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Supplementary Table S1

Detailed epidemiological estimates, decomposition analysis, and age–period–cohort model coefficients, Iran, 1990–2021

Associated article: National and Subnational Burden of Oral Disorders and Lip and Oral Cavity Cancer in Iran: Based on the Global Burden of Disease Study 2021

Journal of Oral Health and Oral Epidemiology

Panel A. Detailed epidemiological estimates by cause, sex, and year

Estimates are reported as point estimate (95% uncertainty interval). Counts are numbers of events/cases or burden-years; rates are age-standardized per 100,000 population (incidence rates per 100,000 person-years). The relative-change column retains the original proportional scale (e.g., 0.54 = +54%; -0.24 = -24%); 1990 is the reference year. “Both” denotes both sexes combined.

Caries of Deciduous Teeth

Measure	Metric	Year	Sex	Estimate (95% UI)	Relative change (95% UI)
DALYs	Number	1990	Both	3176.44 (1360.28 - 6207.61)	-
DALYs	Number	1990	Female	1572.73 (678.09 - 3104.41)	-
DALYs	Number	1990	Male	1603.71 (683.52 - 3125.86)	-
DALYs	Number	2021	Both	2413.56 (1037.91 - 4686.94)	-0.24 (-0.31 - -0.17)
DALYs	Number	2021	Female	1178.74 (505.18 - 2288.16)	-0.25 (-0.31 - -0.19)
DALYs	Number	2021	Male	1234.82 (535.10 - 2398.78)	-0.23 (-0.31 - -0.15)
DALYs	Rate	1990	Both	3.39 (1.45 - 6.63)	-
DALYs	Rate	1990	Female	3.42 (1.48 - 6.76)	-
DALYs	Rate	1990	Male	3.36 (1.43 - 6.55)	-
DALYs	Rate	2021	Both	3.38 (1.45 - 6.54)	0.00 (-0.09 - 0.09)
DALYs	Rate	2021	Female	3.39 (1.45 - 6.57)	-0.01 (-0.09 - 0.08)
DALYs	Rate	2021	Male	3.36 (1.46 - 6.51)	0.00 (-0.10 - 0.11)
Incidence	Number	1990	Both	19366707.02 (14176699 - 26528374)	-
Incidence	Number	1990	Female	9511875.61 (6947928 - 13019534)	-
Incidence	Number	1990	Male	9854831.41 (7253969 - 13482561)	-
Incidence	Number	2021	Both	14864626.90 (10962117 - 21214326)	-0.23 (-0.27 - -0.20)
Incidence	Number	2021	Female	7246221.31 (5366018 - 10296396)	-0.24 (-0.28 - -0.20)
Incidence	Number	2021	Male	7618405.59 (5623605 - 10899407)	-0.23 (-0.27 - -0.18)

Measure	Metric	Year	Sex	Estimate (95% UI)	Relative change (95% UI)
Incidence	Rate	1990	Both	20813.73 (15184.13 - 29450.68)	-
Incidence	Rate	1990	Female	20850.18 (15145.75 - 29365.42)	-
Incidence	Rate	1990	Male	20778.49 (15153.35 - 29374.67)	-
Incidence	Rate	2021	Both	20255.81 (15081.09 - 28789.88)	-0.03 (-0.07 - 0.03)
Incidence	Rate	2021	Female	20303.56 (15156.49 - 28771.02)	-0.03 (-0.07 - 0.03)
Incidence	Rate	2021	Male	20210.53 (15020.59 - 28806.61)	-0.03 (-0.09 - 0.03)
Prevalence	Number	1990	Both	8309656.22 (6891459.24 - 9863289.28)	-
Prevalence	Number	1990	Female	4110457.92 (3405461.68 - 4882785.19)	-
Prevalence	Number	1990	Male	4199198.30 (3477652.71 - 4984240.54)	-
Prevalence	Number	2021	Both	6290828.20 (5276640.24 - 7490463.17)	-0.24 (-0.27 - -0.21)
Prevalence	Number	2021	Female	3072890.57 (2593007.05 - 3646198.90)	-0.25 (-0.28 - -0.22)
Prevalence	Number	2021	Male	3217937.62 (2670902.01 - 3839470.49)	-0.23 (-0.27 - -0.20)
Prevalence	Rate	1990	Both	8866.92 (7340.24 - 10551.20)	-
Prevalence	Rate	1990	Female	8940.26 (7396.63 - 10669.72)	-
Prevalence	Rate	1990	Male	8796.20 (7258.72 - 10462.46)	-
Prevalence	Rate	2021	Both	8806.36 (7381.71 - 10390.80)	-0.01 (-0.04 - 0.03)
Prevalence	Rate	2021	Female	8849.64 (7475.39 - 10409.50)	-0.01 (-0.05 - 0.03)
Prevalence	Rate	2021	Male	8765.43 (7241.94 - 10415.36)	0.00 (-0.04 - 0.04)
YLDs	Number	1990	Both	3176.44 (1360.28 - 6207.61)	-
YLDs	Number	1990	Female	1572.73 (678.09 - 3104.41)	-
YLDs	Number	1990	Male	1603.71 (683.52 - 3125.86)	-
YLDs	Number	2021	Both	2413.56 (1037.91 - 4686.94)	-0.24 (-0.31 - -0.17)
YLDs	Number	2021	Female	1178.74 (505.18 - 2288.16)	-0.25 (-0.31 - -0.19)
YLDs	Number	2021	Male	1234.82 (535.10 - 2398.78)	-0.23 (-0.31 - -0.15)
YLDs	Rate	1990	Both	3.39 (1.45 - 6.63)	-
YLDs	Rate	1990	Female	3.42 (1.48 - 6.76)	-
YLDs	Rate	1990	Male	3.36 (1.43 - 6.55)	-
YLDs	Rate	2021	Both	3.38 (1.45 - 6.54)	0.00 (-0.09 - 0.09)
YLDs	Rate	2021	Female	3.39 (1.45 - 6.57)	-0.01 (-0.09 - 0.08)
YLDs	Rate	2021	Male	3.36 (1.46 - 6.51)	0.00 (-0.10 - 0.11)

Caries of Permanent Teeth

Measure	Metric	Year	Sex	Estimate (95% UI)	Relative change (95% UI)

Measure	Metric	Year	Sex	Estimate (95% UI)	Relative change (95% UI)
DALYs	Number	1990	Both	15501.48 (6839.16 - 29842.94)	-
DALYs	Number	1990	Female	7545.20 (3312.92 - 14532.36)	-
DALYs	Number	1990	Male	7956.28 (3511.77 - 15310.58)	-
DALYs	Number	2021	Both	27477.30 (12393.80 - 53128.67)	0.77 (0.67 - 0.87)
DALYs	Number	2021	Female	13361.59 (6022.22 - 25987.10)	0.77 (0.66 - 0.88)
DALYs	Number	2021	Male	14115.71 (6354.54 - 26976.27)	0.77 (0.67 - 0.88)
DALYs	Rate	1990	Both	31.37 (14.11 - 59.97)	-
DALYs	Rate	1990	Female	31.02 (13.96 - 59.32)	-
DALYs	Rate	1990	Male	31.71 (14.28 - 60.59)	-
DALYs	Rate	2021	Both	30.50 (13.70 - 58.85)	-0.03 (-0.05 - -0.01)
DALYs	Rate	2021	Female	30.21 (13.58 - 58.50)	-0.03 (-0.05 - 0.00)
DALYs	Rate	2021	Male	30.80 (13.85 - 59.20)	-0.03 (-0.05 - -0.01)
Incidence	Number	1990	Both	19352960.76 (17046984.38 - 21678995.86)	-
Incidence	Number	1990	Female	9511903.92 (8403392.58 - 10636202.75)	-
Incidence	Number	1990	Male	9841056.84 (8627172.81 - 11035267.35)	-
Incidence	Number	2021	Both	30519541.68 (27273820.75 - 33924033.99)	0.58 (0.50 - 0.66)
Incidence	Number	2021	Female	14997555.71 (13411479.68 - 16699876.47)	0.58 (0.49 - 0.66)
Incidence	Number	2021	Male	15521985.97 (13857231.78 - 17265604.06)	0.58 (0.49 - 0.67)
Incidence	Rate	1990	Both	34459.88 (30709.08 - 38071.63)	-
Incidence	Rate	1990	Female	34530.41 (30922.07 - 37980.36)	-
Incidence	Rate	1990	Male	34391.18 (30647.13 - 38290.94)	-
Incidence	Rate	2021	Both	34568.83 (30959.89 - 38333.71)	0.00 (-0.01 - 0.02)
Incidence	Rate	2021	Female	34531.44 (30987.79 - 38219.05)	0.00 (-0.02 - 0.02)
Incidence	Rate	2021	Male	34603.76 (30919.03 - 38311.63)	0.01 (-0.02 - 0.03)
Prevalence	Number	1990	Both	15701574.10 (13550378.06 - 18146124.31)	-
Prevalence	Number	1990	Female	7673615.79 (6632403.49 - 8905544.58)	-
Prevalence	Number	1990	Male	8027958.32 (6954333.27 - 9243534.58)	-
Prevalence	Number	2021	Both	28067972.48 (24281032.45 - 32187568.32)	0.79 (0.68 - 0.89)
Prevalence	Number	2021	Female	13743661.01 (11856822.41 - 15805390.01)	0.79 (0.68 - 0.90)
Prevalence	Number	2021	Male	14324311.48 (12426809.77 - 16326317.84)	0.78 (0.68 - 0.88)
Prevalence	Rate	1990	Both	32059.87 (28112.73 - 36505.73)	-
Prevalence	Rate	1990	Female	31861.07 (27818.33 - 36227.74)	-
Prevalence	Rate	1990	Male	32252.12 (28208.13 - 36574.60)	-

Measure	Metric	Year	Sex	Estimate (95% UI)	Relative change (95% UI)
Prevalence	Rate	2021	Both	31184.50 (27490.59 - 35341.85)	-0.03 (-0.05 - -0.01)
Prevalence	Rate	2021	Female	31069.77 (27450.62 - 35609.55)	-0.02 (-0.05 - 0.00)
Prevalence	Rate	2021	Male	31299.79 (27607.96 - 35537.10)	-0.03 (-0.05 - -0.01)
YLDs	Number	1990	Both	15501.48 (6839.16 - 29842.94)	-
YLDs	Number	1990	Female	7545.20 (3312.92 - 14532.36)	-
YLDs	Number	1990	Male	7956.28 (3511.77 - 15310.58)	-
YLDs	Number	2021	Both	27477.30 (12393.80 - 53128.67)	0.77 (0.67 - 0.87)
YLDs	Number	2021	Female	13361.59 (6022.22 - 25987.10)	0.77 (0.66 - 0.88)
YLDs	Number	2021	Male	14115.71 (6354.54 - 26976.27)	0.77 (0.67 - 0.88)
YLDs	Rate	1990	Both	31.37 (14.11 - 59.97)	-
YLDs	Rate	1990	Female	31.02 (13.96 - 59.32)	-
YLDs	Rate	1990	Male	31.71 (14.28 - 60.59)	-
YLDs	Rate	2021	Both	30.50 (13.70 - 58.85)	-0.03 (-0.05 - -0.01)
YLDs	Rate	2021	Female	30.21 (13.58 - 58.50)	-0.03 (-0.05 - 0.00)
YLDs	Rate	2021	Male	30.80 (13.85 - 59.20)	-0.03 (-0.05 - -0.01)

Edentulism

Measure	Metric	Year	Sex	Estimate (95% UI)	Relative change (95% UI)
DALYs	Number	1990	Both	40290.39 (25419.82 - 56612.59)	-
DALYs	Number	1990	Female	12519.60 (7826.21 - 17800.67)	-
DALYs	Number	1990	Male	27770.79 (17584.98 - 38915.47)	-
DALYs	Number	2021	Both	123609.60 (77057.66 - 173313.45)	2.07 (1.32 - 3.13)
DALYs	Number	2021	Female	50198.91 (31432.62 - 70209.86)	3.01 (2.00 - 4.41)
DALYs	Number	2021	Male	73410.68 (45641.47 - 102488.79)	1.64 (1.00 - 2.56)
DALYs	Rate	1990	Both	147.21 (93.28 - 206.53)	-
DALYs	Rate	1990	Female	96.72 (61.33 - 136.54)	-
DALYs	Rate	1990	Male	195.05 (123.52 - 272.19)	-
DALYs	Rate	2021	Both	150.71 (92.20 - 210.58)	0.02 (-0.22 - 0.40)
DALYs	Rate	2021	Female	121.95 (75.17 - 171.33)	0.26 (-0.03 - 0.73)
DALYs	Rate	2021	Male	179.67 (110.40 - 250.33)	-0.08 (-0.30 - 0.25)
Incidence	Number	1990	Both	113793.24 (90977.47 - 137377.38)	-
Incidence	Number	1990	Female	36530.40 (28892.80 - 45233.93)	-
Incidence	Number	1990	Male	77262.84 (61987.76 - 92790.47)	-

Measure	Metric	Year	Sex	Estimate (95% UI)	Relative change (95% UI)
Incidence	Number	2021	Both	328106.90 (265488.57 - 400090.13)	1.88 (1.24 - 2.84)
Incidence	Number	2021	Female	134363.51 (107558.34 - 166419.81)	2.68 (1.80 - 3.98)
Incidence	Number	2021	Male	193743.39 (158308.65 - 234887.58)	1.51 (0.96 - 2.32)
Incidence	Rate	1990	Both	366.50 (298.32 - 438.54)	-
Incidence	Rate	1990	Female	252.16 (200.91 - 310.70)	-
Incidence	Rate	1990	Male	470.52 (387.28 - 557.25)	-
Incidence	Rate	2021	Both	375.18 (305.06 - 458.56)	0.02 (-0.20 - 0.37)
Incidence	Rate	2021	Female	309.66 (250.38 - 382.59)	0.23 (-0.07 - 0.68)
Incidence	Rate	2021	Male	440.90 (360.62 - 534.24)	-0.06 (-0.27 - 0.24)
Prevalence	Number	1990	Both	1456369.49 (1140724.70 - 1803240.12)	-
Prevalence	Number	1990	Female	457257.70 (354849.22 - 565054.64)	-
Prevalence	Number	1990	Male	999111.80 (784587.72 - 1238906.49)	-
Prevalence	Number	2021	Both	4506131.40 (3642048.93 - 5462795.84)	2.09 (1.34 - 3.16)
Prevalence	Number	2021	Female	1848520.14 (1486213.29 - 2250794.72)	3.04 (2.03 - 4.44)
Prevalence	Number	2021	Male	2657611.26 (2155049.36 - 3231916.52)	1.66 (1.02 - 2.58)
Prevalence	Rate	1990	Both	5383.57 (4296.77 - 6536.23)	-
Prevalence	Rate	1990	Female	3572.61 (2810.46 - 4367.47)	-
Prevalence	Rate	1990	Male	7105.74 (5686.70 - 8613.85)	-
Prevalence	Rate	2021	Both	5535.12 (4508.60 - 6786.52)	0.03 (-0.21 - 0.40)
Prevalence	Rate	2021	Female	4522.13 (3653.81 - 5516.09)	0.27 (-0.03 - 0.74)
Prevalence	Rate	2021	Male	6555.25 (5400.96 - 8034.08)	-0.08 (-0.29 - 0.25)
YLDs	Number	1990	Both	40290.39 (25419.82 - 56612.59)	-
YLDs	Number	1990	Female	12519.60 (7826.21 - 17800.67)	-
YLDs	Number	1990	Male	27770.79 (17584.98 - 38915.47)	-
YLDs	Number	2021	Both	123609.60 (77057.66 - 173313.45)	2.07 (1.32 - 3.13)
YLDs	Number	2021	Female	50198.91 (31432.62 - 70209.86)	3.01 (2.00 - 4.41)
YLDs	Number	2021	Male	73410.68 (45641.47 - 102488.79)	1.64 (1.00 - 2.56)
YLDs	Rate	1990	Both	147.21 (93.28 - 206.53)	-
YLDs	Rate	1990	Female	96.72 (61.33 - 136.54)	-
YLDs	Rate	1990	Male	195.05 (123.52 - 272.19)	-
YLDs	Rate	2021	Both	150.71 (92.20 - 210.58)	0.02 (-0.22 - 0.40)
YLDs	Rate	2021	Female	121.95 (75.17 - 171.33)	0.26 (-0.03 - 0.73)
YLDs	Rate	2021	Male	179.67 (110.40 - 250.33)	-0.08 (-0.30 - 0.25)

Lip and Oral Cavity Cancer

Measure	Metric	Year	Sex	Estimate (95% UI)	Relative change (95% UI)
DALYs	Number	1990	Both	2784.39 (2412.66 - 3218.51)	-
DALYs	Number	1990	Female	1149.76 (941.28 - 1367.12)	-
DALYs	Number	1990	Male	1634.63 (1360.42 - 1982.82)	-
DALYs	Number	2021	Both	8841.52 (7893.14 - 9897.21)	2.18 (1.56 - 2.82)
DALYs	Number	2021	Female	3842.37 (3354.04 - 4374.88)	2.34 (1.57 - 3.27)
DALYs	Number	2021	Male	4999.15 (4296.08 - 5609.00)	2.06 (1.30 - 2.80)
DALYs	Rate	1990	Both	9.63 (8.33 - 11.06)	-
DALYs	Rate	1990	Female	8.39 (6.89 - 9.94)	-
DALYs	Rate	1990	Male	10.69 (8.89 - 12.96)	-
DALYs	Rate	2021	Both	10.79 (9.64 - 12.06)	0.12 (-0.08 - 0.35)
DALYs	Rate	2021	Female	9.64 (8.40 - 10.92)	0.15 (-0.10 - 0.46)
DALYs	Rate	2021	Male	11.95 (10.28 - 13.40)	0.12 (-0.16 - 0.38)
Deaths	Number	1990	Both	91.63 (79.41 - 105.20)	-
Deaths	Number	1990	Female	38.39 (31.88 - 45.50)	-
Deaths	Number	1990	Male	53.24 (44.06 - 64.46)	-
Deaths	Number	2021	Both	335.38 (296.74 - 376.90)	2.66 (2.01 - 3.40)
Deaths	Number	2021	Female	152.44 (132.76 - 172.67)	2.97 (2.15 - 4.02)
Deaths	Number	2021	Male	182.94 (157.60 - 206.14)	2.44 (1.61 - 3.30)
Deaths	Rate	1990	Both	0.40 (0.35 - 0.46)	-
Deaths	Rate	1990	Female	0.36 (0.30 - 0.43)	-
Deaths	Rate	1990	Male	0.44 (0.36 - 0.53)	-
Deaths	Rate	2021	Both	0.46 (0.41 - 0.52)	0.14 (-0.05 - 0.37)
Deaths	Rate	2021	Female	0.44 (0.38 - 0.49)	0.20 (-0.03 - 0.52)
Deaths	Rate	2021	Male	0.49 (0.42 - 0.55)	0.12 (-0.15 - 0.40)
Incidence	Number	1990	Both	156.12 (134.29 - 180.80)	-
Incidence	Number	1990	Female	71.25 (57.48 - 86.52)	-
Incidence	Number	1990	Male	84.88 (69.95 - 103.56)	-
Incidence	Number	2021	Both	733.30 (647.97 - 826.28)	3.70 (2.82 - 4.73)
Incidence	Number	2021	Female	360.35 (309.40 - 413.91)	4.06 (2.86 - 5.60)
Incidence	Number	2021	Male	372.95 (317.03 - 422.47)	3.39 (2.28 - 4.51)
Incidence	Rate	1990	Both	0.61 (0.52 - 0.70)	-
Incidence	Rate	1990	Female	0.58 (0.47 - 0.70)	-

Measure	Metric	Year	Sex	Estimate (95% UI)	Relative change (95% UI)
Incidence	Rate	1990	Male	0.63 (0.51 - 0.76)	-
Incidence	Rate	2021	Both	0.94 (0.82 - 1.06)	0.54 (0.26 - 0.86)
Incidence	Rate	2021	Female	0.93 (0.80 - 1.06)	0.61 (0.24 - 1.08)
Incidence	Rate	2021	Male	0.94 (0.81 - 1.08)	0.50 (0.12 - 0.88)
Prevalence	Number	1990	Both	521.41 (443.38 - 608.74)	-
Prevalence	Number	1990	Female	255.87 (203.74 - 313.59)	-
Prevalence	Number	1990	Male	265.54 (216.48 - 327.34)	-
Prevalence	Number	2021	Both	2954.01 (2613.25 - 3351.53)	4.67 (3.52 - 5.96)
Prevalence	Number	2021	Female	1530.95 (1301.34 - 1784.36)	4.98 (3.41 - 7.03)
Prevalence	Number	2021	Male	1423.07 (1201.92 - 1629.08)	4.36 (2.99 - 5.78)
Prevalence	Rate	1990	Both	1.69 (1.44 - 1.95)	-
Prevalence	Rate	1990	Female	1.71 (1.37 - 2.09)	-
Prevalence	Rate	1990	Male	1.66 (1.36 - 2.04)	-
Prevalence	Rate	2021	Both	3.48 (3.07 - 3.94)	1.06 (0.66 - 1.53)
Prevalence	Rate	2021	Female	3.64 (3.09 - 4.21)	1.13 (0.59 - 1.83)
Prevalence	Rate	2021	Male	3.32 (2.81 - 3.80)	1.01 (0.49 - 1.53)
YLDs	Number	1990	Both	59.22 (41.50 - 79.45)	-
YLDs	Number	1990	Female	27.35 (18.93 - 38.60)	-
YLDs	Number	1990	Male	31.88 (22.06 - 44.95)	-
YLDs	Number	2021	Both	303.17 (213.95 - 413.35)	4.12 (3.12 - 5.25)
YLDs	Number	2021	Female	150.36 (105.00 - 207.54)	4.50 (3.08 - 6.23)
YLDs	Number	2021	Male	152.81 (107.46 - 207.80)	3.79 (2.56 - 5.03)
YLDs	Rate	1990	Both	0.22 (0.15 - 0.29)	-
YLDs	Rate	1990	Female	0.21 (0.15 - 0.29)	-
YLDs	Rate	1990	Male	0.22 (0.16 - 0.31)	-
YLDs	Rate	2021	Both	0.38 (0.26 - 0.51)	0.73 (0.41 - 1.12)
YLDs	Rate	2021	Female	0.38 (0.26 - 0.52)	0.81 (0.36 - 1.36)
YLDs	Rate	2021	Male	0.37 (0.26 - 0.51)	0.68 (0.26 - 1.11)
YLLs	Number	1990	Both	2725.17 (2361.21 - 3147.33)	-
YLLs	Number	1990	Female	1122.42 (917.49 - 1334.68)	-
YLLs	Number	1990	Male	1602.75 (1333.96 - 1940.84)	-
YLLs	Number	2021	Both	8538.35 (7603.81 - 9504.61)	2.13 (1.52 - 2.76)
YLLs	Number	2021	Female	3692.01 (3222.75 - 4202.14)	2.29 (1.52 - 3.19)

Measure	Metric	Year	Sex	Estimate (95% UI)	Relative change (95% UI)
YLLs	Number	2021	Male	4846.34 (4165.97 - 5431.86)	2.02 (1.27 - 2.75)
YLLs	Rate	1990	Both	9.41 (8.15 - 10.81)	-
YLLs	Rate	1990	Female	8.18 (6.73 - 9.71)	-
YLLs	Rate	1990	Male	10.47 (8.72 - 12.69)	-
YLLs	Rate	2021	Both	10.41 (9.26 - 11.61)	0.11 (-0.10 - 0.33)
YLLs	Rate	2021	Female	9.26 (8.10 - 10.48)	0.13 (-0.11 - 0.44)
YLLs	Rate	2021	Male	11.58 (9.95 - 12.98)	0.11 (-0.17 - 0.37)

Oral Disorders

Measure	Metric	Year	Sex	Estimate (95% UI)	Relative change (95% UI)
DALYs	Number	1990	Both	113832.79 (66468.56 - 175663.67)	-
DALYs	Number	1990	Female	49763.72 (28331.43 - 78412.43)	-
DALYs	Number	1990	Male	64069.07 (37834.11 - 98080.69)	-
DALYs	Number	2021	Both	279159.52 (168316.00 - 419671.52)	1.45 (1.18 - 1.80)
DALYs	Number	2021	Female	129741.71 (77686.86 - 196478.06)	1.61 (1.35 - 1.96)
DALYs	Number	2021	Male	149417.81 (90472.07 - 222007.43)	1.33 (1.03 - 1.70)
DALYs	Rate	1990	Both	314.99 (186.59 - 476.30)	-
DALYs	Rate	1990	Female	271.66 (158.17 - 418.79)	-
DALYs	Rate	1990	Male	356.05 (213.94 - 536.47)	-
DALYs	Rate	2021	Both	318.38 (192.94 - 471.07)	0.01 (-0.11 - 0.17)
DALYs	Rate	2021	Female	296.29 (179.10 - 445.75)	0.09 (-0.02 - 0.24)
DALYs	Rate	2021	Male	340.73 (208.41 - 499.48)	-0.04 (-0.17 - 0.13)
Incidence	Number	1990	Both	39251489.96 (33138745.96 - 45947785.35)	-
Incidence	Number	1990	Female	19264590.55 (16304311.54 - 22552595.08)	-
Incidence	Number	1990	Male	19986899.41 (16835186.41 - 23467085.95)	-
Incidence	Number	2021	Both	46771535.24 (41392073.40 - 52969346.45)	0.19 (0.13 - 0.27)
Incidence	Number	2021	Female	22904361.82 (20205086.28 - 26055001.51)	0.19 (0.13 - 0.27)
Incidence	Number	2021	Male	23867173.42 (21116480.80 - 27036951.39)	0.19 (0.13 - 0.28)
Incidence	Rate	1990	Both	56738.85 (49557.92 - 65438.48)	-
Incidence	Rate	1990	Female	56733.14 (49618.07 - 65121.65)	-
Incidence	Rate	1990	Male	56737.37 (49500.80 - 65708.03)	-
Incidence	Rate	2021	Both	56296.89 (49618.80 - 64522.19)	-0.01 (-0.03 - 0.01)
Incidence	Rate	2021	Female	56247.07 (49488.26 - 64632.22)	-0.01 (-0.03 - 0.01)

Measure	Metric	Year	Sex	Estimate (95% UI)	Relative change (95% UI)
Incidence	Rate	2021	Male	56347.03 (49653.12 - 64383.65)	-0.01 (-0.03 - 0.02)
Prevalence	Number	1990	Both	26981504.11 (24656450.94 - 29468686.11)	-
Prevalence	Number	1990	Female	13182967.69 (12063867.95 - 14416895.12)	-
Prevalence	Number	1990	Male	13798536.42 (12592173.56 - 15062374.44)	-
Prevalence	Number	2021	Both	43844655.88 (40433329.62 - 47194199.91)	0.62 (0.56 - 0.71)
Prevalence	Number	2021	Female	21537315.81 (19879384.01 - 23208514.15)	0.63 (0.57 - 0.71)
Prevalence	Number	2021	Male	22307340.06 (20559653.94 - 24055367.34)	0.62 (0.55 - 0.70)
Prevalence	Rate	1990	Both	50802.02 (46980.70 - 54804.94)	-
Prevalence	Rate	1990	Female	50340.82 (46336.72 - 54171.74)	-
Prevalence	Rate	1990	Male	51254.35 (47514.62 - 55313.60)	-
Prevalence	Rate	2021	Both	50184.34 (46512.83 - 54079.00)	-0.01 (-0.03 - 0.00)
Prevalence	Rate	2021	Female	50097.46 (46430.96 - 53978.69)	0.00 (-0.02 - 0.01)
Prevalence	Rate	2021	Male	50278.44 (46584.39 - 54112.69)	-0.02 (-0.04 - 0.00)
YLDs	Number	1990	Both	113832.79 (66468.56 - 175663.67)	-
YLDs	Number	1990	Female	49763.72 (28331.43 - 78412.43)	-
YLDs	Number	1990	Male	64069.07 (37834.11 - 98080.69)	-
YLDs	Number	2021	Both	279159.52 (168316.00 - 419671.52)	1.45 (1.18 - 1.80)
YLDs	Number	2021	Female	129741.71 (77686.86 - 196478.06)	1.61 (1.35 - 1.96)
YLDs	Number	2021	Male	149417.81 (90472.07 - 222007.43)	1.33 (1.03 - 1.70)
YLDs	Rate	1990	Both	314.99 (186.59 - 476.30)	-
YLDs	Rate	1990	Female	271.66 (158.17 - 418.79)	-
YLDs	Rate	1990	Male	356.05 (213.94 - 536.47)	-
YLDs	Rate	2021	Both	318.38 (192.94 - 471.07)	0.01 (-0.11 - 0.17)
YLDs	Rate	2021	Female	296.29 (179.10 - 445.75)	0.09 (-0.02 - 0.24)
YLDs	Rate	2021	Male	340.73 (208.41 - 499.48)	-0.04 (-0.17 - 0.13)

Other Oral Disorders

Measure	Metric	Year	Sex	Estimate (95% UI)	Relative change (95% UI)
DALYs	Number	1990	Both	27206.36 (16772.46 - 40732.58)	-
DALYs	Number	1990	Female	14295.47 (8787.52 - 21283.58)	-
DALYs	Number	1990	Male	12910.90 (7974.31 - 19595.52)	-
DALYs	Number	2021	Both	48241.27 (29622.48 - 71841.92)	0.77 (0.73 - 0.82)
DALYs	Number	2021	Female	25396.53 (15712.61 - 37321.48)	0.78 (0.72 - 0.83)

Measure	Metric	Year	Sex	Estimate (95% UI)	Relative change (95% UI)
DALYs	Number	2021	Male	22844.74 (13906.67 - 34522.28)	0.77 (0.72 - 0.82)
DALYs	Rate	1990	Both	53.47 (33.06 - 79.85)	-
DALYs	Rate	1990	Female	57.31 (35.50 - 84.53)	-
DALYs	Rate	1990	Male	49.79 (30.63 - 75.04)	-
DALYs	Rate	2021	Both	53.49 (33.03 - 79.83)	0.00 (-0.01 - 0.01)
DALYs	Rate	2021	Female	57.22 (35.56 - 84.27)	0.00 (-0.01 - 0.01)
DALYs	Rate	2021	Male	49.87 (30.54 - 75.29)	0.00 (-0.01 - 0.01)
Prevalence	Number	1990	Both	936394.08 (894353.08 - 981024.92)	-
Prevalence	Number	1990	Female	494118.13 (468880.67 - 518910.78)	-
Prevalence	Number	1990	Male	442275.96 (421753.65 - 466169.05)	-
Prevalence	Number	2021	Both	1677119.50 (1600313.45 - 1759798.04)	0.79 (0.75 - 0.84)
Prevalence	Number	2021	Female	889961.26 (846870.81 - 937307.10)	0.80 (0.75 - 0.85)
Prevalence	Number	2021	Male	787158.24 (749324.53 - 829202.05)	0.78 (0.73 - 0.83)
Prevalence	Rate	1990	Both	1858.60 (1780.73 - 1942.25)	-
Prevalence	Rate	1990	Female	2003.22 (1910.39 - 2104.46)	-
Prevalence	Rate	1990	Male	1720.24 (1646.14 - 1803.43)	-
Prevalence	Rate	2021	Both	1859.75 (1782.34 - 1943.73)	0.00 (0.00 - 0.00)
Prevalence	Rate	2021	Female	2003.22 (1910.39 - 2104.46)	0.00 (0.00 - 0.00)
Prevalence	Rate	2021	Male	1720.24 (1646.14 - 1803.43)	0.00 (0.00 - 0.00)
YLDs	Number	1990	Both	27206.36 (16772.46 - 40732.58)	-
YLDs	Number	1990	Female	14295.47 (8787.52 - 21283.58)	-
YLDs	Number	1990	Male	12910.90 (7974.31 - 19595.52)	-
YLDs	Number	2021	Both	48241.27 (29622.48 - 71841.92)	0.77 (0.73 - 0.82)
YLDs	Number	2021	Female	25396.53 (15712.61 - 37321.48)	0.78 (0.72 - 0.83)
YLDs	Number	2021	Male	22844.74 (13906.67 - 34522.28)	0.77 (0.72 - 0.82)
YLDs	Rate	1990	Both	53.47 (33.06 - 79.85)	-
YLDs	Rate	1990	Female	57.31 (35.50 - 84.53)	-
YLDs	Rate	1990	Male	49.79 (30.63 - 75.04)	-
YLDs	Rate	2021	Both	53.49 (33.03 - 79.83)	0.00 (-0.01 - 0.01)
YLDs	Rate	2021	Female	57.22 (35.56 - 84.27)	0.00 (-0.01 - 0.01)
YLDs	Rate	2021	Male	49.87 (30.54 - 75.29)	0.00 (-0.01 - 0.01)

Periodontal Disorders

Measure	Metric	Year	Sex	Estimate (95% UI)	Relative change (95% UI)
DALYs	Number	1990	Both	27658.12 (10933.77 - 58312.96)	-
DALYs	Number	1990	Female	13830.72 (5458.77 - 28943.04)	-
DALYs	Number	1990	Male	13827.39 (5475.00 - 29546.41)	-
DALYs	Number	2021	Both	77417.79 (31278.41 - 162816.99)	1.80 (1.58 - 2.11)
DALYs	Number	2021	Female	39605.94 (16016.80 - 83029.29)	1.86 (1.64 - 2.19)
DALYs	Number	2021	Male	37811.85 (15286.55 - 79714.65)	1.73 (1.51 - 2.06)
DALYs	Rate	1990	Both	79.55 (31.71 - 168.27)	-
DALYs	Rate	1990	Female	83.19 (33.25 - 175.24)	-
DALYs	Rate	1990	Male	76.13 (30.25 - 163.27)	-
DALYs	Rate	2021	Both	80.29 (32.35 - 167.97)	0.01 (-0.06 - 0.12)
DALYs	Rate	2021	Female	83.52 (33.64 - 174.28)	0.00 (-0.06 - 0.11)
DALYs	Rate	2021	Male	77.03 (30.96 - 161.65)	0.01 (-0.06 - 0.13)
Incidence	Number	1990	Both	418028.93 (315250.59 - 501271.60)	-
Incidence	Number	1990	Female	204280.62 (152581.36 - 245253.22)	-
Incidence	Number	1990	Male	213748.31 (161938.87 - 256196.71)	-
Incidence	Number	2021	Both	1059259.76 (873576.57 - 1216465.40)	1.53 (1.30 - 1.82)
Incidence	Number	2021	Female	526221.28 (433490.10 - 602111.75)	1.58 (1.33 - 1.87)
Incidence	Number	2021	Male	533038.48 (438978.15 - 611629.13)	1.49 (1.26 - 1.77)
Incidence	Rate	1990	Both	1098.73 (873.89 - 1286.60)	-
Incidence	Rate	1990	Female	1100.40 (874.47 - 1290.03)	-
Incidence	Rate	1990	Male	1097.19 (871.86 - 1284.07)	-
Incidence	Rate	2021	Both	1097.07 (912.65 - 1249.49)	0.00 (-0.05 - 0.08)
Incidence	Rate	2021	Female	1102.41 (921.26 - 1252.92)	0.00 (-0.05 - 0.08)
Incidence	Rate	2021	Male	1091.85 (906.45 - 1246.05)	0.00 (-0.06 - 0.08)
Prevalence	Number	1990	Both	4257624.30 (3135244.91 - 5366186.75)	-
Prevalence	Number	1990	Female	2144536.66 (1589406.47 - 2686125.87)	-
Prevalence	Number	1990	Male	2113087.64 (1560434.35 - 2687408.89)	-
Prevalence	Number	2021	Both	11963221.81 (9411959.36 - 14461388.85)	1.81 (1.59 - 2.12)
Prevalence	Number	2021	Female	6174785.54 (4892388.69 - 7421528.97)	1.88 (1.65 - 2.20)
Prevalence	Number	2021	Male	5788436.27 (4510263.34 - 7060232.41)	1.74 (1.52 - 2.06)
Prevalence	Rate	1990	Both	12313.17 (9298.35 - 15281.19)	-
Prevalence	Rate	1990	Female	12974.02 (9908.29 - 15941.49)	-

Measure	Metric	Year	Sex	Estimate (95% UI)	Relative change (95% UI)
Prevalence	Rate	1990	Male	11689.12 (8732.75 - 14691.87)	-
Prevalence	Rate	2021	Both	12453.29 (9984.02 - 14855.87)	0.01 (-0.06 - 0.12)
Prevalence	Rate	2021	Female	13066.28 (10576.18 - 15572.99)	0.01 (-0.06 - 0.11)
Prevalence	Rate	2021	Male	11837.02 (9429.03 - 14246.67)	0.01 (-0.06 - 0.12)
YLDs	Number	1990	Both	27658.12 (10933.77 - 58312.96)	-
YLDs	Number	1990	Female	13830.72 (5458.77 - 28943.04)	-
YLDs	Number	1990	Male	13827.39 (5475.00 - 29546.41)	-
YLDs	Number	2021	Both	77417.79 (31278.41 - 162816.99)	1.80 (1.58 - 2.11)
YLDs	Number	2021	Female	39605.94 (16016.80 - 83029.29)	1.86 (1.64 - 2.19)
YLDs	Number	2021	Male	37811.85 (15286.55 - 79714.65)	1.73 (1.51 - 2.06)
YLDs	Rate	1990	Both	79.55 (31.71 - 168.27)	-
YLDs	Rate	1990	Female	83.19 (33.25 - 175.24)	-
YLDs	Rate	1990	Male	76.13 (30.25 - 163.27)	-
YLDs	Rate	2021	Both	80.29 (32.35 - 167.97)	0.01 (-0.06 - 0.12)
YLDs	Rate	2021	Female	83.52 (33.64 - 174.28)	0.00 (-0.06 - 0.11)
YLDs	Rate	2021	Male	77.03 (30.96 - 161.65)	0.01 (-0.06 - 0.13)

Panel A notes: DALYs, disability-adjusted life years; YLDs, years lived with disability; YLLs, years of life lost; UI, uncertainty interval. Relative changes are displayed on a proportional scale (multiply by 100 to express percentages).

Panel B. Decomposition analysis of changes in absolute counts, 1990–2021

Scenario I represents the expected 2021 count due to population growth alone; Scenario II represents the expected 2021 count after accounting for population growth and age-structure change. The contributions in the PG, ASG, and IRC columns are expressed as percentage points relative to the 1990 baseline; rounding may affect the sum.

Cause	Outcome	Sex	1990 count	2021 count	Scenario I	Scenario II	PG (%)	ASG (%)	IRC (%)	TC (%)
Caries of deciduous teeth	Incidence	Both	19,366,707	14,864,627	28,950,245	15,244,451	49.48%	-70.77%	-1.96%	-23.25%
Caries of deciduous teeth	Incidence	Female	9,511,876	7,246,221	14,259,893	7,425,770	49.92%	-71.85%	-1.89%	-23.82%
Caries of deciduous teeth	Incidence	Male	9,854,831	7,618,406	14,690,500	7,818,453	49.07%	-69.73%	-2.03%	-22.69%
Caries of permanent teeth	Incidence	Both	19,352,961	30,519,542	28,929,696	30,452,130	49.48%	7.87%	0.35%	57.70%
Caries of permanent teeth	Incidence	Female	9,511,904	14,997,556	14,259,936	15,010,481	49.92%	7.89%	-0.14%	57.67%
Caries of permanent teeth	Incidence	Male	9,841,057	15,521,986	14,669,966	15,441,584	49.07%	7.84%	0.82%	57.73%
Edentulism	Incidence	Both	113,793	328,107	170,104	322,005	49.49%	133.49%	5.36%	188.34%
Edentulism	Incidence	Female	36,530	134,364	54,764	108,915	49.91%	148.24%	69.66%	267.81%
Edentulism	Incidence	Male	77,263	193,743	115,176	208,761	49.07%	121.13%	-19.44%	150.76%
Lip and oral cavity cancer	Deaths	Both	92	335	136	302	48.43%	181.17%	36.43%	266.03%
Lip and oral cavity cancer	Deaths	Female	38	152	58	134	51.08%	197.96%	48.03%	297.07%
Lip and oral cavity cancer	Deaths	Male	53	183	81	168	52.16%	163.43%	28.07%	243.65%
Lip and oral cavity cancer	Incidence	Both	156	733	234	481	49.88%	158.21%	161.61%	369.70%
Lip and oral cavity cancer	Incidence	Female	71	360	106	227	48.78%	169.83%	187.17%	405.79%
Lip and oral cavity cancer	Incidence	Male	85	373	127	249	49.63%	143.74%	146.04%	339.41%
Oral disorders	Incidence	Both	39,251,490	46,771,535	58,674,934	47,078,088	49.48%	-29.54%	-0.78%	19.16%
Oral disorders	Incidence	Female	19,264,591	22,904,362	28,880,846	23,069,706	49.92%	-30.16%	-0.86%	18.89%
Oral disorders	Incidence	Male	19,986,899	23,867,173	29,794,275	24,003,791	49.07%	-28.97%	-0.68%	19.41%
Periodontal diseases	Incidence	Both	418,029	1,059,260	624,889	1,059,500	49.48%	103.97%	-0.06%	153.39%
Periodontal diseases	Incidence	Female	204,281	526,221	306,252	524,544	49.92%	106.86%	0.82%	157.60%
Periodontal diseases	Incidence	Male	213,748	533,038	318,633	534,991	49.07%	101.22%	-0.91%	149.38%

Panel B notes: PG, population growth; ASG, age-structure change; IRC, incidence-rate change (mortality-rate change for deaths); TC, total change. For non-cancer conditions, the outcome is incidence. PG, ASG, and IRC describe separate contributions to total change.

Panel C. Age–period–cohort model coefficients for lip and oral cavity cancer

Regression coefficients, standard errors (SEs), and p-values for mortality and incidence are presented for age, calendar period, and birth cohort.

Age effects

	Mortality			Incidence		
Age	Coefficient	SE	p-value	Coefficient	SE	p-value
15-19	-1.56	0.13	<0.001	-1.24	0.07	<0.001
20-24	-1.56	0.13	<0.001	-1.24	0.07	<0.001
25-29	-1.38	0.12	<0.001	-1.12	0.07	<0.001
30-34	-1.04	0.10	<0.001	-0.70	0.06	<0.001
35-39	-0.64	0.08	<0.001	-0.27	0.05	<0.001
40-44	-0.32	0.07	<0.001	0.10	0.04	0.010
45-49	-0.04	0.06	0.5024	0.10	0.04	0.011
50-54	0.19	0.06	0.0011	0.20	0.04	<0.001
55-59	0.43	0.05	<0.001	0.32	0.04	<0.001
60-64	0.61	0.05	<0.001	0.44	0.03	<0.001
65-69	0.84	0.04	<0.001	0.61	0.03	<0.001
70-74	0.98	0.04	<0.001	0.72	0.03	<0.001
75-79	1.06	0.04	<0.001	0.74	0.03	<0.001
80+	1.01	0.04	<0.001	0.59	0.03	<0.001

Period effects

	Mortality			Incidence		
Period	Coefficient	SE	p-value	Coefficient	SE	p-value
1991	-0.61	0.14	<0.001	-0.79	0.09	<0.001
1992	-0.57	0.14	0.0001	-0.73	0.09	<0.001
1993	-0.52	0.14	0.0002	-0.65	0.09	<0.001
1994	-0.48	0.14	0.0004	-0.60	0.09	<0.001
1995	-0.45	0.13	0.0009	-0.55	0.08	<0.001
1996	-0.41	0.13	0.0021	-0.51	0.08	<0.001
1997	-0.36	0.13	0.0052	-0.46	0.08	<0.001
1998	-0.31	0.13	0.0132	-0.41	0.08	<0.001
1999	-0.26	0.12	0.0316	-0.35	0.08	<0.001
2000	-0.22	0.12	0.0715	-0.29	0.07	<0.001

	Mortality			Incidence		
Period	Coefficient	SE	p-value	Coefficient	SE	p-value
2001	-0.17	0.12	0.1532	-0.23	0.07	0.002
2002	-0.12	0.12	0.2957	-0.16	0.07	0.020
2003	-0.09	0.11	0.4376	-0.11	0.07	0.099
2004	-0.06	0.11	0.5775	-0.08	0.07	0.257
2005	-0.05	0.11	0.6654	-0.06	0.07	0.374
2006	-0.02	0.11	0.8820	-0.03	0.07	0.614
2007	0.03	0.11	0.8167	0.01	0.06	0.929
2008	0.06	0.11	0.5562	0.05	0.06	0.439
2009	0.09	0.11	0.3778	0.09	0.06	0.138
2010	0.13	0.11	0.2067	0.15	0.06	0.017
2011	0.17	0.11	0.1093	0.20	0.06	0.001
2012	0.21	0.10	0.0422	0.26	0.06	<0.001
2013	0.27	0.10	0.0086	0.33	0.06	<0.001
2014	0.35	0.10	0.0004	0.43	0.06	<0.001
2015	0.40	0.10	0.0001	0.49	0.06	<0.001
2016	0.44	0.10	<0.001	0.53	0.06	<0.001
2017	0.44	0.10	<0.001	0.55	0.06	<0.001
2018	0.44	0.10	<0.001	0.57	0.06	<0.001
2019	0.44	0.10	<0.001	0.60	0.06	<0.001
2020	0.45	0.11	<0.001	0.62	0.06	<0.001
2021	0.38	0.11	0.0004	0.57	0.06	<0.001

Cohort effects

	Mortality			Incidence		
Cohort	Coefficient	SE	p-value	Coefficient	SE	p-value
1909	-0.60	0.38	0.12	-0.55	0.31	0.08
1914	0.01	0.29	0.98	0.04	0.23	0.87
1919	0.15	0.29	0.61	0.18	0.22	0.41
1924	0.17	0.30	0.58	0.20	0.23	0.38
1929	0.17	0.33	0.60	0.19	0.24	0.42
1934	0.03	0.37	0.93	0.05	0.27	0.84
1939	-0.14	0.45	0.76	-0.13	0.31	0.67

	Mortality			Incidence		
Cohort	Coefficient	SE	p-value	Coefficient	SE	p-value
1939	0.09	0.19	0.63	0.07	0.13	0.59
1944	-0.07	0.48	0.88	-0.08	0.32	0.81
1944	0.03	0.19	0.89	0.01	0.12	0.95
1949	-0.04	0.54	0.95	-0.07	0.32	0.83
1949	0.14	0.19	0.47	0.12	0.12	0.32
1954	0.01	0.61	0.99	-0.02	0.37	0.95
1954	0.20	0.19	0.30	0.17	0.12	0.16
1959	0.07	0.72	0.93	0.04	0.44	0.92
1959	0.11	0.22	0.61	0.09	0.13	0.48
1964	0.09	0.23	0.68	0.08	0.14	0.58
1964	0.17	0.80	0.83	0.14	0.51	0.79
1969	0.10	0.26	0.71	0.09	0.15	0.53
1969	0.27	0.84	0.75	0.22	0.52	0.67
1974	0.10	0.28	0.73	0.11	0.15	0.47
1974	0.27	0.84	0.75	0.22	0.52	0.67
1979	0.21	0.30	0.50	0.24	0.15	0.10
1984	0.03	0.38	0.94	0.05	0.19	0.77
1989	-0.29	0.53	0.58	-0.29	0.26	0.27
1994	-0.48	0.68	0.48	-0.46	0.35	0.19
1999	-0.48	0.74	0.52	-0.43	0.37	0.24
2004	-0.48	0.74	0.52	-0.43	0.37	0.24

Panel C notes: SE, standard error. P-values below 0.001 are displayed as <0.001.