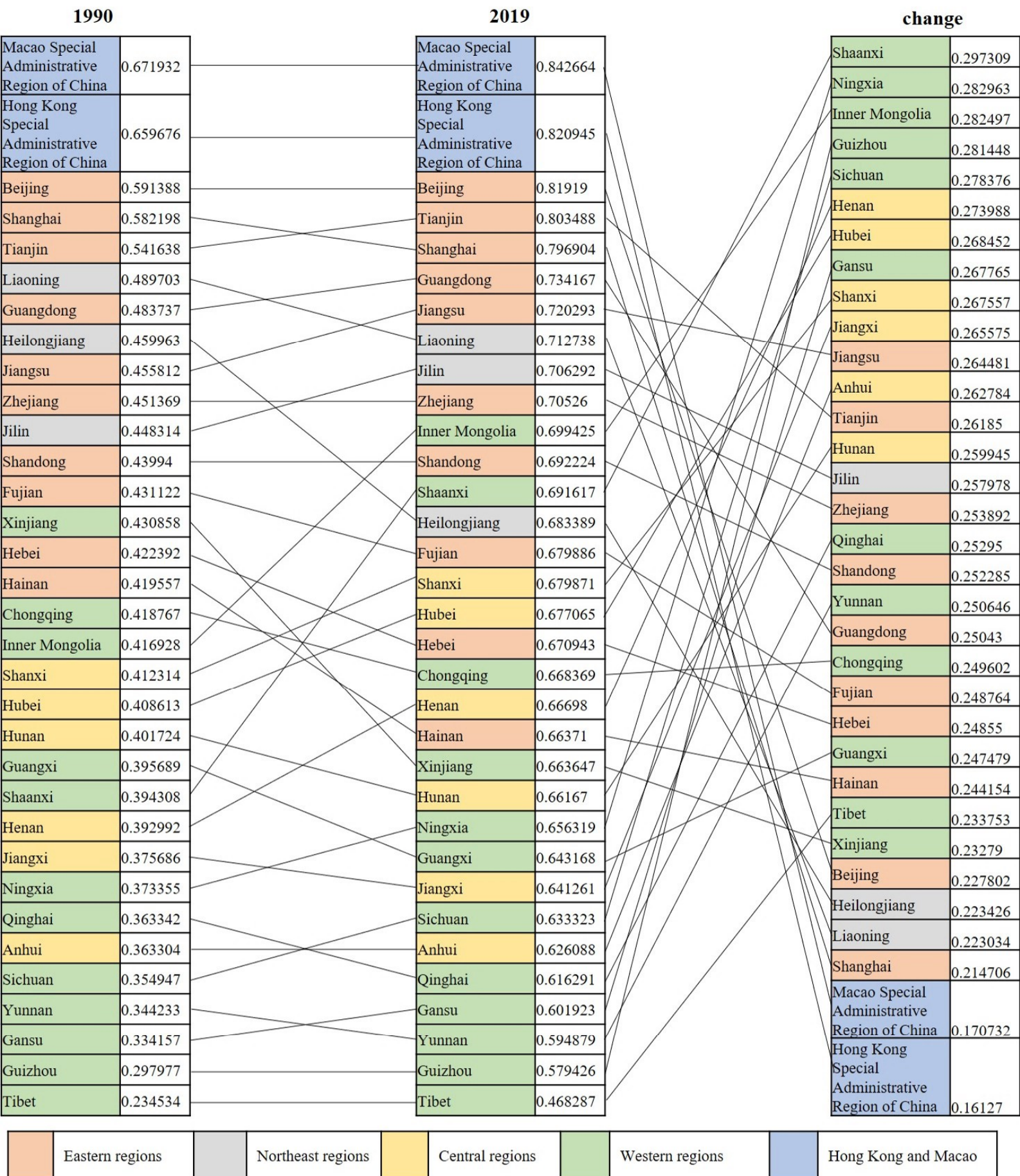
Supplementary Figure 2 Age-standardized incidence (per 100 000 population) and number of incident cases by age and sex in 1990 and 2019. Dotted lines indicate 95% upper and lower uncertainty intervals. A:1990; B:2019.



Supplementary Figure 3 Age standardized years lived with disability (YLD) rate (per 100 000 population) and number of YLDs of females and males in China from 1990 to 2019. Dotted lines indicate 95% upper and lower uncertainty intervals.



Supplementary Figure 5 Sociodemographic index (SDI) of 33 provinces/municipalities/autonomous regions in China in 1990 and 2019, and the changes between 1990 and 2019.



Supplementary table 1

Age-standardized incidence, prevalence and YLD rate and their changes of neck pain in 27 countries, 1990 and 2019.

Country name	Incidence (per 100000 population)		Change (%)	Prevalence (per 100000 population)		Change (%)	YLDs rate (per 100000 population)		Change (%)
	1990	2019		1990	2019		1990	2019	
Global	581.74 (460.94,737.68)	579.09 (457.90,729.6)	-0.46 (-2.13,1.52)	2709.42 (2172.31,3409.76)	2696.52 (2177.01,3375.19)	-0.48 (-2.58,1.67)	268.26 (176.71,382.67)	267.35 (175.53,383.54)	-0.34 (-2.13,1.52)
Argentina	396.75 (310.24,501.29)	396.82 (310.34,501.40)	0.02 (-0.03,0.05)	1933.69 (1539.03, 2447.46)	1934.02 (1539.41,2447.84)	0.02 (-0.02,0.05)	192.43 (125.73, 274.56)	192.24 (126.84, 273.44)	-0.10 (-2.92, 2.94)
Australia	246.10 (194.93, 307.43)	246.19 (194.93,307.68)	0.04 (-0.10,0.14)	1092.58 (862.77, 1384.65)	1092.71 (861.18, 1386.04)	0.01 (-0.19,0.16)	107.88 (70.51, 154.18)	107.86 (70.81, 155.14)	-0.02 (-4.03,4.19)
Brazil	506.19 (396.80, 645.79)	503.83 (395.14,641.96)	-0.47 (-0.70, -0.26)	2250.15 (1775.99, 2883.49)	2241.89 (1770.55, 2870.64)	-0.37 (-0.63, -0.15)	221.32 (145.14, 321.67)	221.72 (145.36, 322.57)	0.18 (-0.88,1.22)
Burundi	269.06 (209.48, 341.49)	266.91 (208.08,338.81)	-0.80 (-1.21, -0.51)	1154.23 (911.07, 1474.25)	1141.83 (900.81, 1458.66)	-1.07 (-1.64, -0.56)	113.91 (74.87, 164.49)	112.61 (73.96, 162.06)	-1.14 (-4.67,2.83)
Canada	533.86 (419.09, 675.80)	534.31 (419.47,676.66)	0.08 (0.005, 0.16)	2942.54 (2327.50, 3729.95)	2942.27 (2325.80, 3731.63)	-0.01 (-0.16,0.12)	292.87 (192.28, 423.36)	292.18 (191.39, 419.70)	-0.24 (-2.57,2.05)
China	800.68 (634.43, 1016.63)	809.91 (641.89,1028.61)	1.15 (-2.46,5.09)	3528.35 (2800.49, 4485.74)	3571.96 (2868.20, 4517.63)	1.24 (-4.53,7.02)	352.84 (230.02, 516.83)	358.13 (234.54, 515.95)	1.50 (-4.27,7.29)
Denmark	696.29 (547.19, 881.35)	696.26 (547.27, 881.31)	-0.005 (-0.10,0.06)	4486.91 (3581.42, 5617.87)	4477.65 (3571.18, 5607.69)	-0.21 (-0.36, -0.08)	446.90 (299.25, 645.48)	446.46 (298.43, 647.40)	-0.10 (-2.10,2.01)
Djibouti	266.49 (208.01, 338.40)	266.41 (207.64, 338.33)	-0.03 (-0.27,0.23)	1141.07 (899.44, 1457.80)	1138.49 (898.08, 1454.09)	-0.23 (-0.50,0.03)	113.49 (75.62, 163.24)	113.31 (74.08, 162.39)	-0.15 (-4.10,3.75)
Eritrea	269.19 (209.79, 341.71)	268.39 (209.33, 340.77)	-0.30 (-0.45, -0.19)	1156.28 (912.04, 1475.57)	1152.68 (909.12, 1471.25)	-0.31 (-0.47, -0.15)	113.50 (75.40, 163.75)	113.67 (74.48, 164.21)	0.16 (-3.74,4.10)
Finland	670.70 (530.65, 856.04)	671.89 (530.58, 849.84)	0.18 (-3.88,5.25)	4323.11 (3514.07, 5377.42)	4305.96 (3419.79, 5365.80)	-0.40 (-6.71,6.14)	429.80 (290.19, 628.45)	428.80 (288.49, 611.15)	-0.23 (-7.06,6.39)
France	507.18	507.58	0.08	2793.95	2792.68	-0.05	278.95	279.23	0.10

	(398.25, 634.25)	(398.72, 635.32)	(-0.02,0.17)	(2252.49, 3530.98)	(2250.97, 3529.56)	(-0.19, 0.07)	(187.04, 405.92)	(185.91, 406.67)	(-2.39, 2.67)
Germany	595.98 (467.90, 754.96)	594.75 (466.76, 753.91)	-0.21 (-0.43, -0.04)	3576.05 (2851.89,4522.22)	3552.80 (2833.46 4497.03)	-0.65 (-1.00, -0.34)	356.53 (233.19, 518.59)	353.80 (234.96, 510.13)	-0.77 (-3.00, 1.64)
India	391.37 (305.81, 492.84)	392.03 (306.34, 493.29)	0.17 (0.07,0.26)	1651.79 (1322.59, 2090.93)	1655.50 (1326.30, 2094.80)	0.22 (0.07, 0.42)	160.57 (107.10, 230.62)	161.95 (107.99, 234.14)	0.86 (0.15, 1.58)
Indonesia	965.78 (764.37, 1220.30)	965.00 (763.65, 1218.88)	-0.08 (-0.14, -0.02)	4306.84 (3413.65, 5479.71)	4302.58 (3410.29, 5473.63)	-0.10 (-0.18, 0.02)	426.01 (279.88, 613.84)	427.53 (280.32, 613.71)	0.36 (-0.40, 1.08)
Italy	774.85 (612.82, 975.97)	773.46 (611.97, 973.96)	-0.18 (-0.26, -0.11)	3861.70 (3087.74, 4893.29)	3848.98 (3080.42, 4874.44)	-0.33 (-0.47, -0.21)	383.70 (253.57, 545.79)	384.17 (254.24, 546.39)	0.12 (-0.60, 0.85)
Japan	443.92 (348.96, 564.14)	442.76 (348.05, 562.75)	-0.26 (-0.40, -0.17)	1962.85 (1550.85, 2486.90)	1954.59 (1544.42, 2477.85)	-0.42 (-0.62, -0.26)	195.82 (129.34, 286.66)	195.78 (129.81, 287.92)	-0.02 (-0.78, 0.65)
Mexico	376.96 (296.66, 479.95)	377.28 (296.90, 480.24)	0.08 (0.03, 0.14)	1594.04 (1257.94, 2056.60)	1595.89 (1258.92, 2058.85)	0.12 (0.04, 0.20)	157.47 (104.76, 227.83)	157.83 (104.51, 229.16)	0.23 (-0.63, 1.09)
Norway	658.78 (523.61, 833.31)	576.71 (453.67, 723.40)	-12.46 (-15.79, -8.30)	3238.82 (2571.94, 4127.02)	2659.99 (2099.64, 3366.72)	-17.87 (-23.67, -11.22)	321.32 (212.51, 465.85)	265.20 (174.84, 380.08)	-17.47 (-23.22, -10.99)
Republic of Korea	358.31 (280.32, 460.26)	356.64 (279.43, 458.59)	-0.47 (-0.66, -0.29)	1735.86 (1372.76, 2219.94)	1719.45 (1361.87, 2196.17)	-0.95 (-1.26, -0.59)	172.29 (113.62, 247.81)	171.97 (112.56, 247.48)	-0.19 (-3.33, 3.02)
Russian Federation	394.24 (308.15, 496.01)	393.79 (307.75, 495.45)	-0.11 (-0.25, -0.01)	1668.46 (1338.79, 2108.28)	1665.48 (1335.94, 2103.82)	-0.18 (-0.36, -0.03)	164.23 (108.73, 237.34)	164.90 (109.57, 238.37)	0.41 (-0.45, 1.26)
Saudi Arabia	578.70 (454.97, 738.43)	580.19 (455.89, 741.83)	0.26 (-0.06, 0.47)	2724.05 (2144.74, 3458.40)	2727.84 (2143.30, 3464.93)	0.14 (-0.18, 0.41)	269.06 (178.15, 389.13)	268.59 (178.87, 389.36)	-0.18 (-2.70, 2.42)
South Africa	323.08 (255.49, 410.96)	322.82 (255.27, 410.36)	-0.08 (-0.16, -0.01)	1365.66 (1077.68, 1758.11)	1364.89 (1077.41, 1757.51)	-0.06 (-0.13, 0.01)	134.50 (87.92, 190.86)	133.57 (88.16, 190.57)	-0.70 (-2.29, 0.84)
South Sudan	265.62 (207.36, 337.32)	268.04 (208.44, 340.66)	0.91 (0.58, 1.28)	1134.38 (894.88, 1447.83)	1145.76 (904.76, 1466.07)	1.00 (0.51, 1.51)	110.97 (73.41, 159.46)	112.12 (73.89, 160.59)	1.04 (-3.08, 5.17)
Sweden	760.63 (600.75, 956.11)	757.55 (598.39, 952.07)	-0.41 (-0.81, -0.02)	4330.89 (3464.19, 5479.89)	4344.75 (3470.51, 5510.23)	0.32 (-0.14, 0.91)	433.01 (291.64, 624.78)	434.57 (291.85, 628.07)	0.36 (-1.51, 2.14)
Turkey	601.94 (472.88, 772.22)	601.48 (472.59, 771.66)	-0.08 (-0.14, -0.03)	2875.69 (2253.21, 3640.54)	2875.01 (2252.61, 3640.76)	-0.02 (-0.09, 0.04)	284.85 (187.91, 413.80)	284.83 (188.62, 414.82)	-0.01 (-2.43, 2.48)

United Kingdom	827.15 (657.72, 1033.59)	851.18 (675.90, 1073.50)	2.90 (-1.36, 6.98)	4485.59 (3587.67, 5642.01)	4501.34 (3591.70, 5675.23)	0.35 (-4.98, 6.48)	443.77 (298.35, 641.82)	446.79 (301.97, 636.94)	0.68 (-4.84, 6.70)
United States of America	841.68 (667.47, 1068.84)	957.71 (771.71, 1170.78)	13.79 (7.68, 19.71)	4325.43 (3473.66, 5461.38)	5123.29 (4268.35, 6170.35)	18.45 (10.01, 27.57)	422.49 (279.70, 604.57)	500.26 (338.92, 704.86)	18.41 (9.89, 27.58)

Supplementary table 2. The percent of age-standardized years lived with disability (YLDs) caused by neck pain in all diseases by provinces/regions (1990 and 2019).

	1990				2019			
	Mean (%)	LUI (%)	UII (%)	Rank	Mean (%)	LUI (%)	UII (%)	Rank
China	3.71	2.87	4.81	5	4.00	3.10	5.21	5
Anhui	3.67	2.86	4.81	6	4.13	3.19	5.38	5
Beijing	3.73	2.88	4.86	6	3.92	3.02	5.09	5
Chongqing	3.65	2.83	4.75	6	3.94	3.04	5.11	5
Fujian	3.77	2.91	4.87	5	4.12	3.20	5.37	5
Gansu	3.57	2.76	4.63	6	3.90	3.01	5.04	6
Guangdong	3.70	2.85	4.83	5	3.90	3.02	5.05	6
Guangxi	3.68	2.85	4.82	5	4.05	3.13	5.29	5
Guizhou	3.47	2.68	4.53	6	3.87	2.99	5.03	5
Hainan	3.62	2.80	4.71	7	3.94	3.06	5.12	6
Hebei	3.84	2.97	4.99	5	3.99	3.09	5.20	6
Heilongjiang	3.62	2.78	4.74	7	3.92	3.02	5.20	7
Henan	3.80	2.93	4.95	5	4.08	3.15	5.31	6
Hong Kong Special Administrative Region of China	3.82	2.98	4.93	5	4.13	3.15	5.31	6
Hubei	3.69	2.82	4.79	6	4.05	3.14	5.23	5
Hunan	3.58	2.77	4.65	6	3.96	3.06	5.16	6
Inner Mongolia	3.72	2.89	4.87	5	3.98	3.06	5.15	6
Jiangsu	3.71	2.86	4.81	7	4.02	3.10	5.21	5
Jiangxi	3.64	2.81	4.73	5	4.09	3.15	5.33	5
Jilin	3.79	2.93	4.96	6	4.13	3.18	5.39	7

Liaoning	3.84	2.98	4.99	6	4.04	3.12	5.28	7
Macao Special Administrative Region of China	3.93	3.04	5.15	5	4.16	3.22	5.42	6
Ningxia	3.81	2.94	4.92	6	4.00	3.09	5.21	6
Qinghai	3.86	2.99	5.02	5	4.06	3.16	5.30	5
Shaanxi	3.86	2.98	4.99	5	4.19	3.24	5.45	5
Shandong	3.87	2.99	5.01	7	4.12	3.19	5.35	6
Shanghai	3.62	2.79	4.73	6	3.92	3.02	5.13	5
Shanxi	3.72	2.88	4.85	6	4.09	3.16	5.33	6
Sichuan	3.65	2.83	4.74	7	3.86	2.98	5.03	5
Tianjin	3.89	3.00	5.06	5	4.08	3.13	5.31	7
Tibet	3.55	2.70	4.61	7	3.89	2.98	5.04	6
Xinjiang	3.67	2.82	4.76	5	3.95	3.06	5.13	6
Yunnan	3.56	2.74	4.63	6	3.88	3.00	5.07	5
Zhejiang	3.63	2.78	4.72	8	3.96	3.05	5.14	5