

The Burden of Cancers and Their Attributable Risk Factors Among Iranian Adults Aged 70 and Above, 1990-2019

Maryam Noori¹, Seyed Ehsan Mousavi², Kimia Motlagh Asghari³, Seyed Aria Nejadghaderi^{4,5}, Mark J M Sullman^{6,7}, Ali-Asghar Kolahi^{8*}

¹Student Research Committee, School of Medicine, Iran University of Medical Sciences, Tehran, Iran

²Hematology and Oncology Research Center, Tabriz University of Medical Sciences, Tabriz, Iran

³Research Center for Integrative Medicine in Aging, Aging Research Institute, Tabriz University of Medical Sciences, Tabriz, Iran

⁴School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran

⁵Systematic Review and Meta-Analysis Expert Group (SRMEG), Universal Scientific Education and Research Network (USERN), Tehran, Iran

⁶Department of Life and Health Sciences, University of Nicosia, Nicosia, Cyprus

⁷Department of Social Sciences, University of Nicosia, Nicosia, Cyprus

⁸Social Determinants of Health Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Table S1: Lay description and disability weights

Health state	Lay description	Estimate	Uncertainty interval	
Cancer, diagnosis and primary therapy (cancer_diagnosis)	This person has pain, nausea, fatigue, weight loss and high anxiety.	0.288	0.193	0.399
Cancer, controlled phase (generic_medication)	This person has a chronic disease that requires medication every day and causes some worry but minimal interference with daily activities.	0.049	0.031	0.072
Cancer, metastatic (cancer_metastatic)	This person has severe pain, extreme fatigue, weight loss and high anxiety.	0.451	0.307	0.600
Terminal phase, with medication (cancer_terminal_treat)	This person has lost a lot of weight and regularly uses strong medication to avoid constant pain. The person has no appetite, feels nauseous, and needs to spend most of the day in bed.	0.540	0.377	0.687
Mastectomy (cancer_mastectomy)	This person had one of her breasts removed and sometimes has pain or swelling in the arms.	0.036	0.020	0.057
Stoma (cancer_stoma)	This person has a pouch attached to an opening in the belly to collect and empty stools.	0.095	0.063	0.131
Laryngectomy (speech_problems)	This person has difficulty speaking, and others find it difficult to understand.	0.051	0.032	0.078
Urinary incontinence (incontinence)	This person cannot control urinating.	0.139	0.094	0.198

Impotence (impotence)	This person has difficulty in obtaining or maintaining an erection.	0.017	0.009	0.030
-----------------------	---	-------	-------	-------

Table S2: Incidence of cancers among adults 70 years and older in 1990 and 2019 for both sexes and percentage change in rates per 100,000 in Iran
 (Generated from data available from <http://ghdx.healthdata.org/gbd-results-tool>)

	1990		2019		Percentage change in rate per 100,000
	No (95% UI)	Rate per 100,000 (95% UI)	No (95% UI)	Rate per 100,000 (95% UI)	
Iran	110366 (75281 , 154219)	11487 (7835.4 , 16051.3)	381413 (270466 , 525698)	10985.6 (7790.1 , 15141.4)	-4.4 (-13.2 , 7.4)
Alborz	2215 (1542 , 3063)	11295 (7862.2 , 15620.5)	12412 (8831 , 17164)	11465.1 (8157.1 , 15853.9)	1.5 (-5.4 , 10.2)
Ardebil	1883 (1313 , 2581)	11850.2 (8262 , 16245.5)	6341 (4563 , 8688)	11256.2 (8099.5 , 15422.7)	-5 (-13 , 5)
Bushehr	1005 (689 , 1405)	11334.9 (7763.6 , 15837)	4121 (2893 , 5709)	11163.8 (7838.5 , 15466.4)	-1.5 (-8.3 , 7.5)
Chahar Mahaal and Bakhtiari	1278 (875 , 1785)	11560.3 (7912 , 16145.7)	4006 (2857 , 5518)	10636.2 (7586.1 , 14648.7)	-8 (-17.9 , 4.5)
East Azarbayejan	6394 (4402 , 8831)	11928.4 (8211.5 , 16473.3)	21107 (15029 , 29103)	11417.4 (8129.3 , 15742.5)	-4.3 (-13.4 , 7.2)
Fars	6335 (4304 , 8871)	11303.3 (7678.8 , 15828)	21812 (15507 , 30073)	10920.5 (7763.9 , 15056.1)	-3.4 (-12 , 7.8)
Gilan	5043 (3408 , 7072)	11244.9 (7599 , 15768.8)	17108 (12200 , 23545)	10969 (7822.4 , 15096.3)	-2.5 (-13.1 , 11.9)
Golestan	2121 (1450 , 2961)	11543 (7890.6 , 16114.7)	6689 (4739 , 9274)	10894.2 (7717.8 , 15103.2)	-5.6 (-13.4 , 4.9)
Hamadan	3855 (2603 , 5388)	11758.2 (7939.4 , 16435.8)	10162 (7216 , 14015)	10760.3 (7640.7 , 14839.6)	-8.5 (-18.5 , 5.4)
Hormozgan	1775 (1210 , 2488)	11212.1 (7643.7 , 15716.1)	5309 (3755 , 7398)	10560.2 (7468.9 , 14716.8)	-5.8 (-13.3 , 4.2)
Ilam	673 (478 , 921)	11586.9 (8233.3 , 15853.8)	2094 (1486 , 2883)	11224.9 (7965.7 , 15453.6)	-3.1 (-10.5 , 5.2)
Isfahan	8298 (5575 , 11627)	11260.4 (7565.7 , 15778)	27766 (19745 , 38249)	11000.3 (7822.4 , 15153.5)	-2.3 (-12.4 , 11.2)
Kerman	3684 (2483 , 5199)	11565.6 (7794.9 , 16320.1)	11887 (8422 , 16380)	10733.6 (7605.4 , 14790.9)	-7.2 (-17.9 , 6.7)
Kermanshah	3195 (2190 , 4419)	11884.3 (8147.3 , 16437.7)	9376 (6701 , 12965)	10917.3 (7803.1 , 15096.5)	-8.1 (-16.3 , 2.4)
Khorasan-e-Razavi	9707 (6547 , 13595)	11905.3 (8029 , 16672.8)	29217 (20712 , 40200)	11054.2 (7836.5 , 15209.5)	-7.1 (-16.6 , 5.2)
Khuzestan	5979 (4111 , 8441)	10981.9 (7550.8 , 15505.8)	17218 (12144 , 23871)	10694.4 (7542.6 , 14826.2)	-2.6 (-9.4 , 6.1)

Kohgiluyeh and Boyer-Ahmad	518 (358 , 725)	11065.7 (7644.4 , 15474.2)	2379 (1697 , 3267)	11176.6 (7970.1 , 15347.1)	1 (-8.6 , 13.6)
Kurdistan	2468 (1725 , 3391)	12003.6 (8388.8 , 16493.7)	7556 (5405 , 10426)	11122.7 (7956.2 , 15347.3)	-7.3 (-14.3 , 1.3)
Lorestan	2653 (1840 , 3677)	11643.7 (8073.3 , 16135.8)	8099 (5812 , 11129)	11099.6 (7965.4 , 15252)	-4.7 (-12.7 , 5.8)
Markazi	2832 (1932 , 3952)	11623.5 (7928.6 , 16220.9)	8923 (6390 , 12238)	10644.6 (7622.8 , 14599.7)	-8.4 (-18.9 , 5)
Mazandaran	5149 (3515 , 7217)	11488.2 (7841.6 , 16102.8)	19390 (13826 , 26721)	11026.2 (7861.9 , 15195.3)	-4 (-13.3 , 8.7)
North Khorasan	1049 (709 , 1472)	11914.7 (8053.2 , 16713.1)	3920 (2792 , 5399)	11099.3 (7907 , 15287.8)	-6.8 (-16.3 , 6.3)
Qazvin	2009 (1361 , 2820)	11584.1 (7850 , 16263.8)	5975 (4230 , 8270)	10989.9 (7781.6 , 15212.9)	-5.1 (-14.7 , 7.8)
Qom	1370 (940 , 1919)	11512.5 (7899.6 , 16134.8)	5362 (3825 , 7364)	11233.6 (8013.2 , 15429.3)	-2.4 (-10.9 , 9.1)
Semnan	1339 (904 , 1872)	11541.4 (7786.6 , 16132.4)	3728 (2639 , 5137)	11028.7 (7807 , 15196.3)	-4.4 (-13.9 , 7.4)
Sistan and Baluchistan	2253 (1522 , 3166)	11801.9 (7973.1 , 16581.2)	6070 (4275 , 8406)	10675.9 (7519.4 , 14784.3)	-9.5 (-18.3 , 1.8)
South Khorasan	1641 (1114 , 2297)	11666.1 (7916.4 , 16328.2)	4338 (3080 , 5958)	10802 (7670.3 , 14836.8)	-7.4 (-17.1 , 5.6)
Tehran	16766 (11639 , 23292)	11108.3 (7711.6 , 15431.9)	74860 (53182 , 103758)	10934.4 (7768.1 , 15155.4)	-1.6 (-9.5 , 8.6)
West Azarbayejan	3605 (2491 , 4997)	12031.9 (8314.9 , 16675.9)	13342 (9567 , 18324)	11219.4 (8045 , 15409.3)	-6.8 (-15.3 , 3.9)
Yazd	1611 (1092 , 2281)	11139.5 (7551.1 , 15769.2)	5153 (3695 , 7045)	10995.4 (7884.4 , 15031.1)	-1.3 (-11.6 , 12.6)
Zanjan	1662 (1122 , 2317)	11637.3 (7856.3 , 16224.1)	5693 (4034 , 7855)	10830.4 (7674.5 , 14943.7)	-6.9 (-16.8 , 6.5)

Table S3: Deaths due to cancers among adults 70 years and older in 1990 and 2019 for both sexes and percentage change in rates per 100,000 in Iran
(Generated from data available from <http://ghdx.healthdata.org/gbd-results-tool>)

	1990		2019		Percentage change in rate per 100,000
	No (95% UI)	Rate per 100,000 (95% UI)	No (95% UI)	Rate per 100,000 (95% UI)	
Iran	7204 (6301 , 8024)	749.8 (655.8 , 835.1)	29623 (26811 , 32163)	853.2 (772.2 , 926.4)	13.8 (2.2 , 38)
Alborz	147 (115 , 177)	751 (585 , 902.1)	890 (768 , 1025)	821.9 (709.4 , 946.6)	9.4 (-12.9 , 47.1)
Ardebil	163 (130 , 197)	1026.6 (820.7 , 1241.8)	687 (594 , 771)	1219.2 (1054.8 , 1368.1)	18.8 (-1.5 , 53.2)
Bushehr	61 (49 , 74)	690.9 (557.5 , 837)	303 (269 , 341)	820.8 (728.8 , 922.8)	18.8 (-2 , 49.6)
Chahar Mahaal and Bakhtiari	83 (68 , 98)	746.9 (614.7 , 890.6)	288 (247 , 342)	765 (656 , 906.8)	2.4 (-17.6 , 31)
East Azarbayejan	511 (405 , 606)	952.6 (755.9 , 1129.7)	2241 (1923 , 2570)	1212.3 (1040.2 , 1390.2)	27.3 (2.4 , 68.2)
Fars	342 (277 , 408)	609.6 (494.8 , 728.5)	1486 (1270 , 1724)	744.1 (635.9 , 863.4)	22.1 (-3.5 , 59.6)
Gilan	323 (268 , 377)	719.9 (597.3 , 840.7)	1346 (1170 , 1530)	863 (750.4 , 981.3)	19.9 (-3.2 , 52.1)
Golestan	148 (121 , 174)	803.1 (660.1 , 945)	530 (472 , 592)	863.4 (769.1 , 964.4)	7.5 (-11.3 , 34.6)
Hamadan	215 (176 , 257)	655.8 (537.7 , 785)	739 (630 , 843)	782.1 (666.9 , 892.4)	19.3 (-4.7 , 53.8)
Hormozgan	82 (65 , 97)	515.6 (410.3 , 615.5)	278 (240 , 322)	552.2 (477 , 640.7)	7.1 (-11.8 , 43.9)
Ilam	52 (43 , 62)	896.3 (733.5 , 1073.6)	186 (160 , 210)	997.3 (858.4 , 1125.6)	11.3 (-8 , 38.4)
Isfahan	439 (346 , 532)	595.9 (469.3 , 721.7)	2080 (1771 , 2405)	824.1 (701.6 , 952.9)	38.3 (9.6 , 87.6)
Kerman	219 (179 , 258)	686.6 (561.1 , 810.8)	850 (739 , 957)	767.6 (667.5 , 864.5)	11.8 (-8.9 , 42.8)
Kermanshah	227 (187 , 265)	843.9 (696.3 , 986.1)	734 (634 , 846)	854.9 (737.9 , 985)	1.3 (-17.9 , 32)
Khorasan-e-Razavi	729 (614 , 847)	894.2 (752.8 , 1039.2)	2641 (2299 , 3010)	999.2 (869.7 , 1138.9)	11.7 (-7.8 , 46.1)
Khuzestan	318 (271 , 374)	583.9 (497.3 , 686.7)	1109 (976 , 1262)	689 (606.3 , 783.6)	18 (-2.9 , 47.3)

Kohgiluyeh and Boyer-Ahmad	33 (26 , 39)	694.5 (552 , 842.5)	178 (146 , 209)	834.3 (688 , 981.5)	20.1 (-7.2 , 58.5)
Kurdistan	227 (187 , 266)	1102.7 (909.1 , 1293.8)	673 (570 , 764)	990 (838.7 , 1124.3)	-10.2 (-25.9 , 12.1)
Lorestan	200 (164 , 238)	876.7 (721.4 , 1043.1)	703 (601 , 813)	964 (823.3 , 1114.7)	10 (-11.2 , 42)
Markazi	193 (158 , 228)	791.9 (650.3 , 935.8)	695 (590 , 798)	828.9 (703.9 , 951.9)	4.7 (-14.3 , 30.4)
Mazandaran	316 (255 , 379)	704.8 (568.5 , 844.9)	1542 (1322 , 1772)	877 (751.9 , 1007.8)	24.4 (0.3 , 60.1)
North Khorasan	76 (61 , 89)	862.5 (698 , 1011.9)	329 (288 , 369)	931.6 (815.8 , 1046.2)	8 (-11.5 , 38.6)
Qazvin	120 (98 , 147)	689.4 (565.9 , 848.4)	501 (427 , 570)	921.6 (786.2 , 1049.2)	33.7 (5.6 , 72.7)
Qom	103 (81 , 125)	865.6 (680.7 , 1054.9)	437 (375 , 499)	916.1 (784.6 , 1046.4)	5.8 (-14.8 , 41.2)
Semnan	90 (72 , 108)	771.9 (622.8 , 927.8)	306 (265 , 350)	905.4 (785 , 1035.2)	17.3 (-5.3 , 52.8)
Sistan and Baluchistan	113 (89 , 136)	593 (463.6 , 713.7)	388 (324 , 457)	683.2 (569.2 , 803.9)	15.2 (-8.8 , 50.8)
South Khorasan	107 (88 , 125)	762.9 (626 , 891.7)	350 (301 , 395)	872.1 (748.6 , 984)	14.3 (-6.4 , 43.2)
Tehran	1038 (820 , 1272)	687.7 (543.5 , 842.9)	4788 (3998 , 5535)	699.3 (584 , 808.5)	1.7 (-19.1 , 29.7)
West Azarbayejan	332 (274 , 387)	1108.1 (914.6 , 1292.8)	1460 (1268 , 1650)	1227.9 (1066.6 , 1387.7)	10.8 (-7.7 , 40.5)
Yazd	98 (79 , 121)	678.6 (548.1 , 837.8)	431 (363 , 502)	919.7 (774.1 , 1070.9)	35.5 (8.4 , 74.5)
Zanjan	103 (85 , 124)	717.9 (596 , 870.6)	453 (398 , 507)	862.2 (756.4 , 965.1)	20.1 (-3.3 , 48.7)

Table S4: DALYs due to cancers among adults 70 years and older in 1990 and 2019 for both sexes and percentage change in rates per 100,000 in Iran
(Generated from data available from <http://ghdx.healthdata.org/gbd-results-tool>)

	1990		2019		Percentage change in rate per 100,000
	No (95% UI)	Rate per 100,000 (95% UI)	No (95% UI)	Rate per 100,000 (95% UI)	
Iran	114337 (99924 , 126239)	11900.4 (10400.2 , 13139.1)	412899 (378249 , 445424)	11892.5 (10894.5 , 12829.3)	-0.1 (-9.6 , 21.8)
Alborz	2266 (1755 , 2717)	11556.9 (8949.3 , 13855)	13077 (11322 , 15067)	12079 (10458.3 , 13917.6)	4.5 (-17.2 , 41.7)
Ardebil	2530 (2016 , 3099)	15926 (12693.1 , 19505)	9715 (8424 , 10966)	17246.2 (14954.1 , 19465.9)	8.3 (-11 , 40.5)
Bushehr	968 (782 , 1170)	10913.4 (8814.1 , 13191.3)	4513 (4033 , 5088)	12226.1 (10925.8 , 13784.4)	12 (-7.5 , 43.5)
Chahar Mahaal and Bakhtiari	1313 (1078 , 1573)	11878.2 (9749.4 , 14225)	3873 (3342 , 4553)	10282.2 (8872.2 , 12087.9)	-13.4 (-30.7 , 12.1)
East Azarbayejan	7931 (6273 , 9519)	14795.5 (11701.2 , 17756.6)	31647 (27219 , 36355)	17118.4 (14723.3 , 19665.1)	15.7 (-7.5 , 53.7)
Fars	5464 (4396 , 6525)	9747.8 (7842.5 , 11642)	20347 (17513 , 23590)	10186.7 (8767.8 , 11810.3)	4.5 (-17.1 , 38.7)
Gilan	5309 (4382 , 6193)	11839 (9770.2 , 13808.8)	18959 (16595 , 21537)	12155.9 (10640.4 , 13809)	2.7 (-16.6 , 29.9)
Golestan	2378 (1938 , 2801)	12945.3 (10548.9 , 15246.7)	7655 (6856 , 8572)	12467.5 (11165.8 , 13959.8)	-3.7 (-20.3 , 23.1)
Hamadan	3538 (2894 , 4260)	10793.4 (8826.9 , 12995.2)	10233 (8786 , 11624)	10835.7 (9303 , 12308.4)	0.4 (-19.7 , 30.3)
Hormozgan	1308 (1022 , 1577)	8262.1 (6455.2 , 9961.9)	3882 (3393 , 4456)	7723.1 (6748.7 , 8864.6)	-6.5 (-23 , 26.1)
Ilam	772 (633 , 925)	13292.7 (10902.9 , 15911.6)	2542 (2192 , 2860)	13627.1 (11750.4 , 15330.6)	2.5 (-15 , 28.7)
Isfahan	6954 (5480 , 8494)	9437.1 (7437.1 , 11527)	28637 (24516 , 33165)	11345.4 (9712.7 , 13139.1)	20.2 (-5.4 , 64.6)
Kerman	3583 (2904 , 4263)	11249.6 (9115.6 , 13381.9)	11501 (10000 , 12967)	10385.4 (9029.7 , 11709.4)	-7.7 (-25.4 , 18.1)
Kermanshah	3600 (2911 , 4248)	13391.1 (10828.4 , 15803)	10126 (8774 , 11631)	11791.3 (10216.9 , 13543.4)	-11.9 (-29.2 , 16.5)
Khorasan-e-Razavi	12057 (10071 , 14041)	14787 (12351.1 , 17219.9)	37513 (32823 , 42595)	14193.2 (12418.5 , 16115.8)	-4 (-21.5 , 25.7)
Khuzestan	4993 (4199 , 5851)	9171.5 (7712.5 , 10747.3)	15562 (13755 , 17699)	9665.3 (8543.3 , 10993.1)	5.4 (-14.2 , 32.7)

Kohgiluyeh and Boyer-Ahmad	493 (389 , 600)	10517.5 (8297.1 , 12814.2)	2325 (1929 , 2751)	10921 (9062.7 , 12922.8)	3.8 (-19.5 , 38.2)
Kurdistan	3506 (2887 , 4139)	17055.4 (14043.7 , 20133.6)	9300 (7955 , 10540)	13689.8 (11710.4 , 15515.8)	-19.7 (-34.6 , 1)
Lorestan	3152 (2576 , 3781)	13829.7 (11302 , 16589.7)	9878 (8475 , 11353)	13537.9 (11614.5 , 15559.4)	-2.1 (-21.5 , 29.1)
Markazi	3062 (2507 , 3623)	12568.2 (10289.1 , 14868.6)	9165 (7796 , 10545)	10933.8 (9300.7 , 12579.7)	-13 (-29.1 , 9.4)
Mazandaran	5093 (4085 , 6103)	11363.4 (9114.8 , 13617.7)	21528 (18573 , 24715)	12241.8 (10561.6 , 14054.5)	7.7 (-13.3 , 38.6)
North Khorasan	1263 (1018 , 1494)	14345.9 (11556 , 16971.1)	4677 (4096 , 5221)	13243 (11599 , 14783)	-7.7 (-24.3 , 18.6)
Qazvin	1956 (1587 , 2418)	11278.8 (9154.4 , 13946.2)	7105 (6086 , 8126)	13068.4 (11194.5 , 14947)	15.9 (-7.6 , 50.9)
Qom	1630 (1272 , 1991)	13705.4 (10688.6 , 16739.6)	6037 (5203 , 6868)	12648.6 (10900.1 , 14389.8)	-7.7 (-25.5 , 24.5)
Semnan	1479 (1181 , 1779)	12743.9 (10178.7 , 15330)	4356 (3781 , 5024)	12885.5 (11185.7 , 14862.3)	1.1 (-18.4 , 34.2)
Sistan and Baluchistan	1849 (1428 , 2248)	9684.5 (7478.6 , 11774.4)	5413 (4559 , 6353)	9521.3 (8018.2 , 11174.2)	-1.7 (-23 , 31.8)
South Khorasan	1730 (1420 , 2034)	12297.5 (10094.5 , 14457.7)	4715 (4080 , 5309)	11741.6 (10160.3 , 13220.7)	-4.5 (-21.5 , 21)
Tehran	15706 (12367 , 19321)	10405.5 (8193.5 , 12800.9)	66030 (55851 , 75940)	9644.7 (8157.9 , 11092.2)	-7.3 (-26.9 , 18.9)
West Azarbayejan	5181 (4208 , 6053)	17290 (14042.5 , 20202.5)	20366 (17751 , 22950)	17125.8 (14926.9 , 19299.1)	-0.9 (-18.3 , 26.3)
Yazd	1586 (1280 , 1951)	10966.7 (8851.5 , 13485.9)	5866 (4951 , 6818)	12516.6 (10562.8 , 14547.5)	14.1 (-9.1 , 48.9)
Zanjan	1686 (1385 , 2045)	11802.3 (9694.8 , 14317.3)	6355 (5612 , 7086)	12090.1 (10676.3 , 13481.7)	2.4 (-17.8 , 28.9)

Table S5: Incident cases, deaths and DALYs due to cancers among adults 70 years and older by cancer type for both sexes in Iran, 1990-2019

	Incidence (95% UI)			Deaths (95% UI)			DALYs (95% UI)		
	Counts (2019)	Rate (2019)	Pcs in rate 1990-2019	Counts (2019)	Rate (2019)	Pcs in rate 1990-2019	Counts (2019)	Rate (2019)	Pcs in rate 1990-2019
Neoplasms	381413 (270466 , 525698)	10985.6 (7790.1 , 15141.4)	-4.4 (-13.2 , 7.4)	29623 (26811 , 32163)	853.2 (772.2 , 926.4)	13.8 (2.2 , 38)	412899 (378249 , 445424)	11892.5 (10894.5 , 12829.3)	-0.1 (-9.6 , 21.8)
Esophageal cancer	1366 (1013 , 1522)	39.3 (29.2 , 43.8)	-1.8 (-25 , 19.4)	1565 (1156 , 1740)	45.1 (33.3 , 50.1)	-3.5 (-26.2 , 17)	21515 (15899 , 23935)	619.7 (457.9 , 689.4)	-15.5 (-34.2 , 3)
Stomach cancer	5212 (4645 , 5688)	150.1 (133.8 , 163.8)	-14.9 (-27.3 , -0.1)	5582 (4967 , 6063)	160.8 (143.1 , 174.6)	-20 (-32.4 , -6.3)	76735 (69282 , 83026)	2210.2 (1995.5 , 2391.4)	-30.2 (-40.9 , -17.2)
Liver cancer	1123 (988 , 1262)	32.3 (28.4 , 36.3)	-2 (-26 , 33.4)	1162 (1023 , 1304)	33.5 (29.5 , 37.6)	-11.8 (-33.7 , 20.8)	16366 (14582 , 18277)	471.4 (420 , 526.4)	-22.3 (-41.4 , 6.1)
Larynx cancer	724 (640 , 810)	20.9 (18.4 , 23.3)	-5.8 (-16.8 , 26.8)	622 (554 , 698)	17.9 (16 , 20.1)	-18.7 (-27.8 , 7.8)	8961 (8047 , 10062)	258.1 (231.8 , 289.8)	-29.4 (-37.5 , -5.6)
Tracheal, bronchus, and lung cancer	3432 (3058 , 3728)	98.9 (88.1 , 107.4)	24.3 (-3.3 , 64.5)	4036 (3611 , 4386)	116.3 (104 , 126.3)	26.2 (-2.1 , 67.1)	56705 (51498 , 61706)	1633.3 (1483.3 , 1777.3)	9.1 (-14.6 , 45.1)
Breast cancer	1868 (1616 , 2156)	53.8 (46.6 , 62.1)	82.3 (11.1 , 173.4)	1096 (949 , 1243)	31.6 (27.3 , 35.8)	30.4 (-19.9 , 91.8)	16890 (14835 , 19024)	486.5 (427.3 , 547.9)	22 (-23.1 , 76.5)
Cervical cancer	280 (199 , 326)	8.1 (5.7 , 9.4)	-16.3 (-44.5 , 7.9)	266 (193 , 306)	7.7 (5.5 , 8.8)	-20.1 (-47 , 0.2)	3843 (2802 , 4442)	110.7 (80.7 , 127.9)	-26.7 (-51.1 , -7.6)
Uterine cancer	271 (160 , 327)	7.8 (4.6 , 9.4)	85.4 (14.6 , 171.3)	135 (82 , 158)	3.9 (2.4 , 4.6)	30.4 (-20.2 , 86)	2049 (1229 , 2438)	59 (35.4 , 70.2)	23.6 (-23.8 , 77.7)
Prostate cancer	4160 (3095 , 4835)	119.8 (89.1 , 139.3)	85.1 (45.8 , 142.5)	3072 (2308 , 3511)	88.5 (66.5 , 101.1)	54.1 (24.4 , 97.2)	39897 (30235 , 45727)	1149.1 (870.9 , 1317)	32.3 (7.3 , 68.6)

Colon and rectum cancer	3517 (3144 , 3867)	101.3 (90.5 , 111.4)	82.7 (43.9 , 138.9)	3072 (2723 , 3377)	88.5 (78.4 , 97.3)	59.8 (27.5 , 110.7)	42279 (38019 , 46306)	1217.7 (1095 , 1333.7)	40.6 (12.1 , 85.3)
Lip and oral cavity cancer	317 (275 , 359)	9.1 (7.9 , 10.3)	34.6 (6.3 , 86.2)	224 (195 , 253)	6.5 (5.6 , 7.3)	25.4 (0.5 , 72.4)	3001 (2647 , 3368)	86.4 (76.2 , 97)	8.3 (-13.5 , 48.4)
Nasopharynx cancer	62 (52 , 74)	1.8 (1.5 , 2.1)	25.3 (-7.3 , 61.9)	39 (35 , 43)	1.1 (1 , 1.2)	-27 (-43.1 , -11.4)	564 (506 , 624)	16.3 (14.6 , 18)	-34.6 (-48.4 , -20.8)
Other pharynx cancer	66 (58 , 73)	1.9 (1.7 , 2.1)	6.8 (-13.1 , 41.1)	62 (55 , 69)	1.8 (1.6 , 2)	-7.9 (-25.5 , 20.3)	862 (774 , 956)	24.8 (22.3 , 27.5)	-19.5 (-33.9 , 4.6)
Gallbladder and biliary tract cancer	408 (333 , 464)	11.7 (9.6 , 13.4)	6.7 (-12.4 , 31)	413 (339 , 469)	11.9 (9.8 , 13.5)	3.4 (-15.1 , 27.4)	5666 (4732 , 6429)	163.2 (136.3 , 185.2)	-9.5 (-25.4 , 12.1)
Pancreatic cancer	1375 (1224 , 1520)	39.6 (35.2 , 43.8)	155.1 (99.2 , 236.3)	1544 (1369 , 1698)	44.5 (39.4 , 48.9)	152.4 (97.4 , 231.1)	21662 (19523 , 23745)	623.9 (562.3 , 683.9)	120.5 (73.6 , 188.7)
Malignant skin melanoma	240 (140 , 300)	6.9 (4 , 8.6)	1.9 (-19.4 , 56.1)	154 (89 , 191)	4.4 (2.6 , 5.5)	-31.2 (-45.2 , 5.5)	2010 (1167 , 2482)	57.9 (33.6 , 71.5)	-39 (-51.9 , -6)
Non-melanoma skin cancer	2481 (1973 , 3143)	71.5 (56.8 , 90.5)	0.8 (-3.9 , 6.6)	192 (169 , 211)	5.5 (4.9 , 6.1)	64.7 (35.9 , 121.2)	2325 (2083 , 2539)	67 (60 , 73.1)	40.6 (16.6 , 87.1)
Ovarian cancer	315 (245 , 363)	9.1 (7.1 , 10.5)	125.4 (8.8 , 243.1)	317 (246 , 366)	9.1 (7.1 , 10.5)	119.6 (7.7 , 236.9)	4835 (3748 , 5570)	139.3 (107.9 , 160.4)	103.4 (-2.4 , 212.8)
Testicular cancer	61 (45 , 73)	1.8 (1.3 , 2.1)	499.5 (217.5 , 1071.1)	20 (17 , 23)	0.6 (0.5 , 0.7)	353.1 (212.7 , 549.6)	274 (232 , 318)	7.9 (6.7 , 9.1)	312.1 (184 , 486.7)
Kidney cancer	502 (435 , 561)	14.5 (12.5 , 16.2)	94.5 (54.3 , 243.3)	381 (331 , 425)	11 (9.5 , 12.2)	68.3 (33.2 , 196.9)	5333 (4666 , 5919)	153.6 (134.4 , 170.5)	48.3 (17.3 , 159.4)
Bladder cancer	1799 (1596 , 1982)	51.8 (46 , 57.1)	64.8 (31.9 , 126.2)	1028 (912 , 1132)	29.6 (26.3 , 32.6)	26.7 (0.9 , 75.7)	13999 (12549 , 15312)	403.2 (361.4 , 441)	12.2 (-9.6 , 54.1)
Brain and central nervous system cancer	940 (419 , 1179)	27.1 (12.1 , 34)	43.4 (-18.4 , 112.1)	893 (411 , 1110)	25.7 (11.8 , 32)	25.2 (-28.7 , 84.6)	13122 (6010 , 16197)	378 (173.1 , 466.5)	11.3 (-37.1 , 63.7)

Thyroid cancer	304 (234 , 355)	8.8 (6.7 , 10.2)	80.6 (22.3 , 143.9)	146 (119 , 161)	4.2 (3.4 , 4.6)	30.2 (-8.2 , 66)	2155 (1690 , 2395)	62.1 (48.7 , 69)	20.8 (-14.8 , 54.3)
Mesothelioma	12 (10 , 18)	0.4 (0.3 , 0.5)	41.6 (-10.9 , 100.8)	12 (10 , 17)	0.3 (0.3 , 0.5)	49.6 (-6.8 , 108.9)	164 (138 , 242)	4.7 (4 , 7)	32.4 (-18.2 , 87.1)
Hodgkin lymphoma	98 (56 , 123)	2.8 (1.6 , 3.5)	26.7 (-31.7 , 99.5)	65 (39 , 78)	1.9 (1.1 , 2.3)	-16.2 (-53.4 , 33.3)	974 (602 , 1163)	28 (17.3 , 33.5)	-23.9 (-57.2 , 20.3)
Non-Hodgkin lymphoma	726 (642 , 809)	20.9 (18.5 , 23.3)	82.4 (52.1 , 140.9)	502 (451 , 550)	14.5 (13 , 15.8)	24.7 (5.2 , 64.5)	7512 (6799 , 8193)	216.4 (195.8 , 236)	13.1 (-4.4 , 47.9)
Multiple myeloma	299 (225 , 362)	8.6 (6.5 , 10.4)	11.4 (-21.4 , 48.5)	282 (212 , 343)	8.1 (6.1 , 9.9)	6.1 (-25.9 , 41.5)	4218 (3194 , 5149)	121.5 (92 , 148.3)	-5.2 (-34.6 , 25.8)
Leukemia	1381 (1065 , 1558)	39.8 (30.7 , 44.9)	6.3 (-16.7 , 33.8)	1425 (1089 , 1620)	41 (31.4 , 46.7)	-0.6 (-22.3 , 25.5)	20040 (14985 , 22750)	577.2 (431.6 , 655.3)	-12.9 (-31.6 , 10.7)
Other neoplasms	345204 (234536 , 489354)	9942.7 (6755.2 , 14094.6)	-7 (-16.1 , 4.4)	57 (47 , 83)	1.6 (1.4 , 2.4)	-11.2 (-35.3 , 67.3)	912 (772 , 1238)	26.3 (22.2 , 35.7)	-18.7 (-38.1 , 39.7)
Other malignant neoplasms	2869 (2223 , 3383)	82.6 (64 , 97.4)	116.1 (70.8 , 220.3)	1261 (956 , 1454)	36.3 (27.5 , 41.9)	20.6 (-0.9 , 85.6)	18027 (13772 , 20746)	519.2 (396.7 , 597.5)	8.5 (-11.4 , 66.7)

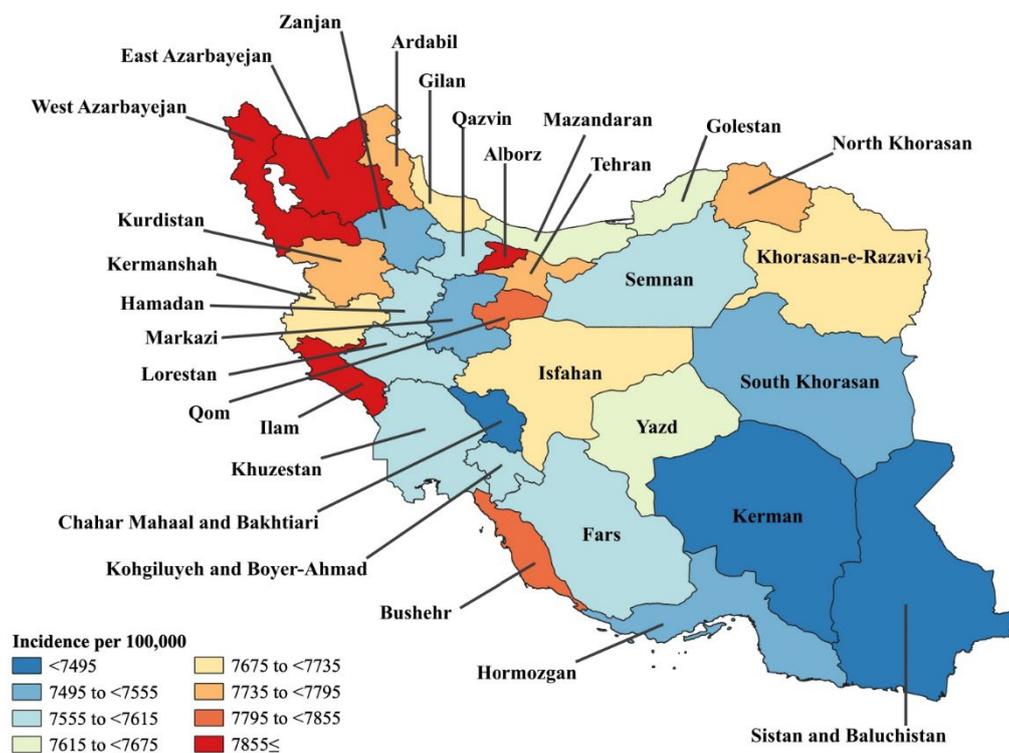


Figure S1: Map of the incidence rate of cancers (per 100,000 population) among male adults 70 years and older in Iran in 2019. (Generated from data available from <http://ghdx.healthdata.org/gbd-results-tool>)

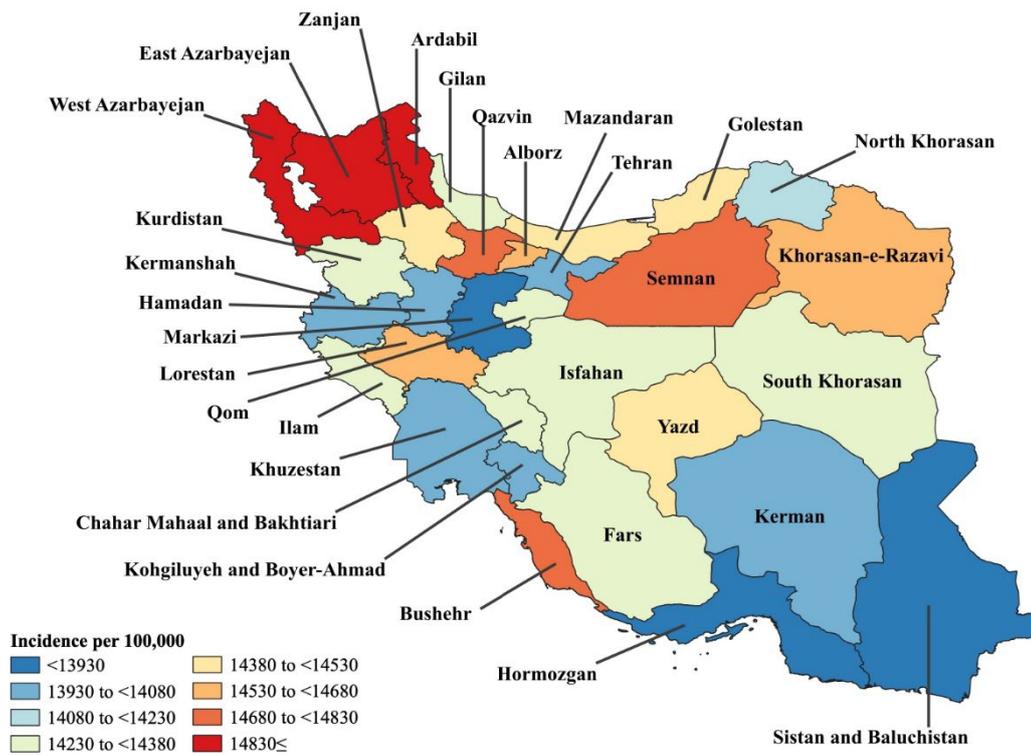


Figure S2: Map of the incidence rate of cancers (per 100,000 population) among female adults 70 years and older in Iran in 2019. (Generated from data available from <http://ghdx.healthdata.org/gbd-results-tool>)

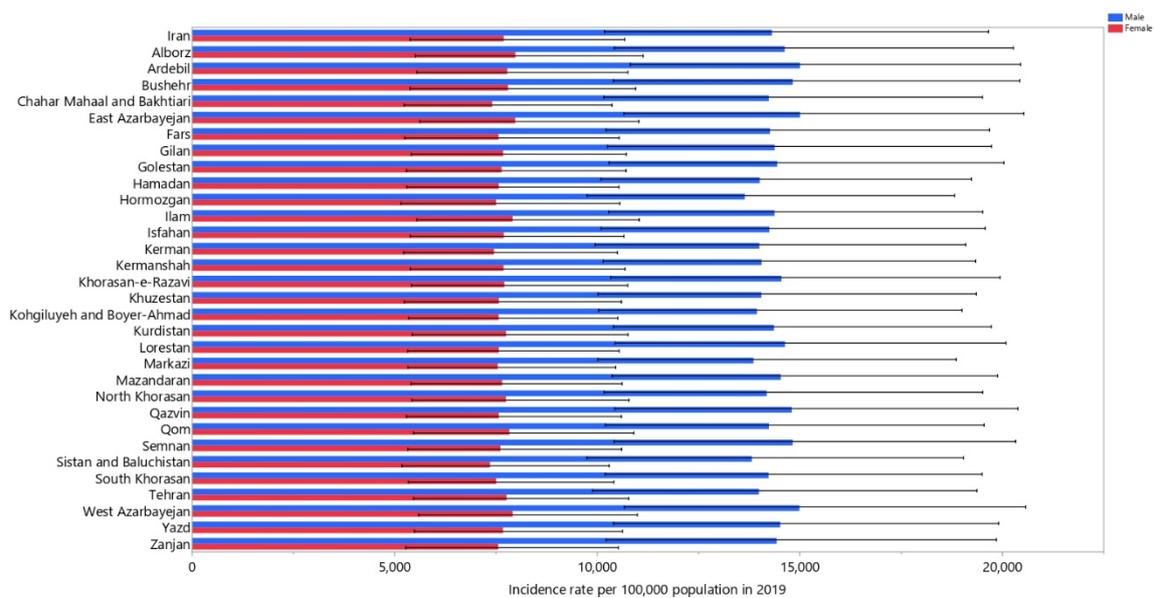


Figure S3. The incidence rate of cancers (per 100,000 population) among adults 70 years and older in Iran in 2019, by sex and province. (Generated from data available from <http://ghdx.healthdata.org/gbd-results-tool>)

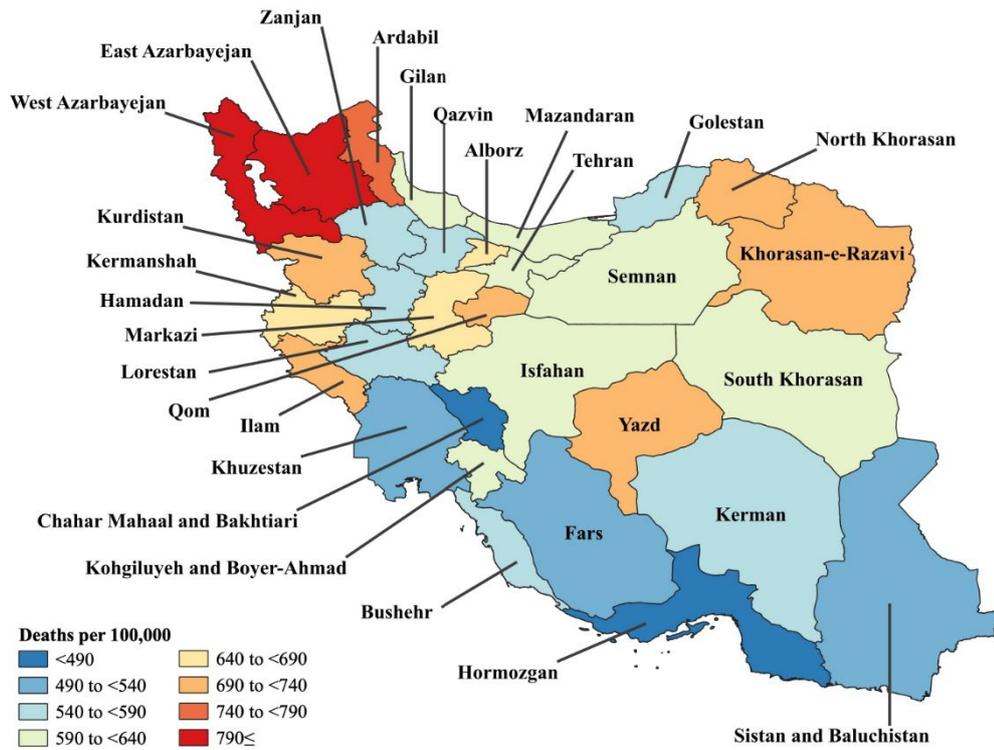


Figure S4: Map of the death rate of cancers (per 100,000 population) among male adults 70 years and older in Iran in 2019. (Generated from data available from <http://ghdx.healthdata.org/gbd-results-tool>)

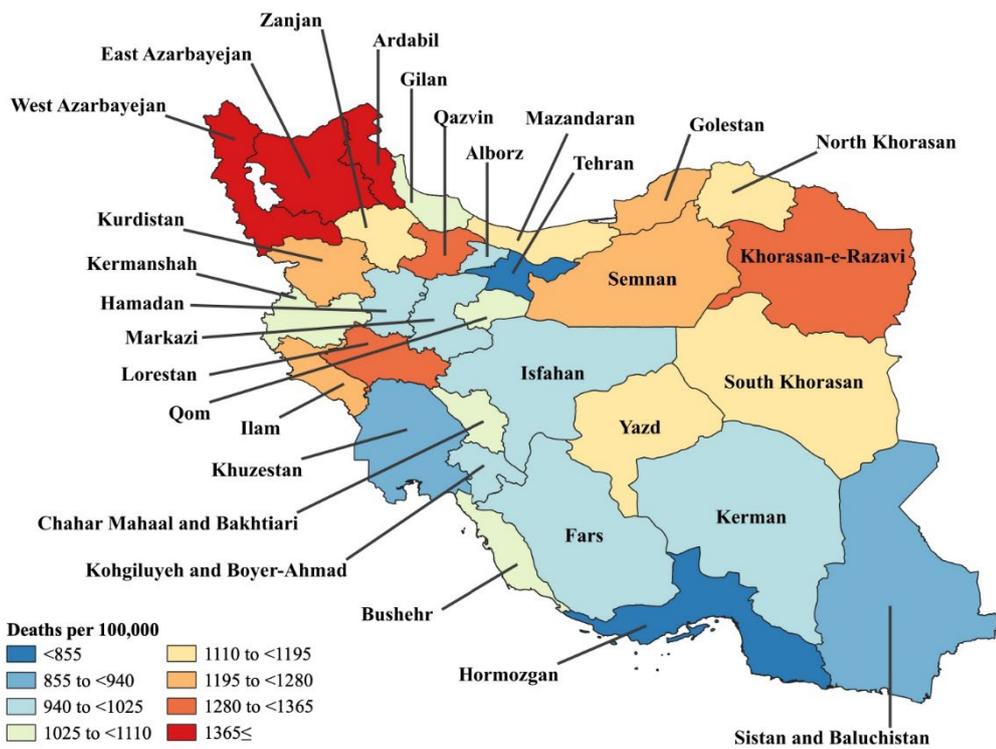


Figure S5: Map of the death rate of cancers (per 100,000 population) among female adults 70 years and older in Iran in 2019. (Generated from data available from <http://ghdx.healthdata.org/gbd-results-tool>)

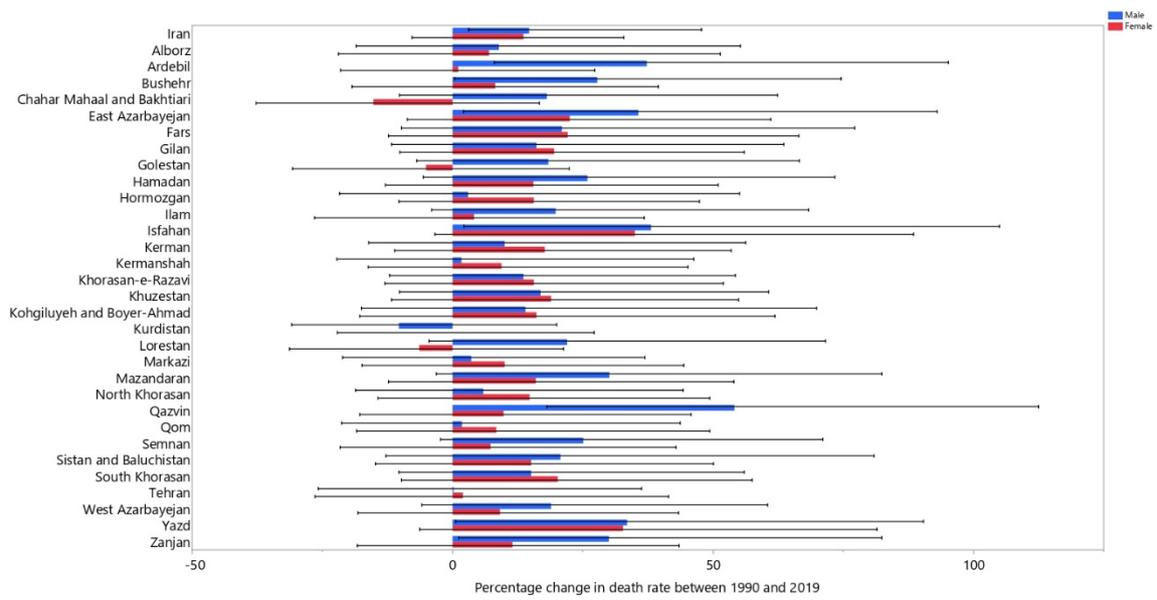


Figure S6: The death rate of cancers (per 100,000 population) among adults 70 years and older in Iran in 2019, by sex and province. (Generated from data available from <http://ghdx.healthdata.org/gbd-results-tool>)

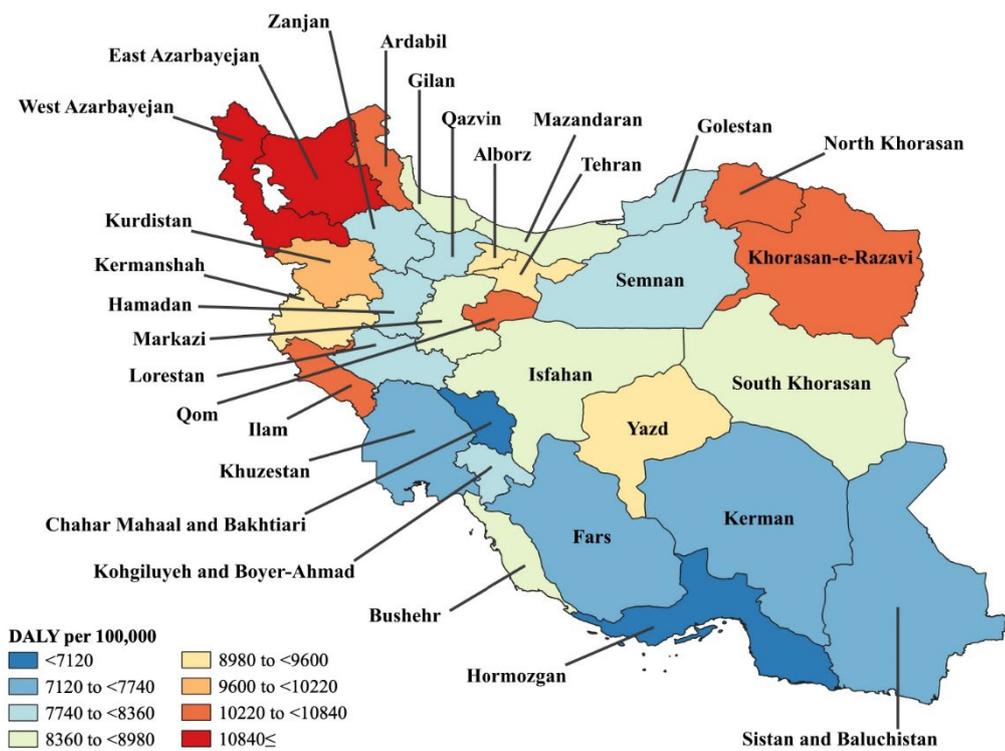


Figure S7: Map of the DALY rate of cancers (per 100,000 population) among male adults 70 years and older in Iran in 2019. DALY= disability-adjusted-life-years. (Generated from data available from <http://ghdx.healthdata.org/gbd-results-tool>)

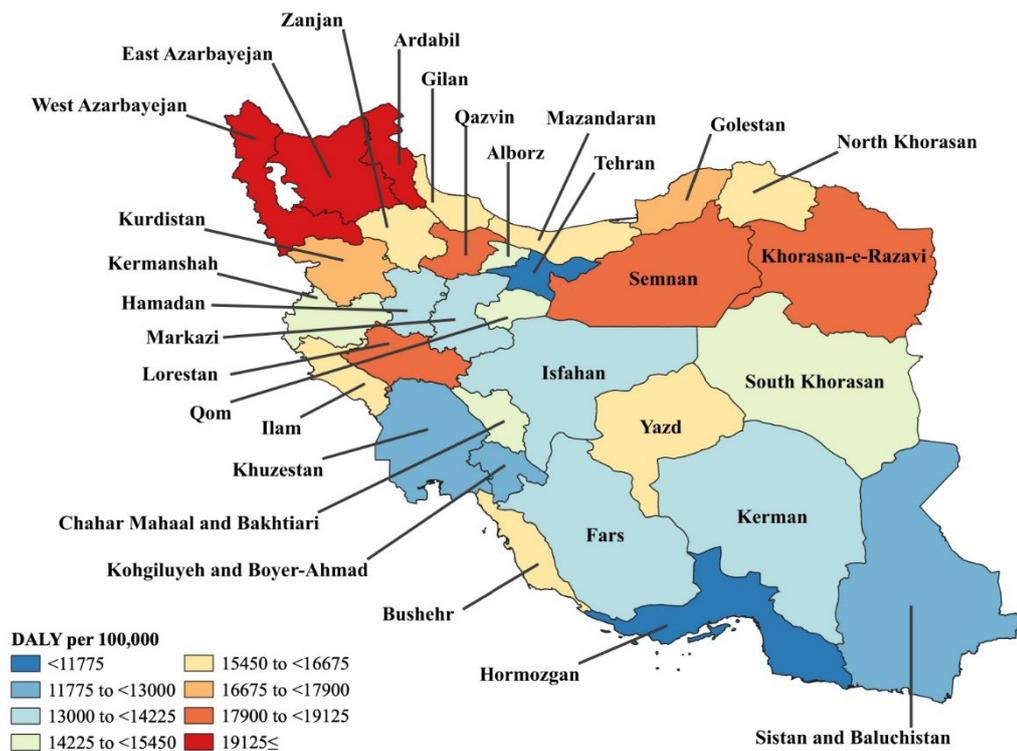


Figure S8: Map of the DALY rate of cancers (per 100,000 population) among female adults 70 years and older in Iran in 2019. DALY= disability-adjusted-life-years. (Generated from data available from <http://ghdx.healthdata.org/gbd-results-tool>)

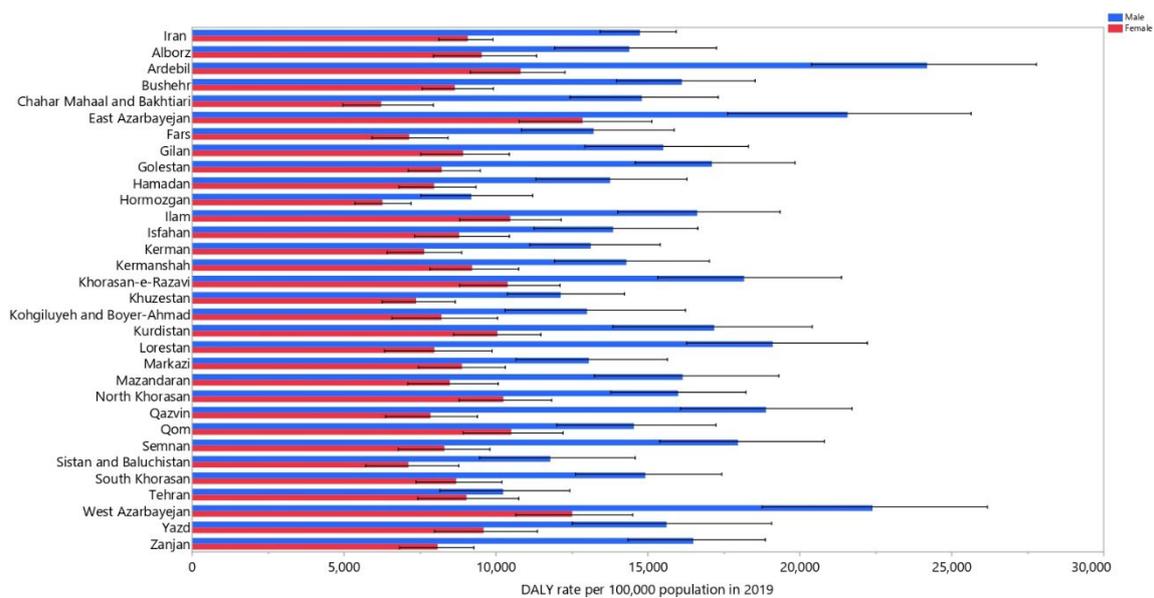


Figure S9: The DALY rate of cancers (per 100,000 population) among adults 70 years and older in Iran in 2019, by sex and province. DALY=disability-adjusted life-year. (Generated from data available from <http://ghdx.healthdata.org/gbd-results-tool>)

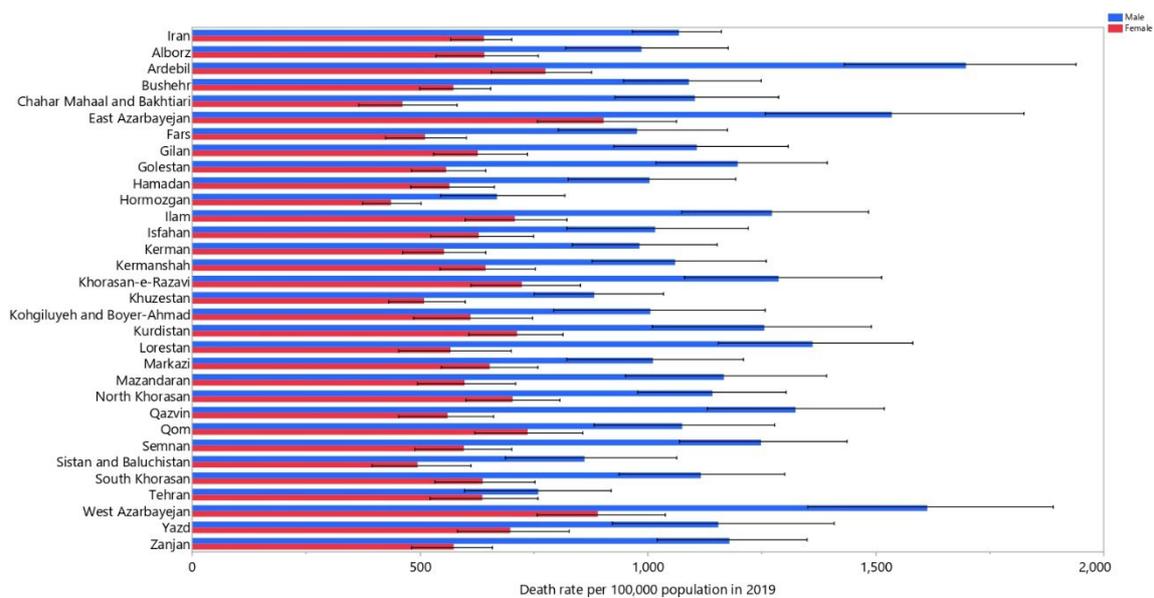


Figure S10: The percentage change in the incidence rate of cancers from 1990 to 2019 among adults 70 years and older in Iran, by sex and province. (Generated from data available from <http://ghdx.healthdata.org/gbd-results-tool>)

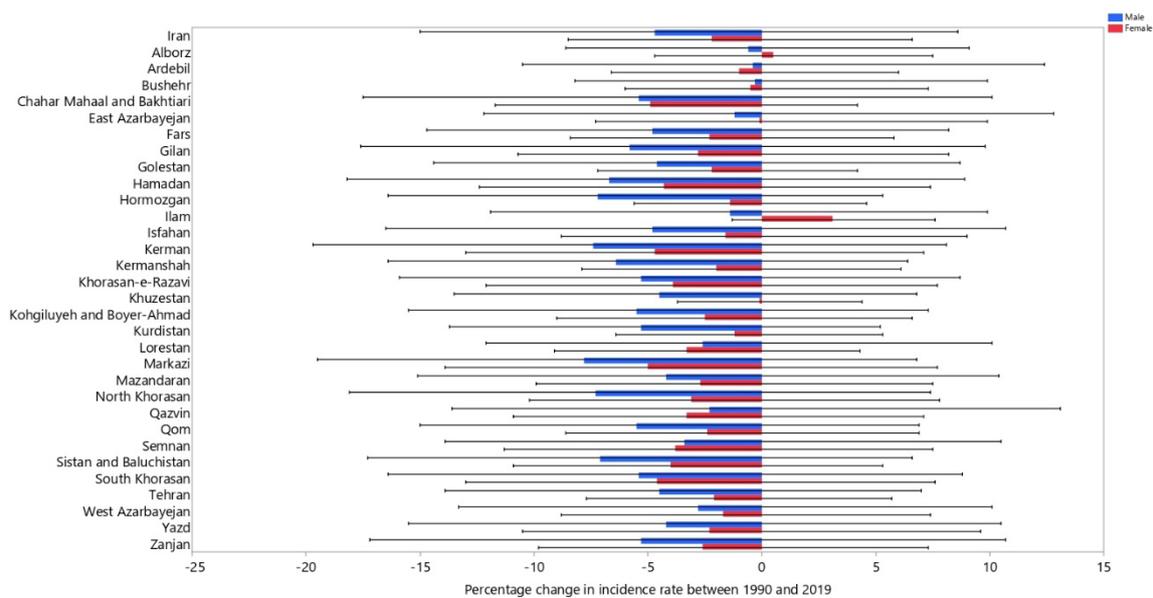


Figure S11: The percentage change in the death rate of cancers from 1990 to 2019 among adults 70 years and older in Iran, by sex and province. (Generated from data available from <http://ghdx.healthdata.org/gbd-results-tool>)

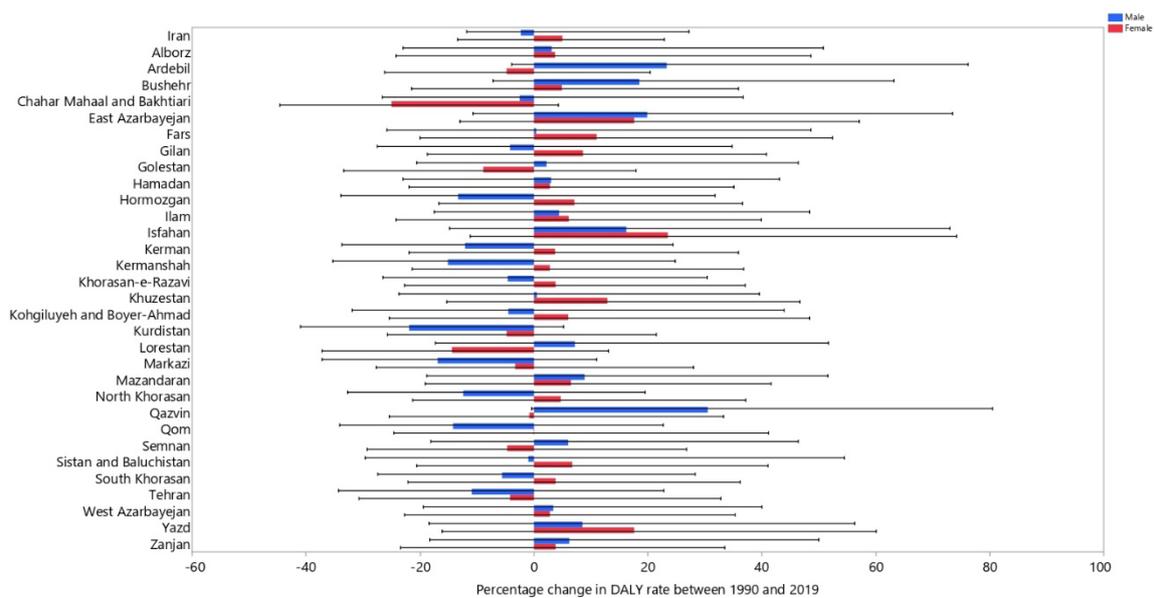


Figure S12: The percentage change in the DALY rate of cancers from 1990 to 2019 among adults 70 years and older in Iran, by sex and province. DALY=disability-adjusted life-year.

(Generated from data available from <http://ghdx.healthdata.org/gbd-results-tool>)

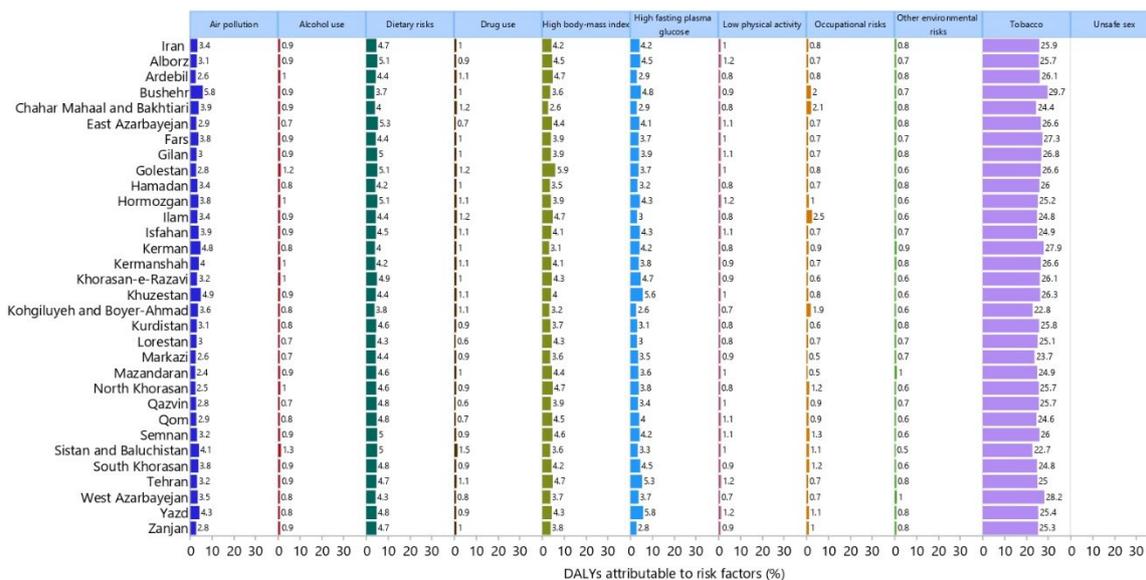


Figure S13: Percent of DALYs due to cancers which were attributable to each risk factor among male adults 70 years and older in Iran in 2019. DALY=disability-adjusted life-year. (Generated from data available from <http://ghdx.healthdata.org/gbd-results-tool>)

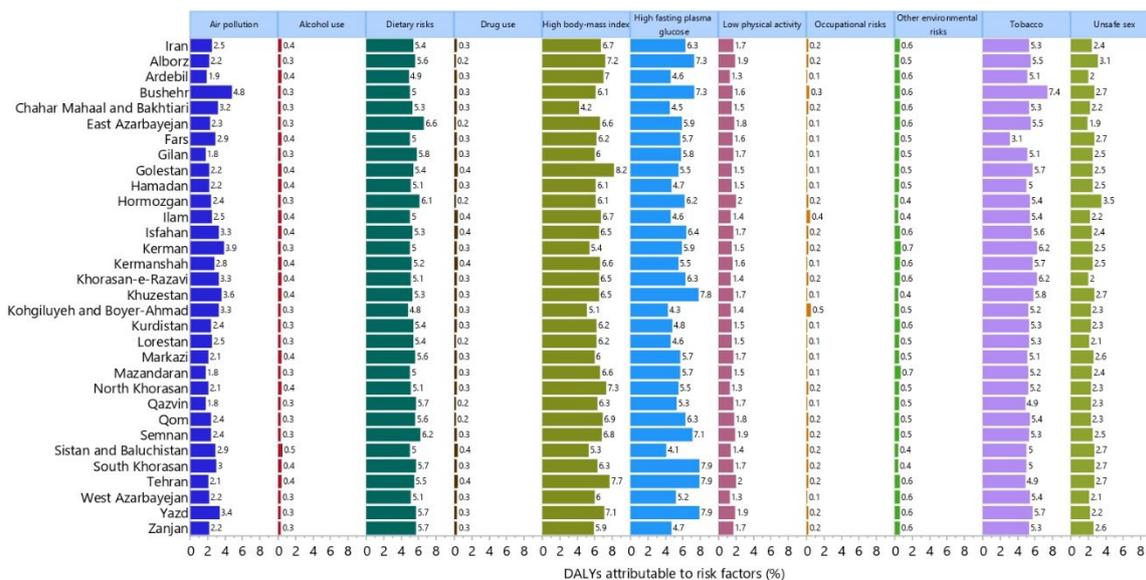


Figure S14: Percent of DALYs due to cancers which were attributable to each risk factor among female adults 70 years and older in Iran in 2019. DALY=disability-adjusted life-year. (Generated from data available from <http://ghdx.healthdata.org/gbd-results-tool>)