

Supplementary materials

Table S1 Data source^{a-c} for the age-standardised incidence rates of GC

Country	Incidence	Registries
Austria	CI5 X–XII (2003–2017)	3
Australia	CI5 X–XII (2003–2017)	9
Canada	CI5 X–XII (2003–2017)	10
China	CI5 X–XII (2003–2017)	10
Colombia	CI5 X–XII (2003–2017)	4
Denmark	CI5 X–XII (2003–2017)	1
France	CI5 X–XII (2003–2017)	12
Germany	CI5 X–XII (2003–2017)	9
India	CI5 X–XII (2003–2017)	9
Iceland	CI5 X–XII (2003–2017)	1
Ireland	CI5 X–XII (2003–2017)	2
Italy	CI5 X–XII (2003–2017)	18
Japan	CI5 X–XII (2003–2017)	4
Korea, Republic of	CI5 X–XII (2003–2017)	9
The Netherlands	CI5 X–XII (2003–2017)	1
New Zealand	CI5 X–XII (2003–2017)	3
Norway	CI5 X–XII (2003–2017)	1
Spain	CI5 X–XII (2003–2017)	9
Switzerland	CI5 X–XII (2003–2017)	6
South Africa	CI5 X–XII (2003–2017)	1
Türkey	CI5 X–XII (2003–2017)	4
Uganda	CI5 X–XII (2003–2017)	1
United Kingdom	CI5 X–XII (2003–2017)	4
United States of America	CI5 X–XII (2003–2017)	151

CI5, Cancer Incidence in Five Continents V.

^aForman D, Bray F, Brewster DH, Gombe Mbalawa C, Kohler B, Piñeros M, Steliarova-Foucher E, Swaminathan R and Ferlay J, editors (2014), **Cancer Incidence in Five Continents, Vol. X**, IARC Scientific Publication No. 164. Lyon: International Agency for Research on Cancer.

^bBray F, Colombet M, Mery L, Piñeros M, Znaor A, Zanetti R and Ferlay J, editors (2017), Cancer Incidence in Five Continents, Vol. XI (electronic version). Lyon: International Agency for Research on Cancer. Available from: <https://ci5.iarc.who.int>, accessed [7th, Feb, 2024].

^cBray F, Colombet M, Aitken JF, Bardot A, Eser S, Galceran J, Hagenimana M, Matsuda T, Mery L, Piñeros M, Soerjomataram I, de Vries E, Wiggins C, Won Y-J, Znaor A, and Ferlay J, editors (2023), Cancer Incidence in Five Continents, Vol. XII (IARC CancerBase No. 19). Lyon: International Agency for Research on Cancer. Available from: <https://ci5.iarc.who.int>, accessed [7th, Feb, 2024].

Table S2 Confidence interval of GC by gender and years

Country	Male			Female		
	2003–2007	2008–2012	2013–2017	2003–2007	2008–2012	2013–2017
Austria	11.03–12.47	9.55–10.67	8.12–10.25	5.61–6.85	4.37–5.60	4.47–5.14
Australia	5.25–7.64	6.60–8.35	5.76–7.04	2.95–4.10	2.58–3.46	2.38–3.65
Canada	6.89–8.94	5.92–8.54	5.14–7.47	3.13–4.45	2.42–4.07	2.53–3.31
China	18.41–66.92	14.67–70.51	12.42–56.23	8.35–32.10	6.26–30.86	5.47–25.58
Colombia	20.42–29.60	16.23–24.07	19.38–23.15	9.21–14.86	8.90–11.37	9.63–11.12
Denmark	7.46–7.46	6.95–6.95	7.07–7.07	3.45–3.45	3.02–3.02	3.31–3.31
France	7.77–10.24	7.06–8.85	6.46–8.64	2.69–4.13	2.80–4.25	2.70–3.78
Germany	11.54–13.90	10.19–11.08	9.69–10.36	6.19–7.14	5.43–5.85	5.02–5.29
India	1.46–18.27	1.22–16.68	1.75–14.18	0.55–9.08	0.80–7.70	1.08–7.08
Iceland	9.18–9.18	5.90–5.90	5.09–5.09	5.01–5.01	4.29–4.29	3.38–3.38
Ireland	9.89–10.57	8.48–10.76	7.62–9.96	4.73–5.02	4.02–5.08	3.63–4.82
Italy	12.13–15.69	10.95–13.46	8.93–11.13	6.09–7.77	5.57–6.79	4.94–6.16
Japan	47.62–69.71	50.36–62.68	48.38–61.28	17.95–24.73	18.29–22.35	18.13–21.91
Korea, Republic of	59.58–66.94	58.06–65.53	47.25–52.88	24.02–27.05	22.79–26.67	20.08–22.38
The Netherlands	9.31–9.31	8.24–8.24	6.55–6.55	4.13–4.13	4.02–4.02	3.39–3.39
New Zealand	8.93–20.23	8.20–22.25	7.48–15.26	4.93–13.55	4.52–12.70	3.83–11.68
Norway	7.74–7.74	6.57–6.57	6.09–6.09	4.18–4.18	3.40–3.40	3.04–3.04
Spain	10.38–13.43	9.99–12.50	8.45–10.90	4.60–5.62	4.52–5.62	4.47–5.29
Switzerland	7.02–9.63	7.24–8.33	7.04–8.40	3.66–4.93	3.33–4.69	3.27–4.22
South Africa	0.91–0.91	1.29–1.29	0.58–0.58	0.48–0.48	0.73–0.73	0.79–0.79
Türkey	10.44–18.59	10.43–22.31	10.14–17.93	4.30–9.92	5.76–9.08	4.99–7.02
Uganda	7.15–7.15	5.73–5.73	5.00–5.00	5.42–5.42	2.85–2.85	3.93–3.93
United Kingdom	9.30–10.62	7.86–9.01	6.48–8.07	3.91–4.82	3.31–4.15	2.86–3.64
United States of America	6.72–7.85	6.20–7.00	5.95–6.61	3.29–3.85	3.17–3.66	3.12–3.51

Table S3 Confidence interval (< 50 years of age) of GC by gender and years

Country	Male			Female		
	2003–2007	2008–2012	2013–2017	2003–2007	2008–2012	2013–2017
Austria	0.84–1.20	0.81–1.03	0.84–0.96	0.62–0.91	0.69–0.86	0.72–0.98
Australia	0.31–0.70	0.70–0.97	0.47–1.02	0.29–0.58	0.47–0.57	0.34–0.67
Canada	0.48–0.78	0.63–1.15	0.47–0.77	0.46–1.12	0.45–1.11	0.20–0.59
China	2.10–5.96	1.39–5.53	0.80–5.45	1.71–3.80	1.08–4.59	1.16–3.58
Colombia	2.59–3.17	2.45–3.02	2.71–3.12	1.39–2.05	2.07–2.50	2.02–2.57
Denmark	0.85–0.85	0.65–0.65	0.71–0.71	0.56–0.56	0.49–0.49	0.58–0.58
France	0.78–1.07	0.70–1.02	0.73–1.07	0.42–0.69	0.40–0.59	0.49–0.73
Germany	1.18–1.48	1.02–1.18	1.01–1.25	0.92–1.10	0.77–0.88	0.83–0.99
India	0.35–2.90	0.45–2.38	0.51–1.77	0.41–1.42	0.41–1.31	0.42–1.23
Iceland	0.66–0.66	0.53–0.53	0.55–0.55	0.73–0.73	0.45–0.45	0.34–0.34
Ireland	0.61–1.01	0.48–1.02	0.78–1.00	0.48–0.64	0.62–0.72	0.48–0.70
Italy	1.00–1.41	1.02–1.31	0.83–1.04	0.85–1.21	0.78–0.99	0.67–0.94
Japan	3.90–6.55	3.16–4.12	2.80–3.51	2.89–4.05	2.52–3.10	2.42–2.94
Korea, Republic of	7.74–9.01	7.35–8.38	5.94–6.78	5.78–6.67	5.50–6.68	5.12–5.80
The Netherlands	0.84–0.84	0.77–0.77	0.68–0.68	0.59–0.59	0.69–0.69	0.57–0.57
New Zealand	1.15–2.88	1.35–3.40	1.05–2.48	0.92–3.42	1.01–2.88	0.90–1.99
Norway	0.55–0.55	0.67–0.67	0.51–0.51	0.58–0.58	0.39–0.39	0.52–0.52
Spain	1.06–1.42	0.93–1.37	0.77–0.96	0.79–1.06	0.63–0.91	0.71–0.90
Switzerland	0.70–1.12	0.83–1.21	0.62–1.09	0.62–1.15	0.52–0.98	0.60–1.04
South Africa	0.08–0.08	0.48–0.48	0.00–0.00	0.05–0.05	0.23–0.23	0.07–0.07
Türkey	1.58–3.05	1.24–2.66	1.46–2.68	0.93–2.79	1.01–1.89	1.31–1.46
Uganda	0.85–0.85	0.87–0.87	0.72–0.72	1.13–1.13	0.34–0.34	0.49–0.49
United Kingdom	0.63–0.76	0.59–0.71	0.55–0.75	0.44–0.54	0.43–0.64	0.38–0.48
United States of America	0.78–0.89	0.76–0.85	0.77–0.86	0.55–0.67	0.57–0.66	0.62–0.72

Table S4 Confidence interval (≥ 50 years of age) of GC by gender and years

Country	Male			Female		
	2003–2007	2008–2012	2013–2017	2003–2007	2008–12	2013–17
Austria	9.84–11.61	8.66–9.73	7.17–9.40	4.95–5.98	3.51–4.91	3.74–4.16
Australia	4.90–6.97	5.73–7.56	5.22–6.10	2.61–3.57	2.05–2.95	2.00–3.02
Canada	6.23–8.32	5.21–7.46	4.63–6.75	2.53–3.48	1.66–3.26	2.27–2.78
China	16.16–61.11	13.12–65.14	11.52–50.87	6.35–28.59	4.94–26.52	4.24–22.08
Colombia	17.65–26.61	13.74–21.09	16.50–20.21	7.64–13.00	6.44–9.26	7.49–8.67
Denmark	6.60–6.60	6.30–6.30	6.37–6.37	2.89–2.89	2.53–2.53	2.73–2.73
France	6.91–9.25	6.31–7.88	5.66–7.65	2.20–3.50	2.36–3.69	2.18–3.08
Germany	10.34–12.44	9.14–9.92	8.57–9.21	5.21–6.10	4.61–5.02	4.08–4.40
India	1.10–15.38	0.76–14.32	1.22–12.43	0.10–7.70	0.37–6.41	0.63–5.87
Iceland	8.52–8.52	5.37–5.37	4.55–4.55	4.27–4.27	3.83–3.83	3.04–3.04
Ireland	9.28–9.57	8.01–9.74	6.83–8.96	4.25–4.38	3.30–4.46	3.14–4.12
Italy	11.06–14.35	9.89–12.19	8.05–10.14	5.15–6.65	4.76–5.83	4.22–5.27
Japan	43.70–63.17	47.11–58.66	45.57–57.79	15.06–20.69	15.76–19.26	15.66–19.01
Korea, Republic of	51.82–57.96	50.67–57.19	40.95–46.45	18.06–20.56	17.27–20.02	14.86–16.68
The Netherlands	8.46–8.46	7.47–7.47	5.87–5.87	3.54–3.54	3.32–3.32	2.82–2.82
New Zealand	7.73–17.40	6.82–18.88	6.43–12.78	3.82–10.32	3.48–9.86	2.82–9.80
Norway	7.19–7.19	5.89–5.89	5.58–5.58	3.61–3.61	3.01–3.01	2.52–2.52
Spain	9.25–12.08	8.92–11.27	7.60–10.02	3.74–4.63	3.79–4.80	3.70–4.45
Switzerland	6.09–8.74	6.16–7.36	6.06–7.66	2.58–4.24	2.75–3.77	2.53–3.32
South Africa	0.83–0.83	0.80–0.80	0.58–0.58	0.43–0.43	0.50–0.50	0.71–0.71
Türkeu	8.86–15.54	9.15–19.68	8.66–15.26	3.34–7.16	4.70–7.25	3.65–5.59
Uganda	6.30–6.30	4.86–4.86	4.28–4.28	4.29–4.29	2.51–2.51	3.44–3.44
United Kingdom	8.65–9.87	7.21–8.36	5.89–7.35	3.46–4.29	2.86–3.52	2.46–3.17
United States of America	5.93–6.97	5.43–6.16	5.16–5.77	2.73–3.20	2.59–3.01	2.49–2.80

Table S5 New cases and deaths, age-standardised incidence and mortality rates per 100,000 persons with GC in 2022 by world region

Region	Incidence				Mortality			
	Number of cases	% of all cases	ASR	M/F	Number of cases	% of all cases	ASR	M/F
North America	10,253	1.06	4.13	1.66	8,996	1.36	1.70	1.75
East Asia	7,752	0.80	16.05	2.38	6,933	1.05	9.21	2.55
East Africa	3,470	0.36	4.35	1.22	3,056	0.46	3.86	1.23
Mid-Africa	2,020	0.21	3.82	1.13	1,710	0.26	3.40	1.12
North Africa	9,857	1.02	4.32	1.40	8,035	1.22	3.52	1.42
South Africa	4,180	0.43	3.41	2.08	3,203	0.49	2.96	1.75
West Africa	14,886	1.54	3.67	1.19	11,662	1.77	3.34	1.19
Caribbean	55,313	5.71	6.40	1.90	43,030	6.52	4.80	1.86
Central America	29,675	3.06	7.33	1.39	13,367	2.02	5.70	1.38
Southeast Asia	520,975	53.78	5.03	1.86	317,919	48.16	4.10	1.93
South Central Asia	22,224	2.29	5.55	1.93	18,034	2.73	4.81	2.01
West Asia	38,798	4.00	8.29	1.90	31,712	4.80	6.71	2.14
East Europe	109,794	11.33	11.13	2.11	94,941	14.38	7.81	2.20
North Europe	66,400	6.85	4.34	1.96	48,548	7.35	2.75	1.91
South Europe	27,339	2.82	7.22	1.89	17,042	2.58	4.73	2.02
West Europe	30,847	3.18	5.58	2.13	22,224	3.37	3.10	2.15
Australia-New Zealand	11,024	1.14	5.24	1.85	7,617	1.15	2.36	1.96
Melanesia	3,334	0.34	7.17	1.62	1,639	0.25	5.77	1.56
South America	540	0.06	9.10	2.09	428	0.06	6.99	2.11
Micronesia	40	0.00	6.47	1.47	28	0.00	4.60	1.34
Polynesia	63	0.01	8.02	1.47	51	0.01	6.46	1.43

ASR, age-standardised rate per 100,000; M:F, male:female ASR ratio.

Table S6 Age-standardised incidence and mortality rates per 100,000 persons with GC in 2022 by countries and HDI rank

HDI Rank	ASIR	ASMR	HDI
Low human development			
Somalia	4.97	4.69	0.380
South Sudan	4.01	3.67	0.381
Central African Republic	3.51	3.20	0.387
Chad	3.00	2.74	0.394
Niger	3.14	3.01	0.394
Mali	14.30	13.47	0.410
Burundi	5.34	4.88	0.420
Yemen	5.89	5.24	0.424
Burkina Faso	3.90	3.69	0.438
Sierra Leone	2.57	2.34	0.458
Mozambique	0.81	0.76	0.461
Afghanistan	11.04	10.00	0.462
Guinea	4.69	4.27	0.471
Congo, Democratic People Republic of	3.85	3.44	0.481
Guinea-Bissau	5.37	4.80	0.483
Liberia	4.54	4.13	0.487
Madagascar	4.41	4.02	0.487
Ethiopia	3.34	3.08	0.492
Eritrea	3.02	2.94	0.493
The Republic of the Gambia	2.83	2.43	0.495
Benin	5.92	5.12	0.504
Malawi	3.17	2.91	0.508
Djibouti	2.88	2.88	0.515
Sudan	2.38	2.07	0.516
Senegal	7.24	6.44	0.517
Lesotho	1.71	1.45	0.521
Tanzania, United Republic of	4.19	3.65	0.532
Côte d'Ivoire	4.77	4.33	0.534
Pakistan	3.51	3.05	0.540
Mauritania	5.22	4.81	0.540
Togo	5.42	4.96	0.547
Rwanda	8.19	7.36	0.548
Nigeria	1.82	1.61	0.548
Uganda	3.26	2.85	0.550

Table S6 Continued

HDI Rank	ASIR	ASMR	HDI
Zimbabwe	10.33	9.08	0.550
Haiti	9.86	8.46	0.552
Syrian Arab Republic	4.81	4.32	0.557
Solomon Islands	2.44	2.15	0.562
Timor-Leste	3.20	2.78	0.566
Papua New Guinea	8.10	6.64	0.568
Zambia	3.89	3.39	0.569
Comoros	2.10	2.10	0.586
Cameroon	3.45	2.97	0.587
Angola	4.53	3.96	0.591
Congo, Republic of	3.39	3.12	0.593
Cambodia	4.08	3.52	0.600
Kenya	7.16	6.20	0.601
Nepal	6.54	5.97	0.601
Ghana	4.81	4.30	0.602
Myanmar	11.77	10.21	0.608
Eswatini	1.33	1.33	0.610
Namibia	2.47	2.20	0.610
Sao Tome and Principe	11.14	11.14	0.613
Vanuatu	3.50	3.50	0.614
Lao People's Democratic Republic	11.34	9.65	0.620
Honduras	8.63	8.04	0.624
Guatemala	12.18	10.67	0.629
Medium human development			
India	4.53	4.06	0.644
Equatorial Guinea	2.67	2.42	0.650
Cape Verde	5.09	4.44	0.661
Nicaragua	9.08	7.84	0.669
Bangladesh	5.45	4.84	0.670
Iraq	5.02	4.25	0.673
El Salvador	8.24	7.03	0.674
Tajikistan	19.43	16.73	0.679
Bhutan	15.87	14.20	0.681
Suriname	4.57	3.54	0.690
Gabon	2.42	2.23	0.693
Morocco	5.45	4.79	0.698

Table S6 Continued

HDI Rank	ASIR	ASMR	HDI
Bolivia	8.74	6.73	0.698
Venezuela	7.52	5.80	0.699
Belize	4.81	4.27	0.700
Kyrgyzstan	16.46	14.00	0.701
Samoa	11.70	10.34	0.702
Jamaica	6.89	5.82	0.706
Botswana	1.29	1.08	0.708
Philippines	4.17	3.46	0.710
Indonesia	1.34	1.13	0.713
Gaza Strip and West Bank	4.97	3.95	0.716
South Africa	3.58	3.12	0.717
Lebanon	3.10	2.75	0.723
Saint Lucia	8.64	5.90	0.725
Viet Nam	13.40	10.88	0.726
Uzbekistan	10.15	7.78	0.727
Egypt	3.64	2.74	0.728
Fiji	4.14	2.97	0.729
Paraguay	6.35	4.82	0.731
Tunisia	3.51	2.98	0.732
Ukraine	9.48	6.93	0.734
Jordan	5.33	4.55	0.736
Mongolia	35.49	31.54	0.741
Guyana	4.47	3.05	0.742
Turkmenistan	12.07	9.70	0.744
Algeria	6.13	4.93	0.745
Libya	3.82	3.50	0.746
Colombia	12.90	9.87	0.758
Brazil	7.55	5.87	0.760
Azerbaijan	16.56	12.83	0.760
Maldives	0.67	0.67	0.762
Peru	14.31	10.59	0.762
Moldova	9.57	7.78	0.763
High human development			
Cuba	5.64	3.69	0.764
Ecuador	12.75	10.15	0.765
North Macedonia	9.49	7.22	0.765

Table S6 Continued

HDI Rank	ASIR	ASMR	HDI
Dominican Republic	6.20	4.68	0.766
Bosnia Herzegovina	9.61	7.28	0.779
Iran, Islamic Republic of	19.37	15.41	0.780
Sri Lanka	2.55	1.93	0.780
Mexico	6.29	4.74	0.781
Armenia	12.10	9.12	0.786
China	13.72	9.39	0.788
Albania	12.63	9.89	0.789
Mauritius	5.72	4.07	0.796
Bulgaria	9.01	6.06	0.799
Belarus	15.28	11.34	0.801
Kazakhstan	13.71	9.27	0.802
Thailand	3.31	2.38	0.803
Serbia	7.06	5.13	0.805
Costa Rica	13.97	9.53	0.806
Malaysia	4.13	3.28	0.807
Barbados	5.00	3.73	0.809
Trinidad and Tobago	3.97	2.98	0.814
Georgia	9.71	7.21	0.814
Oman	8.20	7.16	0.819
Bahamas	7.74	6.46	0.820
Panama	8.75	6.55	0.820
Russian Federation	13.66	9.21	0.821
Brunei Darussalam	10.35	8.14	0.823
Romania	8.89	7.10	0.827
Uruguay	9.22	6.10	0.830
Montenegro	3.94	3.25	0.844
Kuwait	2.49	2.27	0.847
Argentina	6.68	4.98	0.849
Hungary	7.51	5.43	0.851
Türkey	11.67	9.28	0.855
Slovakia	6.60	5.09	0.855
Chile	14.18	11.06	0.860
Portugal	12.80	7.99	0.874
Qatar	3.51	3.06	0.875
Saudi Arabia	2.70	2.18	0.875

Table S6 Continued

HDI Rank	ASIR	ASMR	HDI
Croatia	9.38	5.77	0.878
Latvia	12.11	8.27	0.879
Lithuania	11.66	8.84	0.879
Poland	8.13	6.03	0.881
Bahrain	3.34	2.86	0.888
Greece	6.28	3.80	0.893
Czechia	4.81	3.37	0.895
Estonia	13.09	8.78	0.899
Very high human development			
Italy	6.82	4.48	0.906
Cyprus	6.07	4.53	0.907
France (metropolitan)	4.87	2.87	0.910
French Polynesia	6.75	4.93	0.910
New Caledonia	8.43	6.11	0.910
France, La Réunion	9.83	6.34	0.910
France, Martinique	10.77	7.65	0.910
France, Guadeloupe	12.28	8.90	0.910
French Guyana	8.59	6.32	0.910
Spain	5.96	3.77	0.911
Israel	5.84	3.49	0.915
Malta	5.44	3.64	0.915
Japan	27.60	7.24	0.920
Austria	5.43	2.98	0.926
Slovenia	8.44	5.01	0.926
United States of America	4.07	1.62	0.927
Puerto Rico	2.78	2.44	0.927
Guam	6.12	4.13	0.927
Luxembourg	4.63	2.55	0.927
Korea, Republic of	26.98	6.53	0.929
Canada	4.65	2.36	0.935
United Arab Emirates	3.85	3.35	0.937
New Zealand	5.00	2.87	0.939
United Kingdom	3.61	2.31	0.940
Belgium	5.36	2.25	0.942
Finland	3.99	2.46	0.942

Table S6 Continued

HDI Rank	ASIR	ASMR	HDI
The Netherlands	4.33	2.44	0.946
Australia	5.29	2.26	0.946
Singapore	7.98	5.50	0.949
Germany	6.43	3.55	0.950
Ireland	5.30	3.06	0.950
Sweden	3.64	2.04	0.952
Denmark	5.34	3.28	0.952
Iceland	3.29	1.73	0.959
Norway	4.22	2.34	0.966
Switzerland	5.09	2.77	0.967
Country without HDI record			
Korea, Democratic People Republic of	13.91	11.41	-
Human development groups			
Low HDI	0.517	-	-
Medium HDI	0.640	-	-
High HDI	0.764	-	-
Very high HDI	0.902	-	-

ASIR, age-standardised incidence rate per 100,000 people; ASMR, age-standardised mortality rate per 100,000 people; HDI, Human Development Index. Spearman Result between ASIR and HDI (correlation = 0.265, $P = 0.0002706658148056204$, $P < 0.001$); Spearman Result between ASMR and HDI (correlation = 0.012, $P = 0.8702329088914409$).

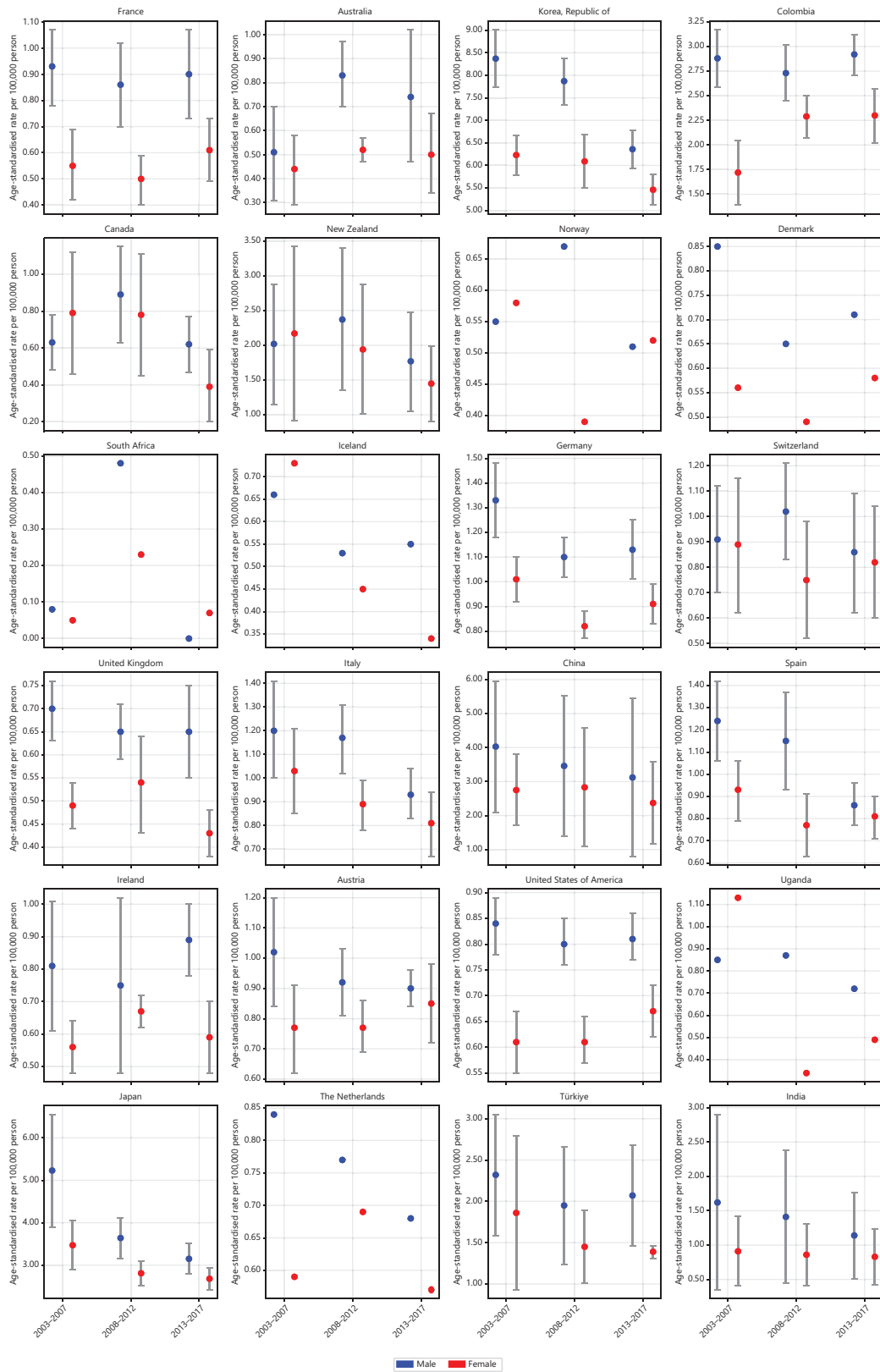


Figure S1 Age-standardised incidence rates per 100,000 person and confidence interval (< 50 years of age) of GC by gender and years.