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Global, regional, and national burdens of atopic dermatitis from 1990 to 2021: a trend analysis

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Abstract

Background: Atopic dermatitis (AD) is a widespread dermatological condition, particularly affecting children globally. In spite of its high prevalence, comprehensive data on its burden and trends are limited.

Methods: Using the Global Burden of Disease Study 2021 (GBD 2021) data from 204 countries and 21 regions (1990-2021), we analyzed AD prevalence, incidence, and disability-adjusted life years (DALYs), calculating age-standardized rates (ASRs) and estimated annual percentage changes (EAPCs).

Objective: This study is designed to examine the temporal trends in the burden of AD across global, regional, and national levels.

Results: Globally, AD cases rose from 107.5 million (1990) to 129.0 million (2021). The high-income Asia Pacific region had instances of age-standardized prevalence (ASPR), age-standardized incidence rate (ASIR), and age-standardized DALYs, with Japan leading among 204 countries. High sociodemographic index (SDI) regions showed the highest ASPR, ASIR, and age-standardized DALYs, while medium and high SDI regions experienced the largest increases. Females exhibited higher ASRs than males. Age-specific prevalence and DALYs peaked in children aged 5-9 years, whereas incidence was the highest in those aged under 5 years. Projections based on 1990-2021 data suggest declining global trends in ASPR, ASIR, and age-standardized DALYs by 2050.

Conclusions: Global AD prevalence and DALYs continue to rise, whereas ASPR and age-standardized DALYs are declining. High SDI regions exhibit the highest prevalence, yet low-income countries show increasing age-standardized DALYs, underscoring profound regional heterogeneity. Thus, the absolute burden of AD is escalating worldwide, while individual-level risk appears to be improving.

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Introduction

Atopic dermatitis (AD) is a prevalent, chronic, relapsing inflammatory skin disease associated with significant social and economic burdens.^{1,2} According to a global burden of disease (GBD) study, the prevalence of AD ranges from 15% to 20% in children and up to 10% in adults.³ In the related GBD study, AD ranked 18th among all nonfatal diseases and 1st among skin diseases in terms of DALYs.⁴

Although AD is traditionally regarded as a childhood disease, recent epidemiological studies have demonstrated that it is also common in adulthood and old age.^{5,6} The pathogenesis of AD encompasses skin barrier defects, T-helper cell type 2 (Th2)-dominated skin inflammation, and heightened skin responsiveness to inflammatory stimuli.^{7,8} Pruritus, the cardinal symptom of AD, can lead to sleep disturbances, decreased work or school productivity, and anxiety and depression.⁹ These sequelae impose additional health and economic burdens on patients and their families.^{10,11} Patients with AD have a higher risk of cardiovascular disease and myocardial infarction compared to healthy individuals.⁷ Moreover, medications used to treat moderate to severe AD in older adults may affect the management of other pre-existing conditions.¹² The direct medical costs and indirect costs associated with AD place a substantial economic burden on patients, families, and society.¹³ Direct health care costs include prescription costs, medical bills, emergency room charges, and hospitalization costs. Indirect costs encompass decreased work productivity (presenteeism), absenteeism (missing work), and impaired quality of life.¹⁴ A study on the economic burden of out-of-pocket health care costs for AD in the United States revealed that 41.9% of patients incurred out-of-pocket costs of up to \$1,000.¹⁵ In Central and Eastern European countries, the annual loss of quality-adjusted life-years (QALYs) because of AD ranges from 1,832 to 58,596, corresponding to a loss of between 380,000 and approximately 100 million euros per country. Annual productivity losses range from €3.6 to €14.89 billion. The total implicit burden of AD is between 0.11% and 0.43% of GDP.¹⁶ In Germany, the total annual cost of AD is estimated to be €200 million.¹⁷

Therefore, this study delivers the most comprehensive and up-to-date assessment of the global burden of AD through 2021. Compared with previous reports, our analysis incorporates multidimensional stratification, delineating not only overarching global and regional trends but also, critically, the differential distribution of disease burden by sex, age, and sociodemographic index (SDI). These granular insights enable precise identification of high-risk populations and will inform targeted public health interventions and equitable resource allocation.

Methods

Data collection

The GBD 2021 study comprehensively evaluated the health impacts associated with 369 diseases, injuries, and impairments, as well as 88 risk factors, across 204 countries and territories.¹⁸ The detailed research framework and

analytical methods are documented in previous studies (<https://ghdx.healthdata.org/gbd-2021>).¹⁸ All analytical data can be accessed by entering the keyword “atopic dermatitis” on the GBD website (<https://vizhub.healthdata.org/gbd-results/>). Since the GBD data are anonymized, the Institutional Review Board of the University of Washington has determined that other researchers may use these data without requiring patient consent.¹⁹ The detailed procedure is illustrated in [Figure S1](#). This study is compliant with the Guidelines for Accurate and Transparent Health Estimates Reporting ([S1 GATHER S4GATHER Checklist](#)).

Estimation framework

This study employed precise modeling methods to assess the impact of AD.¹⁸ Briefly, the study utilized the Disease Modeling-Bayesian Meta-Regression 2.1 tool to determine disease incidence and prevalence. This software incorporates various parameters, epidemiological relationships, and geospatial data to ensure reliable calculations. Disease burden was also expressed in terms of disability-adjusted life years (DALYs), a metric that quantifies the difference between healthy life and life affected by disease. DALYs are calculated as the sum of years lost because of disability and years of life lost because of premature death. For nonfatal diseases such as AD, DALYs primarily reflect years lost because of disability.

SDI

SDI quantifies regional development levels using indicators such as the total fertility rate (TFR) among women under 25, educational attainment, and per capita income. The SDI score ranges from 0 to 1, with 0 representing the lowest level of development, and 1 representing the highest.²⁰ In this analysis, countries and territories were categorized into five SDI groups—low, low-middle, middle, high-middle, and high—to investigate the association between socioeconomic status and AD.

Forecasting

To project the future trends of AD from 2022 to 2050, we employed the Bayesian age-period-cohort (BAPC) analysis method, leveraging global epidemiological data from 1990 to 2021. The future standardized population data were sourced from the 2021 population projections in the GBD database. The BAPC method was chosen for its robust handling of complex high-dimensional data, a common feature in large-scale epidemiological studies.²¹ The BAPC model is rooted in the age-period-cohort (APC) framework, which elucidates disease trends by accounting for age, period, and cohort effects. However, the classic APC model often encounters challenges in parameter estimation because of collinearity among its factors. To mitigate this issue, we integrated a Bayesian framework into the APC model. A key advantage of the Bayesian model is its utilization of the integrated nested laplace approximation (INLA) method to approximate marginal posterior distributions. In this study,

BAPC analysis was conducted using the “BAPC” and “INLA” packages within the R statistical software environment.

Statistical analyses

We calculated the trends in age-standardized prevalence rate (ASPR), age-standardized incidence rate (ASIR) and DALYs for AD from 1990 to 2021 using the estimated annual percentage change (EAPC). An ASR was classified as increasing if both the EAPC and the lower limit of its 95% confidence interval were positive. Conversely, an ASR was classified as decreasing if both the EAPC and the upper limit of its 95% confidence interval were negative. If neither condition was met, the ASR was classified as stable. Data analysis and graphical representations were performed using R software version 4.3. The detailed analytical methods used for this study have been published previously,²² and the related codes can be accessed at <http://ghdx.healthdata.org/gbd-2017/code>.

Results

Prevalence, incidence, and DALYs in global

From 1990 to 2021, the global prevalence of AD increased by 20%, rising from 107.5 million (95% Uncertainty Interval [UI]: 103.0 to 112.1) to 129.0 million (95% UI: 123.9 to 134.1). Conversely, the ASPR for AD decreased from 1,885.43 (95% UI: 1,808.98 to 1,962.25) in 1990 to 1,728.51 (95% UI: 1,658.51 to 1,798.60) in 2021, with an EAPC of -0.27 (95% CI: -0.28 to -0.27) (Table 1). During this period, the global number of AD incidence increased from 13,479,200 (95% UI: 12,764,400 to 14,220,800) in 1990 to 16,006,700 (95% UI: 15,211,200 to 16,819,900) in 2021, corresponding to an 18.78% increase over the 31-year period. The ASIR decreased from 223.02 (95% UI: 209.51 to 231.97) in 1990 to 220.58 (95% UI: 209.51 to 231.97) in 2021, with an EAPC of -0.20 (95% CI: -0.21 to -0.19) (Table 1). Meanwhile, the absolute number of DALYs because of AD increased from 4,698,000 (95% UI: 2,421,100 to 7,825,800) in 1990 to 5,621,500 (95% UI: 2,889,200 to 9,367,100) in 2021. However, age-standardized DALYs decreased from 82.13 (95% UI: 42.35 to 136.74) in 1990 to 75.45 (95% UI: 38.75 to 125.64) in 2021, with an EAPC of -0.26 (95% CI: -0.27 to -0.26) (Table 1).

Regional trends

Prevalence, incidence, and DALYs in SDI quintiles

Regions with higher SDI levels exhibited higher ASPRs, ASIRs, and DALYs for AD (Figure 1, Figure S3, Table 1). Specifically, in 2021, high SDI regions had the highest ASPR at 3,233.96 (95% UI: 3,105.94 to 3,396.25), yet they also experienced the most substantial decline, with an EAPC of -0.14 (95% CI: -0.15 to -0.13). Conversely, low SDI regions had the lowest ASPR at 1,171.10 (95% UI: 1,119.89 to 1,233.87) and demonstrated the smallest decline (EAPC: -0.08 ; 95% CI: -0.09 to -0.07). Among the five SDI regions, only the medium-high SDI region exhibited an increasing trend, with an EAPC of

0.04 (95% CI: 0.01 to 0.08). Similarly, in 2021, the ASIR for AD was elevated only in the medium-high SDI region, with an EAPC of 0.06 (95% CI: 0.03 to 0.10). However, the mid-low SDI region had the most pronounced decline, with an EAPC of -0.13 (95% CI: -0.13 to -0.12). In terms of DALYs, age-standardized DALYs for AD were most significantly elevated in the medium-high SDI region in 2021, with an EAPC of 0.05 (95% CI: 0.02 to 0.09). In contrast, the most significant decrease was observed in high SDI regions, with an EAPC of -0.14 (95% CI: -0.16 to -0.13) (Figure S3). A positive correlation was observed between the age-standardized DALYs and the SDI (Figure S3).

Prevalence, incidence, and DALYs in 21 GBD area

In 2021, the high-income Asia Pacific region had the highest ASPR, ASIR, and DALYs for AD. Inversely, Central Sub-Saharan Africa had the lowest values for these metrics. Specifically, the high-income Asia Pacific region had an ASPR of 4,596.03 (95% UI: 4,402.96 to 4,811.08), followed by Central Asia at 4,387.01 (95% UI: 4,148.98 to 4,628.20), and Western Europe at 3,761.10 (95% UI: 3,583.37 to 3,938.45). In contrast, Central Sub-Saharan Africa had the lowest ASPR at 981.16 (95% UI: 919.73 to 1,036.77). Between 1990 and 2021, the most significant increase in age-standardized prevalence was observed in Eastern Europe, with an EAPC of 0.21 (95% CI: 0.17 to 0.24), while the most substantial decline was in North Africa and the Middle East, with an EAPC of -0.15 (95% CI: -0.15 to -0.14). Regarding the ASIR, the high-income Asia Pacific region had the highest ASIR at 474.81 (95% UI: 448.38 to 505.41), closely followed by Western Europe at 421.72 (95% UI: 394.56 to 448.97), and Central Asia at 413.83 (95% UI: 381.95 to 446.64). Central Sub-Saharan Africa had the lowest ASIR at 146.06 (95% UI: 135.69 to 157.03). As with the ASPR, between 1990 and 2021, Eastern Europe experienced the greatest increase in age-standardized incidence, with an EAPC of 0.22 (95% CI: 0.18 to 0.27), while North Africa and the Middle East saw the largest decrease, with an EAPC of -0.11 (95% CI: -0.11 to -0.10). In terms of age-standardized DALYs, the high-income Asia Pacific region had the highest value at 202.07 (95% UI: 103.47 to 337.30), followed by Central Asia at 192.37 (95% UI: 98.80 to 324.14) and Western Europe at 164.47 (95% UI: 85.21 to 275.32). Central Sub-Saharan Africa had the lowest age-standardized DALYs at 42.89 (95% UI: 22.11 to 71.52). Between 1990 and 2021, age-standardized DALYs increased most significantly in Eastern Europe, with an EAPC of 0.22 (95% CI: 0.18 to 0.26), while the most substantial decline was observed in North Africa and the Middle East, with an EAPC of -0.14 (95% CI: -0.15 to -0.13) (Figure 2 and 3, Figure S3, Table 1).

Prevalence, incidence, and DALYs in 204 countries

In 2021, Japan exhibited the highest ASPR, ASIR, and DALYs for AD. As for ASPR, Japan had an ASPR of 4,892.58 (95% UI: 4,683.90 to 5,124.84), followed by France at 4,704.28 (95% UI: 4,397.67 to 5,039.86), and Kazakhstan in third place with an ASPR of 4,398.90 (95% UI: 4,158.21 to 4,641.02). However, the most significant increase in age-standardized

Table 1 Global and regional trends in AD burden: prevalence, incidence, and DALYs (1990-2021).

Location	Atopic dermatitis		
	ASR_1990	ASR_2021	EAPC_95%CI
Prevalence			
Global	1885.43 (1808.98-1962.25)	1728.51 (1658.51-1798.6)	-0.27 (-0.28 to -0.27)
High SDI	3364.38 (3234.39-3507.08)	3233.96 (3105.94-3369.25)	-0.14 (-0.15 to -0.13)
High-middle SDI	2103.18 (2018.71-2191.06)	2065.66 (1978.78-2151.14)	0.04 (0.01 to 0.08)
Middle SDI	1589.36 (1523.69-1658.38)	1591.28 (1526.71-1657.34)	0 (0 to 0.01)
Low-middle SDI	1499.34 (1434.36-1566.92)	1450.53 (1388.11-1514.66)	-0.12 (-0.13 to -0.11)
Low SDI	1199.62 (1147.07-1252.31)	1171.1 (1119.89-1223.87)	-0.08 (-0.09 to -0.07)
Andean Latin America	1694.36 (1622.41-1772.01)	1692.65 (1620.76-1770.4)	0.01 (0 to 0.02)
Australasia	2534.56 (2389.13-2672.41)	2535.67 (2392.77-2686.33)	0.01 (-0.01 to 0.02)
Caribbean	1947.47 (1842.36-2049.01)	1945.56 (1840.66-2046.99)	0 (0 to 0)
Central Asia	4399.59 (4163.54-4640.9)	4387.01 (4148.98-4628.2)	-0.01 (-0.01 to -0.01)
Central Europe	1758.86 (1679.17-1836.85)	1774.87 (1691.64-1858.31)	0.02 (0.02 to 0.03)
Central Latin America	1790.73 (1709.66-1874.78)	1773.33 (1690.09-1853.45)	-0.04 (-0.04 to -0.03)
Central Sub-Saharan Africa	982.02 (920.51-1037.71)	981.16 (919.73-1036.77)	0 (-0.01 to 0)
East Asia	1380.79 (1320.67-1441.77)	1369.02 (1309.83-1425.29)	0 (-0.02 to 0.02)
Eastern Europe	2856.81 (2762.95-2960.24)	3003.42 (2904.17-3107.67)	0.21 (0.17 to 0.24)
Eastern Sub-Saharan Africa	1022.21 (977.67-1064.8)	1034.1 (987.87-1080.04)	0.05 (0.04 to 0.06)
High-income Asia Pacific	4605.74 (4402.01-4811.25)	4596.03 (4402.96-4811.08)	-0.02 (-0.04 to 0)
High-income North America	3139.72 (3036.67-3247.61)	3131.86 (3023.58-3244.21)	-0.03 (-0.06 to -0.01)
North Africa and Middle East	1430.18 (1354.47-1502.71)	1374.93 (1300.26-1444.3)	-0.15 (-0.15 to -0.14)
Oceania	1725.64 (1632.78-1833.8)	1725.48 (1632.52-1833.58)	0 (0 to 0)
South Asia	1466.66 (1400.48-1539.32)	1467.56 (1400.88-1540.43)	-0.02 (-0.03 to -0.01)
Southeast Asia	1645.5 (1575.15-1719.11)	1645.49 (1571.3-1719.24)	0 (0 to 0.01)
Southern Latin America	3213.96 (3034.27-3397.32)	3210.54 (3031.03-3393.55)	0 (0 to 0)
Southern Sub-Saharan Africa	1041.19 (994.77-1090.18)	1039.97 (992.88-1089.07)	0 (-0.01 to 0)
Tropical Latin America	2362.95 (2270.41-2460.92)	2365.36 (2272.94-2464.23)	0 (-0.01 to 0)
Western Europe	3770.89 (3598.11-3954.62)	3761.1 (3583.37-3938.45)	-0.02 (-0.03 to 0)
Western Sub-Saharan Africa	1048.05 (1004.21-1090.18)	1052.92 (1008.44-1095.34)	0.02 (0.02 to 0.03)
Incidence			
Global	234.78 (223.02-247.07)	220.58 (209.51-231.97)	-0.2 (-0.21 to -0.19)
High SDI	364.39 (345.43-384.48)	356.59 (338.03-376.39)	-0.08 (-0.1 to -0.07)
High-middle SDI	240.35 (227.55-253.98)	242.06 (228.98-255.8)	0.06 (0.03 to 0.1)
Middle SDI	217.88 (206.98-229.38)	216.92 (205.93-228.01)	-0.02 (-0.02 to -0.01)
Low-middle SDI	205.99 (194.71-218.53)	199.27 (188.54-210.86)	-0.13 (-0.13 to -0.12)
Low SDI	168.7 (159.8-178.31)	164.02 (155.25-173.16)	-0.09 (-0.1 to -0.09)
Andean Latin America	226.66 (214.67-239.34)	226.52 (214.55-239.16)	0.01 (0 to 0.02)
Australasia	338.61 (315.82-361.52)	338.68 (314.33-364.6)	0 (-0.01 to 0.01)
Caribbean	263.22 (244.18-283.46)	263.09 (244-283.32)	0 (0 to 0)
Central Asia	414.92 (383.23-447.64)	413.83 (381.95-446.64)	-0.01 (-0.01 to -0.01)
Central Europe	225.86 (212.63-241.46)	228.01 (214.91-244.41)	0.02 (0.01 to 0.02)
Central Latin America	249.05 (234.79-264.98)	248.13 (233.79-263.46)	-0.02 (-0.03 to -0.02)
Central Sub-Saharan Africa	146.16 (135.79-157.19)	146.06 (135.69-157.03)	0 (-0.01 to 0)
East Asia	199.95 (189.77-210.52)	198.49 (189-208.52)	0 (-0.03 to 0.02)
Eastern Europe	211.61 (200.84-223.39)	222.53 (211.03-235.27)	0.22 (0.18 to 0.27)
Eastern Sub-Saharan Africa	146.11 (138.01-154.02)	147.77 (139.31-155.78)	0.05 (0.04 to 0.06)
High-income Asia Pacific	473.98 (447.59-501.7)	474.81 (448.38-505.41)	0 (-0.02 to 0.01)
High-income North America	334.7 (319.72-350.29)	334.63 (319.39-349.65)	-0.02 (-0.03 to 0)
North Africa and Middle East	188.43 (176.31-200.36)	183.14 (171.05-194.83)	-0.11 (-0.11 to -0.1)
Oceania	236.05 (217.85-254.74)	235.99 (217.79-254.67)	0 (0 to 0)
South Asia	207.18 (195.37-220.53)	207.29 (195.41-220.57)	-0.02 (-0.03 to -0.01)
Southeast Asia	220.97 (208.65-233.73)	221.53 (209.56-233.87)	0.01 (0.01 to 0.02)
Southern Latin America	388.03 (357.85-417.58)	387.79 (357.7-417.31)	0 (0 to 0)
Southern Sub-Saharan Africa	152.89 (143.91-161.75)	152.75 (143.72-161.57)	0 (0 to 0)
Tropical Latin America	300.93 (286.23-315.73)	301.13 (286.24-316.05)	0 (-0.01 to 0)
Western Europe	423.07 (395.94-450.91)	421.72 (394.56-448.97)	-0.02 (-0.02 to -0.01)
Western Sub-Saharan Africa	146.5 (139.16-153.87)	147 (139.61-154.2)	0.02 (0.01 to 0.02)

(continues)

Table 1 Continued.

Location	Atopic dermatitis		
	ASR_1990	ASR_2021	EAPC_95%CI
DALYs			
Global	82.13 (42.35-136.74)	75.45 (38.75-125.64)	-0.26 (-0.27 to -0.26)
High SDI	146.99 (75.55-244.81)	141.11 (72.7-234.6)	-0.14 (-0.16 to -0.13)
High-middle SDI	92.22 (47.52-153.26)	90.8 (46.58-151.24)	0.05 (0.02 to 0.09)
Middle SDI	69.58 (35.9-116.47)	69.84 (35.96-116.91)	0.01 (0.01 to 0.02)
Low-middle SDI	65.27 (33.66-109.6)	63.42 (32.6-105.75)	-0.11 (-0.12 to -0.1)
Low SDI	52 (26.92-87.37)	51.1 (26.14-85.42)	-0.05 (-0.06 to -0.05)
Andean Latin America	73.7 (37.91-123.22)	73.89 (38.34-123.07)	0.03 (0.02 to 0.04)
Australasia	110.82 (56.77-184.05)	111.17 (57.59-187.59)	0.01 (0 to 0.02)
Caribbean	84.7 (43.93-141.95)	84.56 (44.1-142.12)	0 (-0.01 to 0)
Central Asia	192.48 (99.3-323.8)	192.37 (98.8-324.14)	0 (0 to 0)
Central Europe	77.58 (39.94-130.56)	78.36 (40.37-132.13)	0.03 (0.02 to 0.04)
Central Latin America	78.34 (40.31-131.14)	77.72 (39.95-130.08)	-0.03 (-0.04 to -0.02)
Central Sub-Saharan Africa	42.56 (21.73-72.23)	42.89 (22.11-71.52)	0.03 (0.02 to 0.03)
East Asia	60.84 (31.52-102.16)	60.48 (31.37-101.51)	0.01 (-0.01 to 0.03)
Eastern Europe	125.53 (64.4-207.81)	132.17 (67.33-219.48)	0.22 (0.18 to 0.26)
Eastern Sub-Saharan Africa	44.33 (22.81-74.38)	45.19 (23.19-75.5)	0.08 (0.07 to 0.09)
High-income Asia Pacific	202.21 (103.15-337.13)	202.07 (103.47-337.3)	-0.02 (-0.04 to 0)
High-income North America	136.34 (70.34-225.64)	135.37 (69.85-222.95)	-0.05 (-0.07 to -0.02)
North Africa and Middle East	62.58 (32.42-105.74)	60.23 (30.95-101.13)	-0.14 (-0.15 to -0.13)
Oceania	75.31 (38.83-126.44)	75.49 (38.93-127.9)	0.01 (0 to 0.01)
South Asia	63.8 (32.98-107.16)	64.23 (33.06-106.96)	0 (-0.01 to 0.02)
Southeast Asia	71.93 (37.13-122.04)	72.22 (37.33-122.5)	0.02 (0.02 to 0.02)
Southern Latin America	140.54 (71.91-237.06)	140.43 (71.94-236.14)	0 (-0.01 to 0)
Southern Sub-Saharan Africa	45.53 (23.63-76.7)	45.48 (23.48-76.47)	0 (0 to 0)
Tropical Latin America	102.14 (53.31-168.78)	102.49 (53.33-169.99)	0.01 (0 to 0.02)
Western Europe	164.94 (85.25-275.87)	164.47 (85.21-275.32)	-0.02 (-0.03 to 0)
Western Sub-Saharan Africa	45.49 (23.41-76.98)	45.94 (23.77-77.64)	0.05 (0.04 to 0.06)

Atopic dermatitis (AD); Sociodemographic index (SDI); Age-standardized rate (ASR); Disability-adjusted life years (DALYs); and Estimated annual percentage change (EAPC).

prevalence of AD compared to 1990 was observed in Kenya, with an EAPC of 0.25 (95% CI: 0.21 to 0.28). Conversely, the Maldives had the most substantial decline, with an EAPC of -0.11 (95% CI: -0.13 to -0.09), while Japan also demonstrated a downward trend, with an EAPC of -0.01 (95% CI: -0.01 to -0.01). Rwanda had the lowest ASPR for AD, with an ASPR of 687.58 (95% UI: 646.68 to 733.76). When examining the trend in the prevalence of diseases, Qatar exhibited the most substantial increase in 2021 compared to 1990, with an increase of 409.89 times. This was followed by Afghanistan, with an increase of 229.87 times, and the United Arab Emirates, with an increase of 227.75 times. Conversely, Albania experienced the largest decrease in 2021 compared to 1990 (Figure 4).

Regarding ASIR, Japan had the highest ASIR in 2021 at 494.75 (95% UI: 467.73 to 525.79), while Latvia had the lowest ASIR at 104.03 (95% UI: 98.40 to 109.82). However, Japan's age-standardized incidence of AD showed a decreasing trend compared to 1990, with an EAPC of -0.02 (95% CI: -0.05 to 0). In contrast, the Russian Federation had the largest increase, with an EAPC of 0.24 (95% CI: 0.18 to 0.29), while Egypt had the largest decrease, with an EAPC

of -0.09 (95% CI: -0.12 to -0.06). Regarding the trend in incidence cases, Qatar had the most marked increase in 2021 compared to 1990, with an increase of 381.96 times. Afghanistan and Angola followed closely, with increases of 224.84 and 212.95 times, respectively. In stark contrast, Albania had the largest decline in 2021 compared to 1990 (Figure 4).

In terms of DALYs, the results mirrored those observed for age-standardized prevalence. Japan had the highest age-standardized DALYs, with a value of 215.1 (95% UI: 109.77 to 358.88), while Rwanda had the lowest, with age-standardized DALYs of 30.12 (95% UI: 15.45 to 51.39). Compared to 1990, Kenya exhibited the largest increase in age-standardized DALYs, with an EAPC of 0.27 (95% CI: 0.23 to 0.30). Conversely, the United Kingdom had the largest decrease, with an EAPC of -0.09 (95% CI: -0.13 to -0.04) (Figure 2, Tables S1-S3, Figure S2). In assessing the temporal trend of DALYs, Qatar demonstrated the highest increase in 2021 compared to 1990, with an increase of 409.25 times. Afghanistan and Equatorial Guinea followed, with respective increases of 231.79 times and 230.27 times. In contrast, Albania had the most significant decline

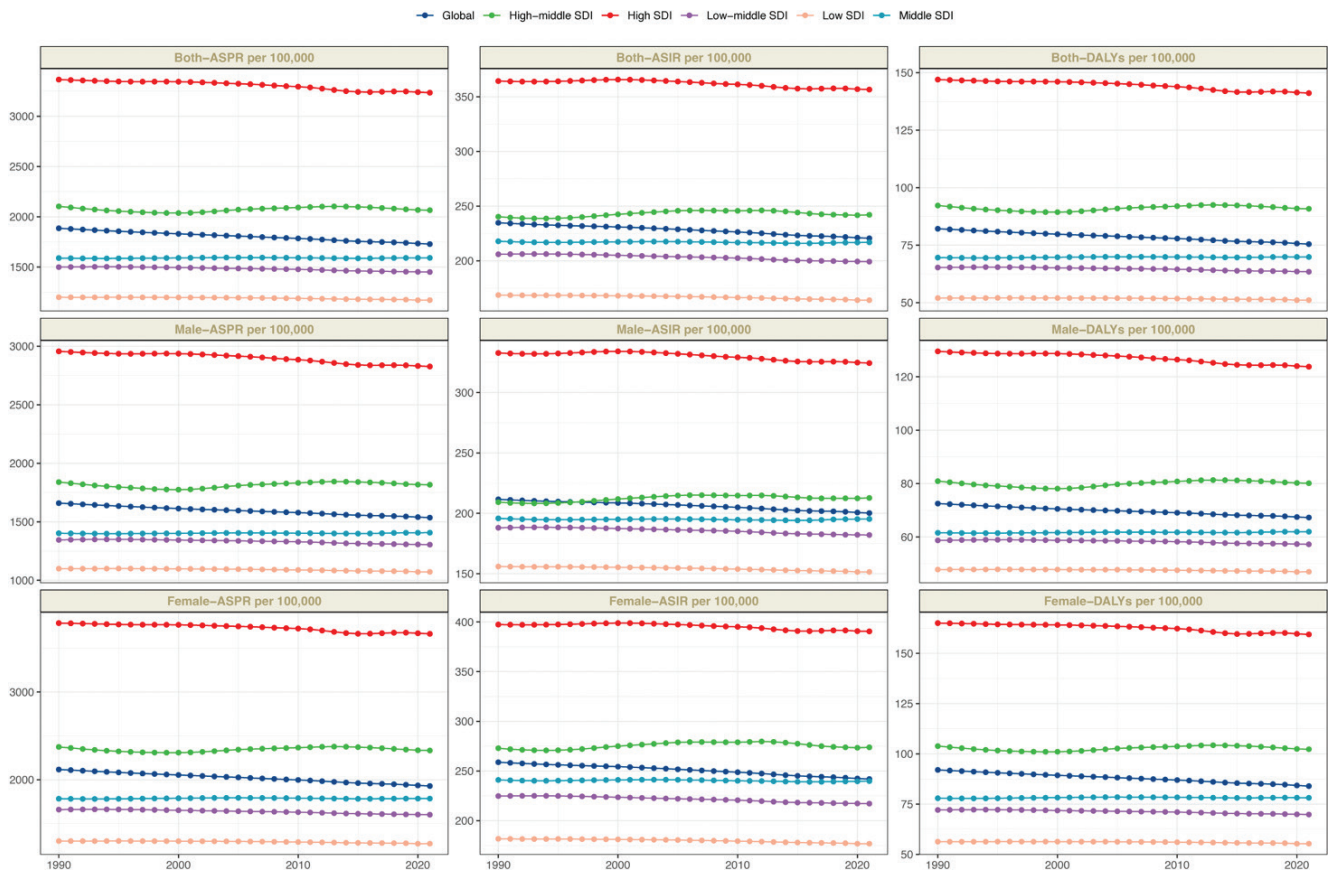


Figure 1 Trends in atopic dermatitis prevalence, incidence, and disability-adjusted life-years from 1990 to 2021. Age-standardized prevalence rate (ASPR); age-standardized incidence rate (ASIR); disability-adjusted life years (DALYs).

in 2021 compared to 1990 (Figure 4). Positive correlations were found between the age-standardized DALYs rates and 204 countries (Figure S4).

Burden of AD by age

AD is prevalent among children and typically exhibits a decreasing trend with age; however, a slight increase is observed in older age groups. Specifically, in 2021, the global prevalence of AD peaked in the 5-9 years age group, with a prevalence rate of 4,241.21 per 100,000, affecting approximately 29 million individuals. The prevalence decreased in young adults but increased again in older adults, particularly in the 85-89 years age group, where the prevalence rate was 1,326.15. Among the 16 million individuals affected by the disease globally in 2021, 6.9 million (43%) were under the age of 5 years, with an incidence rate of 1,049.61, the highest across all age groups. While the incidence rate decreased in young adults, it increased in the elderly population, with the most pronounced rise observed in the 75-79 years age group, where the incidence rate was 146.26. Age-specific DALYs were also concentrated in the 5-9 years age group, with a DALY rate of 188.08 and a total of approximately 1.29 million DALYs (Figure 5). Thus, AD exhibits a bimodal distribution, commonly affecting children and older adults.

Burden of AD by sex

Globally, from 1990 to 2021, the prevalence of AD was higher in females than in males. In 2021, the age-standardized prevalence of AD was 25% higher in females than in males, with values of 1,928.51 per 100,000 for females compared to 1,535.50 per 100,000 for males. Similarly, the age-standardized incidence was higher in females (241.9 per 100,000) than in males (200.21 per 100,000), and age-standardized DALYs were also higher in females (83.95 per 100,000) than in males (67.27 per 100,000) (Figure 5, Figure S5).

Forecast analysis of AD burden over the following 20 years

Based on data from 1990 to 2021, this study projects declining trends in global AD ASPR, ASIR, and age-standardized DALYs by 2050. Specifically, the global ASPR is projected to decline from 1,734.34 in 2021 to 1,664.09 by 2050. In this context, females are expected to experience a more pronounced decline, decreasing from 1,934.83 in 2021 to 1,840.81 by 2050, while males are projected to experience a decline from 1,540.86 in 2021 to 1,495.08 by 2050. The global ASIR is also projected to decrease from 221.16 in 2021 to 210.01 by 2050, with females showing a

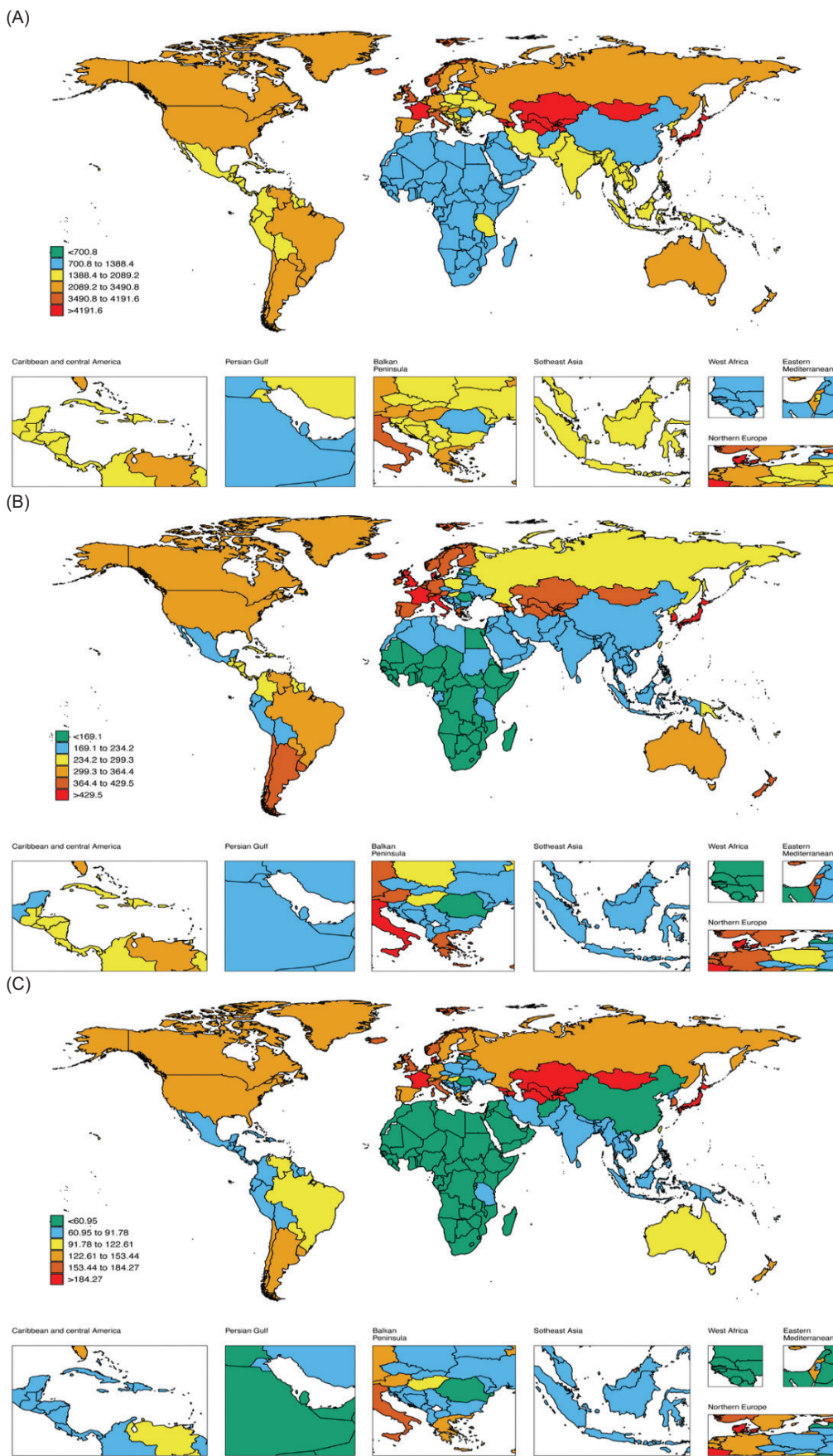


Figure 2 The global disease burden of atopic dermatitis for both sexes in 204 countries and territories in 2021. (A) Prevalence rate. (B) Incidence rate. (C) DALYs rate. Disability-adjusted life years (DALYs).

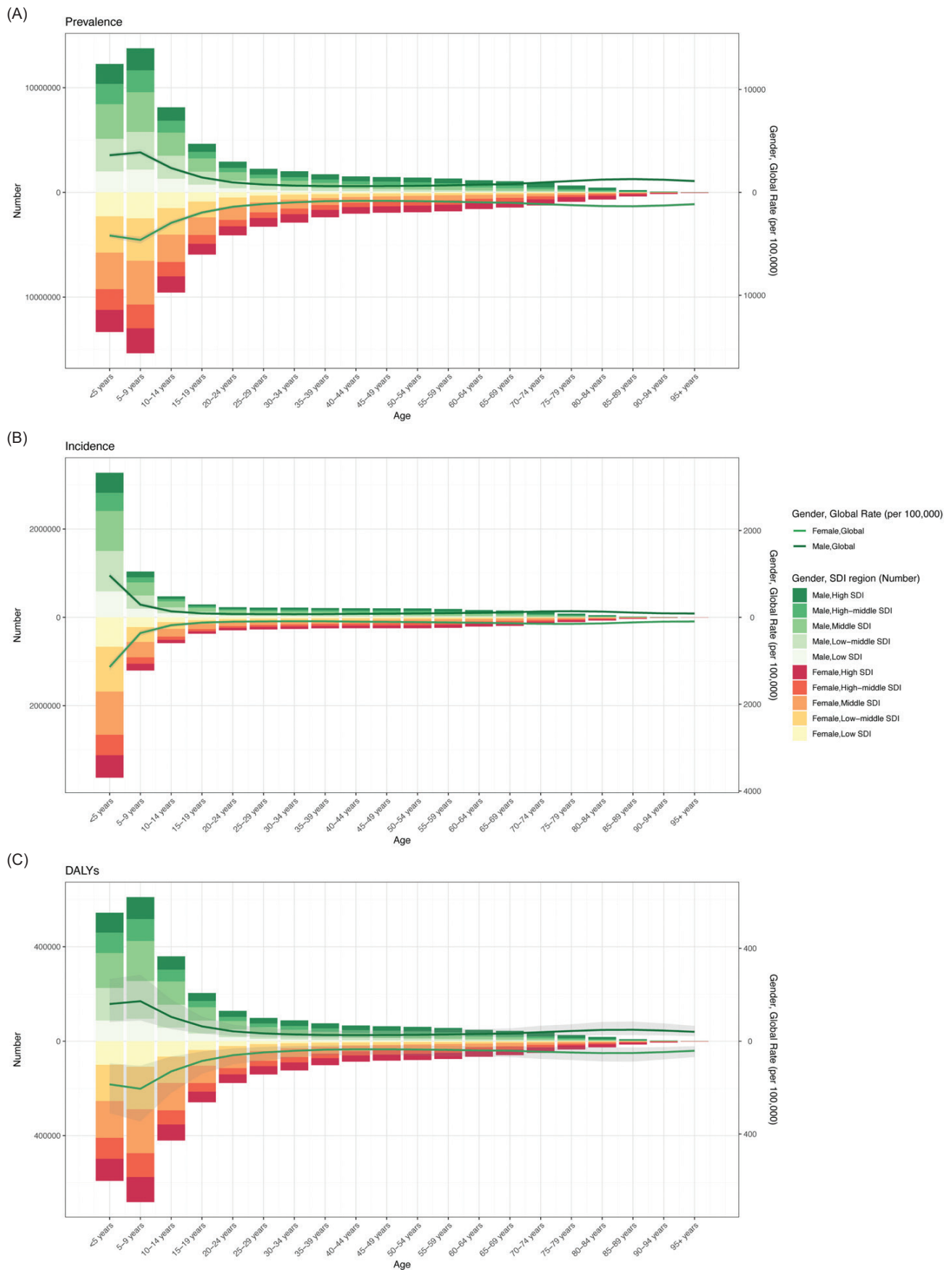
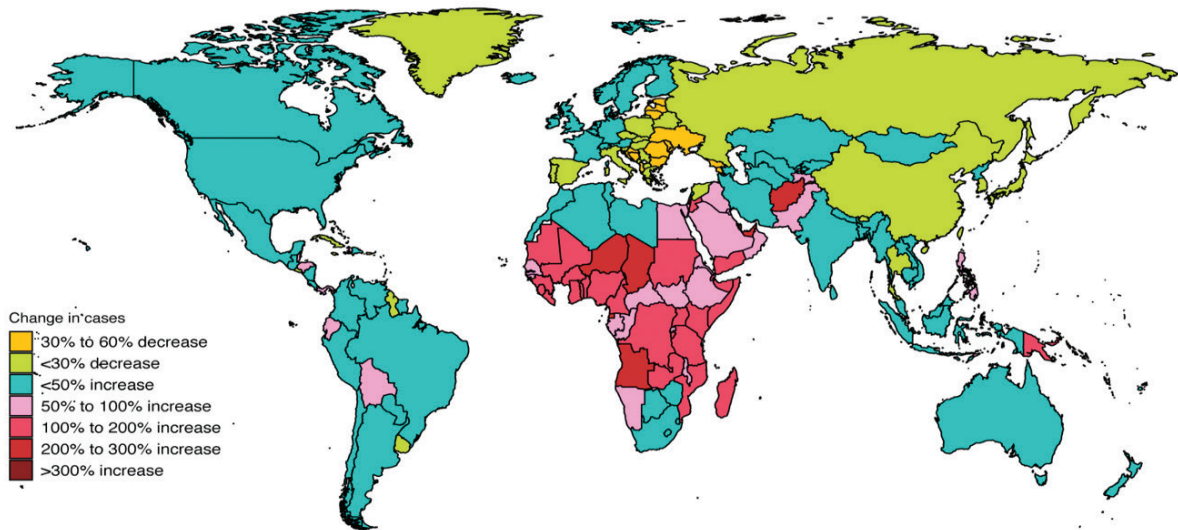
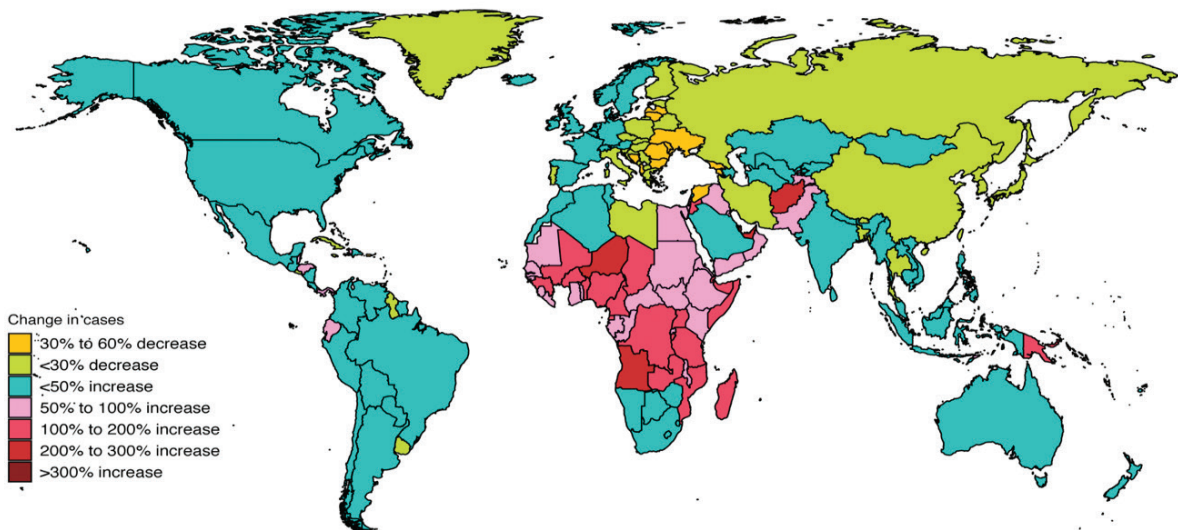


Figure 3 The age-specific numbers and ASR of atopic dermatitis by SDI regions in 2021. (A) Prevalence. (B) Incidence. (C) DALYs. Age-standardized rate (ASR); Sociodemographic Index (SDI); Disability-adjusted life years (DALYs).

(A)



(B)



(C)

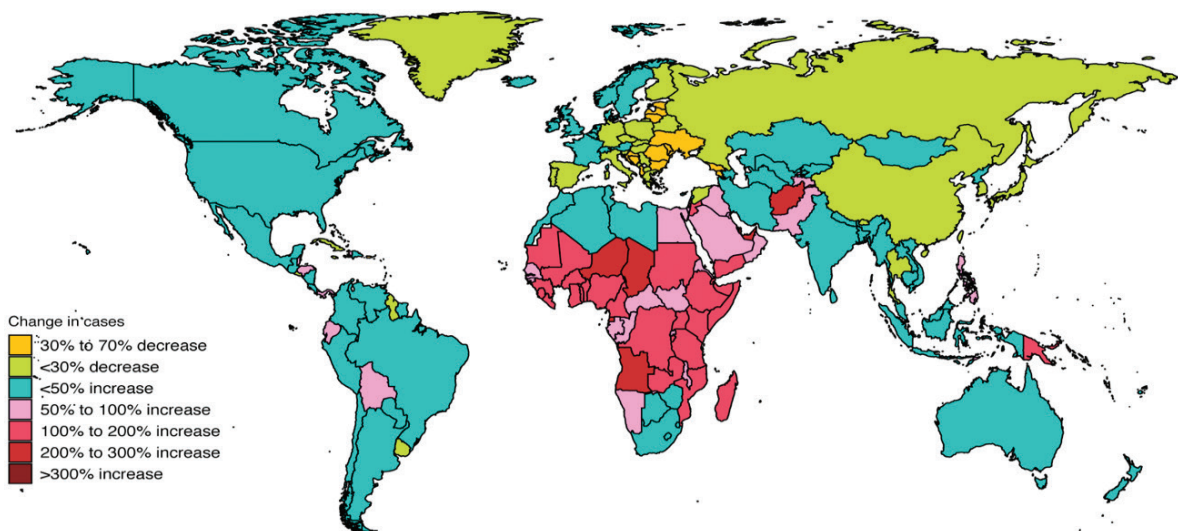


Figure 4 Change cases of atopic dermatitis for both sexes in 204 countries and territories. (A) Change prevalence cases. (B) Change incidence cases. (C) Change DALYs. Disability-adjusted life years (DALYs).

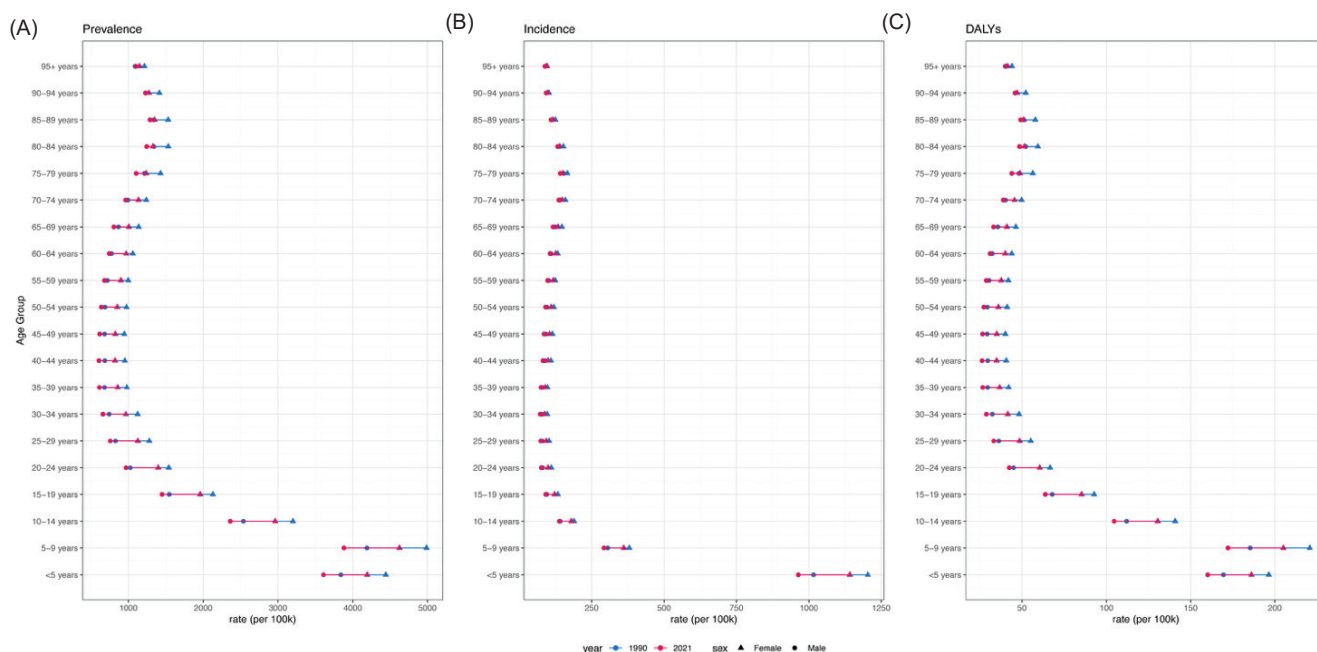


Figure 5 Age-standardized rates of AD by sex, age group, and sociodemographic index, 1990 and 2021. (A) Prevalence, (B) Incidence, (C) DALYs. Disability-adjusted life years (DALYs).

more substantial reduction than males. In addition, global age-standardized DALYs are anticipated to decline from 75.71 in 2021 to 71.32 by 2050, with similar declines observed in both females and males, although the reduction is primarily driven by females (Figure 6).

Discussion

Among all skin diseases, AD ranks first in terms of disease burden as measured by DALYs. To our knowledge, this is the first study to comprehensively detail the incidence and prevalence of AD from 1990 to 2021 at the global, regional, and national levels across 204 countries. This study provided important insights into the trends in the burden of AD across populations, ages, and regions, and underscores the need for implementing more effective and targeted preventive measures.

Our study indicates that trends in age-related AD are remarkably evident, demonstrating that prevalence and impact patterns vary across different age groups. Our study revealed that children aged 5-9 years had the highest age-specific prevalence and DALYs rates, while the under-5 age group also exhibited a high age-specific incidence. These findings underscore childhood as a critical period for the high prevalence of AD. A cross-sectional, web-based survey of pediatric patients (6 months to <18 years of age) conducted in 18 countries representing North America, Latin America, Europe, the Middle East/Eurasia, and East Asia demonstrated that the prevalence of AD peaks at less than 5 years of age and decreases with age,²³ which is consistent with our findings. However, it is noteworthy that the prevalence increased again in the 85-89 years age group, and the incidence increased again in the 75-79 years age group, suggesting a bimodal pattern of AD in terms of

epidemiological trends. Factors predisposing older adults to AD include the physiological changes associated with aging, particularly the decline in skin barrier function, dysregulation of innate immune cells, and skewed adaptive immune responses toward Th2.^{24,25} With the growing global population of elderly individuals, it is anticipated that the disease burden of AD will rise in terms of both individual and societal costs.²⁶ The itching, pain from skin breakdown, and infections related to AD can reduce the quality of life and increase economic and public health burdens. Further knowledge about AD in the elderly is needed to establish reliable diagnostic and therapeutic approaches. Timely and adequate care can ensure a robust quality of life and mitigate the higher health care costs associated with hospitalization for severe AD. Detailed studies of the skin and immune system in older patients with AD are necessary to tailor treatment for these patients and to standardize their care more effectively.

Among 204 countries and territories, Qatar exhibited the steepest increase in AD prevalence, incidence, and DALYs. This surge is plausibly driven by synergistic environmental stressors—extreme heat, sustained humidity, and recurrent sandstorms that directly impair the epidermal barrier and amplify allergen sensitization—compounded by highly accessible dermatological services that enhance case detection.²⁷ In contrast, Albania exhibited the sharpest decline, which may reflect both a comparatively lower burden of environmental triggers relative to coastal nations and attenuated diagnostic capacity or health care utilization, leading to systematic under-ascertainment of true disease burden relative to high-income settings.²⁸ Addressing the rising burden of DALYs in low-income regions (Kenya) requires evidence-based health care strategies. Key approaches include: targeting resources toward high-DALY conditions such as infectious diseases and maternal

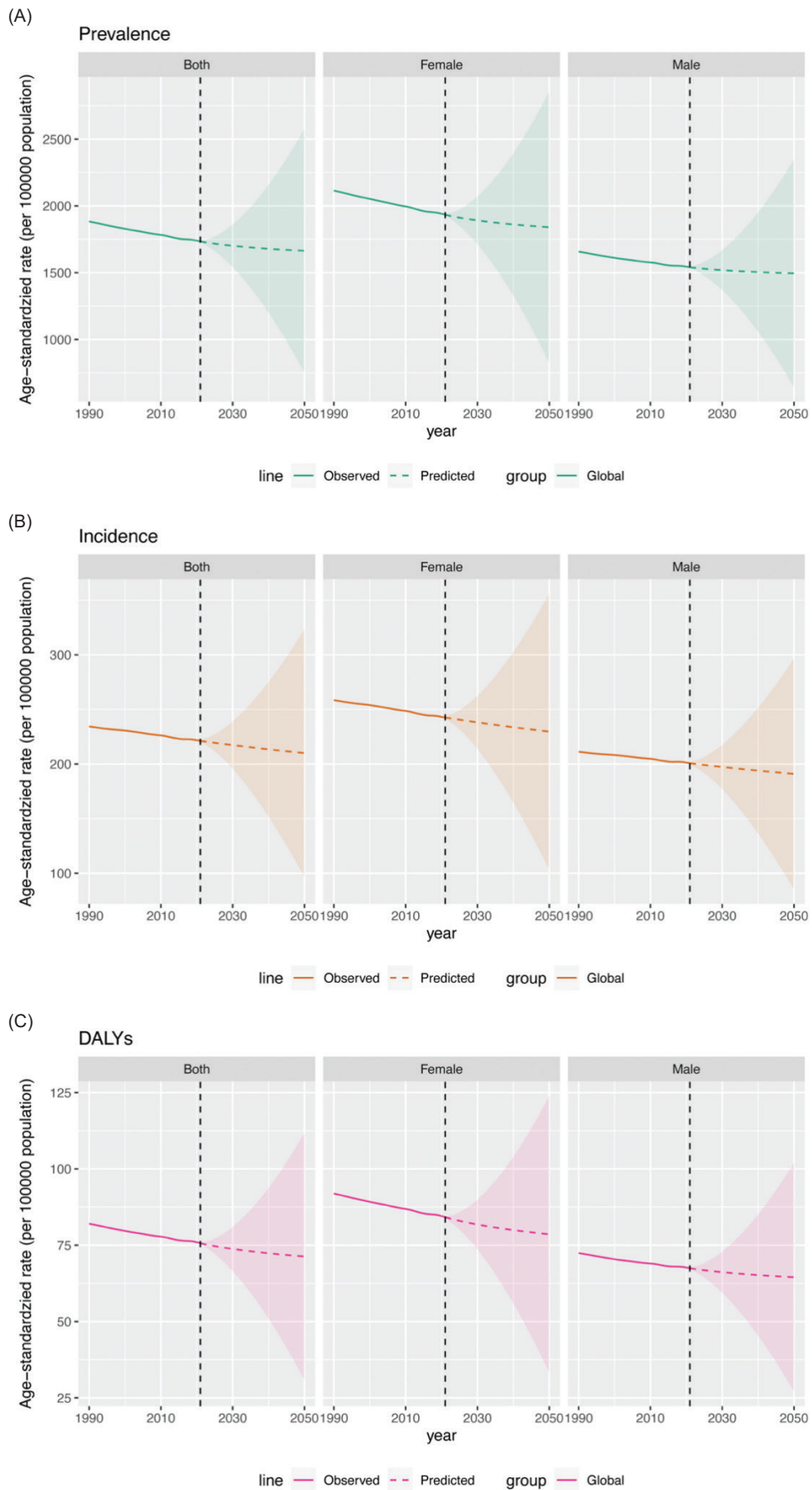


Figure 6 Future forecasts of atopic dermatitis.

and child health issues through cost-effective measures like vaccination campaigns, insecticide-treated net distribution, and improved water and sanitation; expanding community health worker networks to extend primary care, provide basic services, ensure health education, and provide referrals, especially in remote areas; and implementing behavior-change communication and health education to promote preventive practices in nutrition and hygiene, reducing preventable disease incidence.

Our findings indicate that the global prevalence of AD increased by 20% from 1990 to 2021. Conversely, the ASPR and ASIR for AD decreased. A salient finding of this study is the divergent trajectory between total case counts and ASRs, underscoring the necessity of distinguishing absolute burden from risk-adjusted burden. Continued growth in global AD cases is driven predominantly by population expansion and demographic aging, particularly in high-burden regions. Conversely, the plateaued or modest decline in ASRs signals an underlying epidemiological transition, plausibly reflecting improvements in living standards, hygiene, or disease management in certain populations. This growing burden strains health care financing. First, high-cost biologics should be restricted to severe, treatment-resistant cases, necessitating better patient stratification. Second, treatment guidelines should incorporate absolute outcomes (e.g., ARR and NNT) and explicitly recommend step-care approaches. Third, while sustained prevention is essential to maintain reduced incidence, health systems must also enhance specialized care and ensure selective use of novel therapies for critical patients. Telemedicine and self-management can improve efficiency for mild cases, while regional specialized centers could standardize care, control costs, and generate real-world evidence.

As the largest organ of the body, the skin functions as a mechanical barrier against toxins and ultraviolet light, as well as a natural barrier against water loss. Both of these barrier functions are significantly compromised by AD. A wide range of factors may trigger or contribute to AD, including genetic factors, family history, dietary choices, immune triggers, and environmental factors.²⁹ The ongoing increase in the burden of AD underscores the need for more in-depth research into its pathogenesis. It is critical to examine whether factors such as increased intake of processed foods, greater exposure to pollutants, and heightened stress levels contribute to the rising incidence of AD.³⁰ However, unfortunately, the GBD database does not include descriptions of these relevant risk factors.

Our study demonstrates that AD is a common skin disorder with significant geographical differences in age-standardized prevalence, incidence, and DALYs, which aligns with existing findings. Specifically, the high-income Asia Pacific, Central Asia, and Western Europe regions exhibited the highest age-standardized prevalence, incidence, and DALYs of AD. Within these regions, Japan, France, and Kazakhstan were identified as the top three countries in terms of age-standardized prevalence, incidence, and DALYs. These findings indicate that these regions bear the highest burden of AD, particularly with Japan exhibiting the highest documented age-standardized prevalence, incidence, and DALYs. This disparity may mirror genuine pathophysiological heterogeneity, diagnostic artifact, or an admixture of both. Plausible drivers

encompass (i) genetic architecture, notably the distinct spectrum and population-specific frequency of filaggrin loss-of-function variants across East Asian cohorts;³¹ (ii) environmental exposures, exemplified by Japan's elevated aeroallergen load and sustained atmospheric humidity;³² and (iii) sociocultural and health care-system determinants—heightened dermatologic vigilance, habitual high-frequency bathing, and universal access to specialist services—collectively enhancing detection and registration of mild phenotypes and thereby inflating reported incidence.³³ Collectively, Japan's elevated AD burden is best conceptualized as the convergent outcome of genetic susceptibility, environmental triggers, behavioral norms, and ascertainment bias, rather than a straightforward indicator of true disease load. Prospective, individual-level investigations integrating high-resolution genomic and exposomic data are now imperative to disaggregate these contributions. Conversely, Eastern Europe experienced the largest increase in DALYs, suggesting a growing burden of AD in this region. This increase may be attributed to several factors. Firstly, environmental pollution, particularly in highly industrialized and polluted regions, is a significant contributor. Numerous global studies have shown exacerbated symptoms of chronic inflammatory dermatoses in both adult and child subjects exposed to high levels of pollution.^{34–36} Secondly, the higher prevalence of obesity in these regions can predispose individuals to exacerbate AD. Although the precise molecular mechanisms underlying the association between obesity and AD have not been fully elucidated, accumulating evidence points to three interrelated pathophysiological pathways. First, the Janus kinase (JAK) signal transducer and activator of transcription (STAT) signaling cascade play a pivotal role in transducing both metabolic and immunological signals relevant to the pathogenesis of both conditions. Second, hypertrophic adipose tissue releases a spectrum of soluble mediators—including pro-inflammatory cytokines (TNF- α , IL-6, IL-4, and IL-13), chemokines, adipokines (leptin, adiponectin, and resistin), and peroxisome proliferator-activated receptor gamma (PPAR- γ)—that collectively establish a chronic, low-grade systemic inflammatory state, thereby facilitating the initiation and exacerbation of AD, particularly in children and the elderly. Finally, obesity-induced gut microbial dysbiosis perturbs the composition and metabolic output of the microbiota, promoting a Th2-dominant inflammatory response that augments skin inflammation.^{37–39}

The present study demonstrates that age-standardized prevalence, incidence, and DALYs have consistently been the highest in high SDI areas over a period exceeding three decades, although their estimated EAPC shows a decreasing trend. We document the co-occurrence of rising AD prevalence and declining age-standardized DALYs in high-income settings. This paradox is reconciled by four interacting mechanisms: (i) broadened diagnostic criteria leading to increased ascertainment of mild disease; (ii) therapeutic innovation, exemplified by biologic agents that substantially attenuate morbidity; (iii) demographic transition characterized by falling fertility and a shrinking pediatric denominator; and (iv) surveillance artifact stemming from enhanced health care infrastructure that now systematically records less severe phenotypes. However, this supports the notion that AD remains a significant public health

concern in developed regions. Notably, the EAPC was highest in middle and high SDI regions, indicating a gradual increase in the burden of AD in these areas. These regions share common characteristics such as high health coverage and a high likelihood of diagnosis and reporting of AD. In addition, factors such as dietary habits, lifestyle, high work or study stress, and the obesity epidemic in high-income countries may contribute to the high burden in these regions. Conversely, age-standardized prevalence, incidence, and DALYs of AD were the lowest in low SDI regions. This can be attributed to the economic underdevelopment, low income levels, and shortage of dermatologists and medications in these areas, which collectively affect health care coverage. In sub-Saharan Africa, for instance, there is an average of 1 dermatologist per 10,000 to 20,000 people, and diagnostic dermatopathology is limited.^{40,41} Robust evidence confirms that individuals in this region concurrently confront a synergistic cluster of AD risk determinants, encompassing poverty, overcrowded housing, malnutrition, psychological stress, and inadequate access to clean water and basic sanitation.⁴² These factors can lead to underreporting of AD cases. Consequently, future research must prioritize rigorously targeted, community-based participatory research (CBPR) approaches that systematically engage these “hidden” populations to generate evidence for equitable and effective public health interventions.

Our study also revealed that globally, the age-standardized prevalence, incidence, and DALYs of AD were higher in women than in men. This gender disparity may be attributed to several factors, including fluctuations in sex hormone levels and imbalances in skin barrier function. Notably, hormonal changes during puberty, menstruation, and pregnancy can exacerbate AD in women.⁴³ In addition, it is crucial to consider the gender-specific psychological and psychiatric effects of AD.⁴⁴ Therefore, health care providers should adopt a holistic approach to treating AD, addressing both physical and emotional aspects. Tailored treatment programs that account for gender-specific needs and concerns can enhance treatment outcomes for AD and improve patients’ quality of life, particularly for pregnant women. Although substantial research has been conducted on the immunological mechanisms of AD, many questions remain unresolved. Significant advancements have been made with the introduction of novel, topical, and biological therapies, which have greatly enhanced patient care and improved the quality of life for those affected. In spite of these advancements, there remains a need for more personalized treatments and the identification of specific biomarkers (e.g., serum or plasma biomarkers). This area of research provides a new avenue for monitoring disease progression, understanding its trajectory, and assessing the effectiveness of specified therapies for different patient characteristics. The potential discovery of such biomarkers could revolutionize our understanding of the pathogenesis of AD, leading to better patient outcomes, improved treatments, and early diagnosis and prevention.

Our projections indicate that global age-standardized prevalence, incidence, and DALYs attributable to AD will decline markedly by 2050, a trend plausibly driven by concurrent advances in therapeutics, population level, public health interventions, and rising health literacy. Nevertheless, although the BAPC model efficiently handles

high-dimensional epidemiological data, the absence of external validation for long-term forecasts limits its predictive validity. Strengthening sentinel data systems to monitor real-world trajectories is therefore imperative to ensure that reductions in the global burden of AD are both sustained and equitably distributed.

Our study acknowledges several limitations, particularly those inherent to the GBD 2021 database, which were considered in our analysis. First, diagnosing AD is particularly challenging in regions with limited access to health care, potentially leading to underdiagnosis or misdiagnosis, especially among individuals with low income levels. Second, variations in data quality across regions may lead to inconsistencies in reported AD rates. Areas with well-developed health care systems tend to report higher rates of AD, whereas remote and impoverished regions may underreport because of limited health care resources. This study did not account for potential variations in diagnostic criteria for AD across regions and over time, which may introduce bias in trend interpretation. Third, differences in diagnostic criteria across regions may introduce bias into the reported data. Finally, the database lacks information on risk factors for AD, which limits the comprehensiveness of the disease burden analysis. Therefore, future research should prioritize incorporating the psychological and psychiatric impact of AD to provide a more holistic understanding of the disease.

In summary, global AD prevalence and DALYs continue to rise, whereas ASPR and DALYs are declining. High SDI regions exhibit the highest prevalence, yet low-income countries show increasing age-standardized DALYs, underscoring profound regional heterogeneity. Thus, the absolute burden of AD is escalating worldwide, while individual-level risk appears to be improving. These persistent inequities represent a critical challenge for global health. Addressing them will require a comprehensive strategy that integrates clinical care, psychosocial support, and public health initiatives tailored to specific regional, demographic, and sex-based needs. Future research should focus on clarifying pathogenic mechanisms, identifying modifiable risk factors, and developing scalable interventions—all with the explicit goal of preventing further widening of global health gaps.

Ethics Approval

Not applicable.

Availability of Data and Materials

GBD study 2021 data resources were available online from the Global Health Data Exchange (GHDx) query tool (<http://ghdx.healthdata.org/gbd-results-tool>).

Authors’ Consent for Publication

The Author confirms: that the work described has not been published before; that it is not under consideration for publication elsewhere.

Mandatory Disclosure on Use of Artificial Intelligence

The authors declare that no AI-assisted tools were used in the preparation of this manuscript. All references have been manually verified for accuracy and relevance.

Author Contributions

All authors have made significant contributions to this study. Yaju Duan participated in the study design and conception, and drafted the initial manuscript. Xiaosong Zheng were responsible for the collection and organization of the data, and provided a detailed description and statistical analysis of the data. All authors participated in the writing of the paper and content revision, and agreed to submit the final version of the paper. The authors declare that all content in this manuscript, including images and tables, has not been previously published.

Conflicts of Interest

The authors declare they have no conflicts of interest.

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Supplementary

Table S1 Two hundred and four nations/territories trends in AD burden of prevalence (1990–2021).

Location	Number 1990	ASR 1990	Number 2021	ASR 2021	EAPC_95%CI
Afghanistan	171727.64 (161821.16-181570.59)	1355.66 (1284.24-1430.77)	566480.5 (533907.48-599537.8)	1350.54 (1279.81-1425.72)	-0.01 (-0.01 to -0.01)
Albania	67516.98 (63719.99-71288.98)	1795.49 (1696.79-1894.08)	34109.23 (32494.58-35701.43)	1797.12 (1697.98-1895.48)	0 (-0.01 to 0)
Algeria	440090.32 (400253.55-482314.94)	1349.23 (1233.78-1470.54)	611784.95 (559462.26-666965.73)	1348.44 (1233.05-1469.49)	-0.02 (-0.03 to -0.01)
American Samoa	1009.58 (953.6-1075.76)	1727.48 (1634.68-1835.49)	853.12 (803.34-908.43)	1728.01 (1634.81-1836.11)	0 (0 to 0)
Andorra	1451.3 (1388.67-1514.78)	3362.41 (3200.75-3512.86)	1929.19 (1851.11-2010.08)	3373.14 (3211.25-3523.86)	0.01 (0.01 to 0.01)
Angola	133631.95 (124932.53-141686.48)	984.02 (922.6-1039.22)	437318.33 (408660.11-464087.04)	986.2 (924.56-1041.51)	0.01 (0.01 to 0.01)
Antigua and Barbuda	1215.98 (1146.5-1281.54)	1949.45 (1844.25-2051.18)	1447.87 (1370.87-1523.89)	1945.85 (1840.88-2047.34)	-0.01 (-0.01 to -0.01)
Argentina	1099821.55 (1036753.22-1162926.26)	3214.17 (3034.41-3397.61)	1299149.88 (1227391.69-1371441.39)	3211.48 (3031.98-3394.53)	0 (0 to 0)
Armenia	158192.72 (149386.36-167029.65)	4398.68 (4158.21-4640.95)	104475.87 (99114.27-109849.16)	4383.2 (4144.06-4625.7)	-0.02 (-0.02 to -0.01)
Australia	348274.72 (325542.51-369283.33)	2365.21 (2208.64-2515.47)	475877.44 (445730.46-505224.64)	2362.08 (2209.25-2526.64)	0 (-0.01 to 0.01)
Austria	209724.21 (200745.22-218510.2)	3377.47 (3216.66-3529.64)	222062.25 (213062.03-231011.14)	3372.32 (3211.09-3523.92)	0 (-0.01 to 0)
Azerbaijan	360430.31 (339686.93-380857.49)	4402.67 (4162.19-4645.18)	393111.67 (371910.33-413908.15)	4371.03 (4132.09-4613.17)	-0.03 (-0.03 to -0.03)
Bahamas	5275.71 (4969.58-5569.44)	1948.14 (1843.16-2049.83)	6537.97 (6178.35-6896.07)	1948.8 (1843.8-2050.52)	0 (0 to 0)
Bahrain	7388.97 (6992.47-7819.17)	1344.77 (1274.22-1419.92)	16952.37 (16104.38-17842.4)	1340.11 (1269.58-1415.3)	-0.02 (-0.02 to -0.01)
Bangladesh	2188391.42 (2052681.02-2327509.98)	1463.7 (1378.48-1550.75)	2389711.93 (2247551.55-2534709.17)	1466.63 (1381.03-1553.54)	0.01 (0.01 to 0.01)
Barbados	4627.42 (4374.76-4871.99)	1948.26 (1843.23-2050.05)	4535.65 (4298.71-4768.24)	1945.43 (1840.46-2046.87)	0 (-0.01 to 0)
Belarus	177658.87 (170996.01-184593.65)	1943.29 (1867.15-2021.12)	1298859.32 (125306.15-134508.4)	1936.16 (1860.26-2013.45)	-0.01 (-0.01 to -0.01)
Belgium	271045.63 (259530-282396.67)	3376.5 (3215.36-3528.48)	298810.47 (286606.05-311179.17)	3377.15 (3215.77-3528.91)	0 (0 to 0)
Belize	4585.14 (4314.19-4858.93)	1944.63 (1839.79-2045.86)	8417.03 (7939.84-8885.58)	1946.46 (1841.34-2047.88)	0 (0 to 0)
Benin	68528.27 (65008.65-71956.02)	1042.38 (996.1-1089.41)	180529.99 (171479.66-189479.52)	1042.3 (995.94-1089.44)	0 (0 to 0)
Bermuda	988.31 (934.33-1038.04)	1947.73 (1842.81-2049.41)	905.17 (860.98-950.61)	1946.24 (1841.27-2047.66)	0 (0 to 0)
Bhutan	12008.81 (11254.32-12772.21)	1461.75 (1376.87-1550.12)	10221.35 (9612.8-10830.71)	1464.87 (1379.49-1552.51)	0.01 (0 to 0.01)
Bolivia (Plurinational State of)	131748.65 (125425.5-138443.04)	1702.5 (1627.52-1783.5)	204121.75 (194838.62-214016.4)	1700.52 (1625.67-1781.64)	0 (0 to 0)
Bosnia and Herzegovina	72811.55 (68958.96-76736.35)	1802.96 (1703.9-1902.14)	39303.21 (37475.52-41125.08)	1801.69 (1702.66-1900.84)	-0.01 (-0.01 to 0)
Botswana	17990.61 (16900.65-19181.95)	1039.19 (981.21-1104.55)	25215.46 (23777.57-26838.72)	1036.68 (978.53-1101.39)	-0.01 (-0.01 to -0.01)
Brazil	3854426.92 (3689020.85-4027939.38)	2361.53 (2269.63-2460.88)	4665945.42 (4493335.09-4851830.98)	2363.7 (2271.91-2463.95)	0 (-0.01 to 0)
Brunei	11268.96 (10650.18-11936.84)	3824.15 (3624.8-4042.49)	14744.7 (13998.6-15562.24)	3823.19 (3624.54-4041.61)	-0.01 (-0.01 to 0)
Darussalam	122449 (116324.62-128578.1)	1803.76 (1704.67-1903.19)	78406.68 (74803.81-82083.56)	1800.75 (1701.71-1899.8)	-0.01 (-0.01 to -0.01)
Bulgaria	133222.94 (126371.97-139924.52)	1043.42 (997.07-1090.6)	305770.15 (290467.96-320927.18)	1043.59 (997.16-1090.72)	0 (0 to 0)
Burkina Faso	71579.15 (67881.06-75144.51)	987.37 (943.07-1033.66)	165862.52 (157383.11-174276.01)	985.51 (941.15-1031.92)	-0.01 (-0.01 to -0.01)
Burundi	4717.12 (4482.02-4951.52)	1045.06 (998.76-1092.37)	5550.46 (5308.1-5797.52)	1040.74 (994.53-1087.81)	-0.01 (-0.01 to -0.01)
Cabo Verde	220180.93 (207315.64-232282.61)	1661.51 (1572.41-1748.6)	289403.68 (273622.48-304912.15)	1641.82 (1555.1-1727.78)	-0.04 (-0.04 to -0.03)
Cambodia	169027.93 (161220.81-177386.46)	1249.61 (1197.67-1304.75)	489199.01 (465106.39-515445.49)	1246.75 (1190.18-1306.11)	0.03 (0.01 to 0.04)
Cameroon	711243.54 (684804.84-739755.44)	2856.58 (2749-2973.78)	921056.86 (890689.97-956797.64)	2855.17 (2747.9-2972.52)	0 (0 to 0)

Central African Republic	35144.67 (32857.29-37254.55)	985.01 (923.47-1040.33)	68142.04 (63712.43-72221.7)	985.2 (923.69-1040.35)	0 (0 to 0)
Chad	83343.45 (79138.74-87511.37)	1043.5 (997.11-1090.77)	253930.63 (240841.21-266897.87)	1041.13 (994.84-1088.49)	-0.01 (-0.01 to -0.01)
Chile	440669.07 (415508.38-465456.46)	3213.67 (3034.14-3396.86)	500007.41 (472995.76-527135.89)	3208.04 (3028.48-3390.95)	0 (0 to 0)
China	15921267.11 (15232998.69-16614704.86)	1357.93 (1298.98-1417.71)	15420512.86 (14839161-16004107.07)	1347.11 (1288.65-1402.16)	0 (-0.02 to 0.02)
Colombia	694458.92 (653787.7-735068)	1879.99 (1774.65-1987.47)	808091.58 (765629.81-851964.8)	1877.87 (1772.21-1984.99)	0 (0 to 0)
Comoros	5899.22 (5597.29-6198.38)	985.6 (941.35-1031.79)	7866.17 (7498.99-8265.5)	985.02 (940.88-1031.18)	0 (0 to 0)
Congo	24923.05 (22790.69-26959.49)	789.68 (726.57-849.72)	49068.04 (44914.1-52956.94)	788.56 (725.3-848.5)	-0.02 (-0.04 to -0.01)
Cook Islands	369.65 (348.74-393.93)	1725.4 (1632.67-1833.65)	263.39 (249.91-278.95)	1737.11 (1644.05-1845.35)	0.02 (0.02 to 0.03)
Costa Rica	66217.07 (62279.01-70066.5)	1877.64 (1772.3-1984.91)	77846.49 (73648.14-82141.51)	1880.18 (1774.56-1987.54)	0.01 (0.01 to 0.01)
Croatia	69501.33 (65991.76-72999.81)	1804.14 (1705.13-1903.49)	48514.46 (46301.43-50759.22)	1801.58 (1702.53-1900.75)	-0.01 (-0.01 to -0.01)
Cuba	195296.44 (184480.44-205648.33)	1943.17 (1838.3-2044.36)	170719.73 (162106.08-179422.23)	1942.18 (1837.62-2043.4)	0 (0 to 0)
Cyprus	22104.32 (20186.36-24045.6)	3042.6 (2773.83-3313.62)	30958.79 (28591.53-33520.83)	3043.36 (2774.13-3314.61)	-0.01 (-0.02 to 0)
Czechia	150084.38 (142563.57-157702.68)	1804.63 (1705.53-1904.09)	130835.8 (124488.27-137054.76)	1801.04 (1701.99-1900.25)	-0.01 (-0.01 to -0.01)
Côte d'Ivoire	166274.71 (157821.85-174401.75)	1039.21 (993.03-1086.36)	354282.07 (336817.36-371248.97)	1038.25 (992.31-1085.4)	0 (-0.01 to 0)
Democratic Republic of the Congo	364421.72 (344137.5-384470.75)	1754.08 (1658.38-1852.02)	377053.51 (358588.42-396918)	1745.08 (1648.62-1841.26)	-0.02 (-0.02 to -0.02)
Denmark	502692.41 (469836.33-533020.72)	984.81 (923.3-1040.19)	1132171.48 (1058385.81-1200256.32)	983.82 (922.42-1038.9)	0 (0 to 0)
Djibouti	178160.16 (164103.85-191464.11)	4300.78 (3940.61-4648.98)	197175.89 (182172.24-211782.91)	4298.2 (3937.65-4646.22)	0.05 (0.02 to 0.07)
Dominica	5041.49 (4786.79-5299.52)	981.26 (937.3-1027.24)	13261.66 (12639.68-13932.98)	978.74 (935.11-1024.81)	-0.01 (-0.01 to -0.01)
Dominican Republic	1547.96 (1458.91-1634.39)	1943.7 (1839.1-2045.3)	1123.38 (1062.66-1183.38)	1943.57 (1838.86-2044.83)	0 (0 to 0)
Ecuador	161214.44 (151862.67-170422.16)	1948.92 (1843.71-2050.53)	207810.51 (196506.37-218595.08)	1944.45 (1839.64-2045.76)	-0.01 (-0.01 to -0.01)
Egypt	200550.09 (190894.34-211404.78)	1729.91 (1655.25-1813.37)	310335.13 (296826.69-325619.66)	1728.94 (1654.14-1812.27)	0 (0 to 0.01)
El Salvador	586427.08 (544556.82-627318.81)	845.5 (786.86-902.15)	1006429.06 (937920.3-1073204.13)	833.6 (777.57-886.43)	-0.1 (-0.13 to -0.07)
Equatorial Guinea	121459.69 (114160.16-128618.23)	1881.21 (1775.67-1988.69)	121443.07 (114547.72-128427.93)	1881.17 (1775.09-1988.55)	0 (0 to 0)
Eritrea	5561.84 (5201.09-5894.53)	985.48 (924.03-1040.74)	18118.91 (16911.4-19223.49)	977.39 (917.77-1031.56)	-0.03 (-0.03 to -0.03)
Estonia	43774.05 (41540.92-45991.76)	985.27 (941.29-1031.3)	76360.84 (72663.62-80280.06)	984.45 (940.56-1030.54)	0 (0 to 0)
Eswatini	56023.49 (53922.74-58296.34)	4130.96 (3965.73-4306)	38734.82 (37425.48-40282.28)	4113.27 (3947.84-4287.48)	-0.04 (-0.05 to -0.02)
Ethiopia	11460.59 (10765.28-12222.71)	1039.67 (981.66-1105.18)	13750.57 (12935.12-14662.38)	1036.49 (978.27-1101.16)	-0.01 (-0.01 to -0.01)
Finland	604685.69 (575471.49-635043.39)	900.45 (861.85-943.73)	1203676.02 (1146179.35-1265165.69)	900.19 (861.51-943.42)	0.07 (0.04 to 0.09)
France	15387.82 (14504.15-16411.46)	1729.23 (1635.99-1837.51)	16216.44 (15320.6-17238.93)	1729.05 (1635.73-1837.38)	0 (0 to 0)
Gabon	138652.39 (132684.98-144553.95)	3378.06 (3217.21-3530.19)	139701.57 (134027.28-145537.03)	3374.64 (3213.28-3526.08)	0 (0 to 0)
Gambia	2358620.39 (2205832.09-2525728.28)	4703.81 (4397.52-5039.26)	2519404.61 (2359682.63-2685248.19)	4704.28 (4397.67-5039.86)	-0.04 (-0.06 to -0.02)
Georgia	16152.62 (14991.4-17490.71)	1315.99 (1226.24-1417.91)	27304.56 (25212.82-29316.99)	1313.16 (1219.23-1405.14)	-0.03 (-0.06 to 0)
Germany	13387.97 (12708.11-14049.76)	1041.06 (994.74-1088.29)	30588.83 (29091.01-32081.36)	1042.07 (995.72-1089.25)	0 (0 to 0.01)
	221627.41 (210905.39-233335.94)	4352.43 (4131.33-4582.52)	127844.22 (121633.88-134467.35)	4365.07 (4148.19-4609.71)	0.03 (0.02 to 0.05)
	2138397.69 (2058504.94-2221596.41)	3469.69 (3327.08-3620.55)	2147967.79 (2064138.51-2239495.96)	3460.05 (3298.4-3626.2)	-0.02 (-0.08 to 0.04)

(continues)

Table S1 Continued.

location	Number 1990	ASR 1990	Number 2021	ASR 2021	EAPC_95%CI
Ghana	165369.21 (157439.65-173311.01)	859.29 (823.45-895.49)	342904.5 (327359.24-358756.9)	860.11 (824.34-896.31)	0.07 (-0.04 to 0.17)
Greece	250064.03 (231124.04-272239.17)	2949.56 (2720.73-3201.36)	210700.28 (194243.83-228540.54)	2973.01 (2730.98-3244.68)	0.04 (0.03 to 0.05)
Greenland	1525.81 (1462.86-1589.41)	2826.11 (2719.68-2943.71)	1448.47 (1396.67-1506.86)	2841.89 (2735.11-2960)	0.02 (0.01 to 0.02)
Grenada	1985.44 (1872.6-2099.74)	1947.16 (1842.29-2048.83)	1749.36 (1655.51-1841.51)	1941.76 (1837.28-2042.97)	-0.01 (-0.02 to -0.01)
Guam	2462 (2327.94-2618.12)	1720.46 (1627.18-1828.03)	2431.12 (2307.45-2575.91)	1726.14 (1632.85-1834.36)	0.01 (0 to 0.01)
Guatemala	213258.29 (199530.19-226319.11)	1881.96 (1776.49-1989.75)	316554.47 (298213.41-335255.05)	1881.69 (1773.93-1989.16)	0 (0 to 0)
Guinea	80097.92 (76080.25-84000.92)	1042.45 (996.15-1089.64)	179232.01 (170231.82-188149.92)	1042.58 (996.22-1089.84)	0 (0 to 0)
Guinea-Bissau	13883.65 (13177.83-14583.74)	1043.64 (997.25-1090.99)	27074.25 (25728.31-28388.74)	1042.74 (996.41-1089.89)	0 (0 to 0)
Guyana	17462.71 (16457.91-18450.48)	1948.17 (1843.21-2049.81)	14791.87 (13964.9-15567.88)	1946.39 (1841.43-2047.87)	0 (0 to 0)
Haiti	152647.24 (143852.31-161514.92)	1951.4 (1845.83-2053.18)	272523.61 (257033.71-287418.19)	1947.8 (1842.62-2049.4)	-0.01 (-0.01 to -0.01)
Honduras	117752.29 (110159.81-124836.93)	1879.47 (1774.1-1986.8)	205268.63 (193366.2-217359.68)	1880.53 (1774.93-1988.01)	0 (0 to 0)
Hungary	217953.93 (203611.33-232690.18)	2628.81 (2449.61-2820.56)	167812.08 (157942.05-178485.25)	2622.78 (2444.24-2814.44)	-0.06 (-0.09 to -0.03)
Iceland	9068.18 (8333.98-9832.56)	3813 (3505.58-4127.68)	10924.36 (10093.93-11764.49)	3792.06 (3497.59-4100.35)	-0.03 (-0.04 to -0.02)
India	15328141.51 (14569542.53-16163500.52)	1467.5 (1399.68-1540.79)	19719218.89 (18780827.09-20707984.55)	1468.09 (1400.25-1541.41)	-0.03 (-0.04 to -0.01)
Indonesia	3511824.44 (3350821.98-3679189.28)	1639.17 (1568.08-1711.5)	4253490.26 (4080284.56-4441074.55)	1649.3 (1580.82-1723.76)	0.03 (0.03 to 0.04)
Iran (Islamic Republic of)	1153380.18 (1095613.62-1208555.86)	1518.56 (1449.29-1581.75)	1187976.71 (1133290.97-1243345.67)	1538.6 (1466.98-1612)	0.07 (0.06 to 0.09)
Iraq	329920.93 (311005.59-349150.12)	1349.93 (1279.29-1425.13)	608116.62 (574493.5-643274.69)	1349.58 (1278.89-1424.78)	0 (0 to 0)
Ireland	118865.45 (113352.5-124529.41)	3376.83 (3215.57-3528.82)	139020.49 (133130.5-145144)	3378.93 (3217.45-3530.8)	0 (0 to 0)
Israel	175185.98 (166655.62-183392.06)	3379.49 (3218.41-3531.53)	316329.03 (301683.82-330451.91)	3376.7 (3215.45-3528.44)	0 (0 to 0)
Italy	1856370.18 (1789083.62-1935803.42)	4147.57 (3987.49-4324.21)	1764991.06 (1704635.42-1835422.1)	4141.92 (3982.12-4318.33)	-0.02 (-0.03 to -0.01)
Jamaica	51727.27 (48739.84-54689.91)	1948.13 (1842.96-2049.72)	47526 (44977.42-50020.78)	1945.33 (1840.37-2046.68)	-0.01 (-0.01 to 0)
Japan	4953946.16 (4740555.3-5172739.46)	4885.26 (4663.48-5118.21)	4215539.66 (4066990.71-4381579.31)	4892.58 (4683.9-5124.84)	-0.03 (-0.07 to 0.01)
Jordan	65347.07 (59938.79-70392.77)	1326.04 (1223.87-1423.8)	168305.91 (155162.17-181917.75)	1325.05 (1222.95-1422.86)	-0.01 (-0.02 to -0.01)
Kazakhstan	774412.45 (730827.81-817846.1)	4404.42 (4163.56-4646.81)	822518.28 (778930.94-867900.34)	4398.9 (4158.21-4641.02)	0 (0 to 0)
Kenya	257840.27 (246484.97-270472.04)	834.33 (800.43-871.13)	517425.81 (491395.63-542883.15)	880.76 (840.4-921.84)	0.25 (0.21 to 0.28)
Kiribati	1568.86 (1482.62-1671.75)	1733.36 (1639.73-1841.65)	2349.03 (2215.31-2501.49)	1734.55 (1640.83-1843.05)	0 (0 to 0)
Kuwait	27041.09 (24702.13-29462.28)	1432.71 (1313.23-1558.69)	52718.97 (48116.41-57808.27)	1426.21 (1308.13-1560.42)	-0.05 (-0.06 to -0.03)
Kyrgyzstan	237519.45 (223656.26-251074.53)	4403.33 (4162.29-4645.48)	331047.64 (312317.2-349662.4)	4395.71 (4155.15-4637.72)	0 (-0.01 to 0)
Lao People's Democratic Republic	87277.74 (82233.58-92050.53)	1651.19 (1562.7-1738.04)	128318.43 (121242.01-135246.41)	1639.92 (1552.76-1725.89)	-0.02 (-0.02 to -0.02)
Latvia	19449.39 (18678.63-20220.62)	876.07 (837.34-913.75)	11111.26 (10710.23-11502.86)	871.63 (836.42-907.33)	-0.01 (-0.02 to -0.01)
Lebanon	45572.33 (43060-48142.38)	1351.51 (1280.62-1426.67)	66382.62 (63001.76-69798.7)	1349.3 (1278.67-1424.32)	-0.01 (-0.01 to 0)
Lesotho	20648.29 (19403.82-21996.34)	1041.35 (983.64-1107.11)	21702.89 (20412.09-23157.46)	1038.02 (979.9-1102.96)	-0.01 (-0.01 to -0.01)
Liberia	33163.31 (31498.18-34779.15)	1040.91 (994.6-1088.18)	68065.11 (64787.62-71349.6)	1039.84 (993.69-1086.98)	-0.01 (-0.01 to -0.01)
Libya	73687.68 (69383.12-77993.37)	1350.98 (1280.21-1426.23)	80903.53 (76681.1-85311.91)	1350.5 (1279.81-1425.72)	-0.01 (-0.01 to 0)
Lithuania	61982.14 (59698.59-64386.36)	1942.31 (1866.13-2020.06)	36197.78 (34970.14-37427.15)	1935.98 (1859.99-2013.33)	-0.01 (-0.01 to -0.01)
Luxembourg	10148.66 (9720.72-10567.59)	3376.93 (3216.09-3529.06)	16311 (15645.22-16958.04)	3372.46 (3211.04-3524.12)	0 (-0.01 to 0)
Madagascar	151201.34 (143546.87-158759.62)	985.35 (941.01-1031.52)	346225.15 (328870.78-363993.08)	986.11 (941.76-1032.36)	0 (0 to 0)
Malawi	124685.79 (118356.88-130841.83)	986.61 (942.28-1032.93)	239284.89 (226971.9-251672.26)	987.27 (942.81-1033.71)	0 (0 to 0)

Malaysia	338113.32 (319101.16-356857.61)	1640 (1553.02-1726.06)	483091.8 (457900.89-508354.72)	1630.76 (1544.92-1716.15)	-0.02 (-0.02 to -0.02)
Maldives	4884.94 (4595.31-5156.03)	1636.81 (1549.34-1722.72)	6787.71 (6445.81-7133.39)	1590.87 (1507.49-1672.41)	-0.11 (-0.13 to -0.09)
Mali	129744.16 (120652.25-138634.44)	1152.05 (1071.04-1228.74)	365357.75 (338500.4-391224.8)	1146.01 (1070.13-1221.81)	-0.02 (-0.03 to -0.02)
Malta	11265.27 (10758.4-11761.79)	3376.57 (3215.42-3528.39)	10931.54 (10489.3-11375.13)	3370.11 (3208.82-3521.71)	-0.01 (-0.01 to -0.01)
Marshall Islands	1082.21 (1017.45-1158.68)	1728.6 (1635.55-1836.88)	1022.98 (965.04-1088.26)	1727.86 (1634.66-1836.18)	0 (0 to 0)
Mauritania	27318.04 (25956.75-28657.48)	1041.52 (995.25-1088.58)	56601.9 (53814.99-59383.99)	1041.97 (995.63-1089.17)	0 (0 to 0)
Mauritius	18639.65 (17595.75-19637.52)	1640.42 (1553.18-1726.32)	16195.49 (15394.87-17009.73)	1641.06 (1553.66-1727.1)	0 (0 to 0)
Mexico	1648613.85 (1568231.22-1723361.29)	1604.64 (1534.21-1674.77)	1895386.7 (1811194.93-1980156.23)	1575.14 (1504.27-1644.57)	-0.08 (-0.09 to -0.07)
Micronesia (Federated States of)	2331.58 (2193.36-2491.66)	1728.33 (1635.51-1836.57)	1832.82 (1728.73-1949.36)	1727.76 (1634.48-1836)	0 (0 to 0)
Monaco	698.76 (671.04-727.42)	3373.98 (3213.08-3525.88)	905.61 (870.22-943.76)	3382.85 (3221.18-3534.37)	0.01 (0.01 to 0.01)
Mongolia	122977.22 (115591.72-130157.05)	4392.96 (4152.23-4634.58)	158855.95 (150092.28-167784.16)	4396.36 (4155.8-4638.41)	0 (0 to 0)
Montenegro	10521.8 (9958.76-11096.84)	1802.82 (1703.74-1902.07)	8216.08 (7810.05-8617.47)	1799.52 (1700.47-1898.3)	-0.01 (-0.01 to -0.01)
Morocco	413215.22 (389908.56-437088.4)	1353.09 (1282.43-1428.38)	481006.19 (455834.15-507391.62)	1351.27 (1280.67-1426.44)	-0.01 (-0.01 to 0)
Mozambique	170001.28 (161295.85-178582.18)	988.02 (943.45-1034.25)	401138.86 (380443.97-421685.15)	987.98 (943.42-1034.28)	0 (0 to 0)
Myanmar	770833.51 (726960.5-813076.56)	1647.41 (1559.2-1733.91)	921006.8 (871170.65-970096.08)	1647.78 (1560.08-1734.18)	0 (0 to 0)
Namibia	18593.94 (17482.06-19812.21)	1037.84 (979.77-1102.89)	28058.57 (26427.97-29908.32)	1038.07 (980.01-1103.14)	0 (0 to 0)
Nauru	219.79 (207.55-234.26)	1727.14 (1634.49-1835.33)	219.37 (207.03-233.68)	1729.27 (1635.68-1837.67)	0 (0 to 0.01)
Nepal	375935.39 (352683.91-399637.94)	1465.56 (1380.32-1552.67)	474137.65 (445991.11-503166.87)	1467.36 (1382.01-1554.21)	0.01 (0 to 0.01)
Netherlands	409975.86 (392628.41-427448.76)	3376.75 (3215.6-3528.6)	437205.97 (419628.92-455455.69)	3376.06 (3214.62-3527.7)	0 (0 to 0)
New Zealand	103271.37 (98916.86-107736.5)	3354.94 (3202.35-3505.59)	140997.88 (135642.91-146848.64)	3379.68 (3240.97-3531.55)	0.04 (0.03 to 0.05)
Nicaragua	97691.73 (91406.39-103565.68)	1881.82 (1776.39-1989.34)	128467.73 (120974.06-135905.06)	1877.97 (1772.31-1985.09)	-0.01 (-0.01 to -0.01)
Niger	113514.82 (107701.24-119259.46)	1041.75 (995.32-1088.94)	359687.87 (341112.69-378072.48)	1041.7 (995.37-1088.83)	0 (0 to 0)
Nigeria	1180912.83 (1124078.86-1235108.05)	1052.71 (1006.88-1100.04)	3081588.23 (2932718.2-3226557.59)	1054.41 (1008.71-1101.76)	0.01 (0 to 0.01)
Niue	44.95 (42.4-47.96)	1725.84 (1632.19-1833.57)	25.73 (24.37-27.28)	1726.64 (1633.31-1834.36)	0 (0 to 0)
North Macedonia	33870.93 (32053.97-35744.84)	1801.95 (1702.89-1901.09)	26003.08 (24783.98-27247.93)	1797.86 (1698.84-1896.64)	-0.01 (-0.01 to -0.01)
Northern Mariana Islands	765.2 (722.93-813.53)	1732.5 (1639.91-1839.53)	737.14 (697.87-781.86)	1723.36 (1630.9-1831.44)	-0.02 (-0.03 to -0.01)
Norway	130304.84 (125397.27-135785.77)	3706.93 (3547.47-3870.42)	158074.74 (152300.15-163741.14)	3726.25 (3572.9-3877.65)	0.03 (0 to 0.05)
Oman	33267.1 (30671.62-35905.25)	1317.48 (1219.43-1420.79)	58860.49 (54476.13-63623.02)	1313.35 (1216.42-1419.24)	-0.04 (-0.06 to -0.02)
Pakistan	2195906.61 (2084977.45-2317441.5)	1463.58 (1395.7-1536.85)	4072490.88 (3870797.26-4293005.45)	1465.06 (1397.24-1538.36)	0 (0 to 0)
Palau	273.48 (257.94-290.89)	1725.82 (1632.47-1833.92)	241.27 (228.83-255.41)	1713.3 (1620.45-1820.7)	-0.03 (-0.03 to -0.02)
Palestine	40020.96 (36805.51-43317.74)	1425.32 (1313.02-1534.83)	84093.74 (77325.3-90982.74)	1402.7 (1298.03-1509.92)	-0.03 (-0.04 to -0.01)
Panama	50394.85 (47463.44-53374.66)	1876.74 (1771.53-1983.98)	78329.57 (73913.9-82869.96)	1875.91 (1770.57-1983.03)	0 (0 to 0)
Papua New Guinea	88244.02 (83229.9-94146.44)	1724.75 (1631.95-1832.88)	210844.3 (199279.37-224681.08)	1724.46 (1631.6-1832.48)	0 (0 to 0)
Paraguay	116328.47 (110688.84-121925.66)	2413.71 (2309.56-2519.19)	171383.43 (163780.8-179101.67)	2411.58 (2307.74-2516.95)	0 (0 to 0)
Peru	419748.05 (400027.25-441065.27)	1675.55 (1602.8-1754.59)	584523.76 (559819.1-611540.12)	1671.32 (1599.22-1750.4)	0.01 (-0.02 to 0.03)
Philippines	1265403.2 (1205375.25-1328727.09)	1652.34 (1583.11-1730.13)	1936288.86 (1851788.43-2030930.62)	1647.65 (1578.72-1724.88)	-0.01 (-0.01 to -0.01)
Poland	630317.02 (604115.4-661310.5)	1824.4 (1747.21-1914.03)	464865.69 (447787.56-484537.47)	1821.52 (1744.32-1910.88)	-0.01 (-0.01 to -0.01)
Portugal	291650.54 (279183.68-304866.74)	3381.49 (3220.39-3533.78)	251769.22 (241740.85-262061.61)	3380.8 (3219.58-3532.88)	0 (0 to 0)

(continues)

Table S1 Continued.

Location	Number 1990	ASR 1990	Number 2021	ASR 2021	EAPC_95%CI
Puerto Rico	68969.93 (65178.02-72655.27)	1947.08 (1841.88-2048.64)	47851.37 (45429.63-50366.45)	1946.08 (1841.11-2047.6)	0 (0 to 0)
Qatar	5915.04 (5589.03-6249.4)	1334.96 (1264.35-1410.04)	30160.06 (28480.06-31824.71)	1336.26 (1265.63-1411.29)	-0.01 (-0.02 to -0.01)
Republic of Korea	1722320.1 (1624671.69-1825281.66)	4060.92 (3837.26-4297.59)	1389962.48 (1317216.61-1468599.17)	4061.06 (3835.24-4290.6)	0.02 (0.01 to 0.04)
Republic of Moldova	85102.59 (81808.68-88503.66)	1944.98 (1868.77-2022.76)	46127.25 (44563.83-47767.01)	1934.42 (1858.5-2011.69)	-0.02 (-0.02 to -0.02)
Romania	245668.77 (232340.02-258388.18)	1202.21 (1133.82-1266.57)	155583.52 (147703.89-163655.1)	1218.73 (1151.6-1286.7)	0.06 (0.05 to 0.08)
Russian Federation	4346437.76 (4210058.72-4512241.61)	3289.36 (3180.08-3416.85)	3615594.94 (3510758.94-3728225.58)	3385.44 (3277.12-3504.09)	0.14 (0.1 to 0.18)
Rwanda	66723.32 (62112.6-71443.25)	687.97 (646.9-734.25)	107376.69 (100464.61-114934.75)	687.58 (646.68-733.76)	-0.03 (-0.07 to 0.01)
Saint Kitts and Nevis	890.72 (839.49-940.59)	1947.8 (1842.86-2049.5)	911.81 (863.09-958.72)	1946.4 (1841.59-2047.81)	0 (0 to 0)
Saint Lucia	3096.89 (2917.34-3275.29)	1949.86 (1844.74-2051.72)	2751.78 (2607.54-2893.64)	1943.58 (1838.83-2044.85)	-0.01 (-0.01 to -0.01)
Saint Vincent and the Grenadines	2473.24 (2325.85-2617.55)	1946.52 (1841.78-2048.15)	1965.52 (1861.08-2068.01)	1943.22 (1838.35-2044.39)	-0.01 (-0.01 to -0.01)
Samoa	3678.35 (3459.72-3931.21)	1721.44 (1628.55-1829.38)	4307.71 (4066.89-4592.42)	1726.91 (1633.82-1835.27)	0.01 (0.01 to 0.01)
San Marino	635.47 (608.58-663.16)	3380.9 (3219.69-3532.98)	784.63 (753.79-816.97)	3376.04 (3215.22-3528.18)	-0.01 (-0.01 to -0.01)
Sao Tome and Principe	1644.61 (1561.24-1727.48)	1042.03 (995.73-1089.29)	2548.52 (2428.07-2670.14)	1041.03 (994.76-1088.14)	0 (0 to 0)
Saudi Arabia	270500.37 (255001.8-286282.18)	1344.48 (1273.47-1419.67)	426677.2 (405030.07-449125.2)	1341.92 (1271.04-1417.13)	-0.01 (-0.01 to -0.01)
Senegal	105378.54 (100011.34-110694.09)	1043.34 (996.87-1090.66)	198107.43 (188488.02-207713)	1040.08 (994.06-1087.25)	-0.01 (-0.01 to -0.01)
Serbia	146912.61 (139300.99-154490.62)	1812.9 (1712.22-1913.13)	104712.67 (99874.8-109725.87)	1794.61 (1695.5-1892.65)	-0.04 (-0.04 to -0.04)
Seychelles	1306.66 (1233.53-1377.43)	1640.95 (1553.74-1727.15)	1492.36 (1418.26-1565.97)	1625.86 (1540.01-1710.72)	-0.04 (-0.05 to -0.04)
Sierra Leone	54051.74 (51378.38-56640.85)	1042.06 (995.7-1089.27)	111683.58 (106244.32-117040.15)	1041.7 (995.34-1088.95)	0 (-0.01 to 0)
Singapore	85113.64 (78593.88-92312.48)	3282.37 (3030.97-3527.82)	128782.05 (120047.69-137752.24)	3253.32 (3009.67-3499.02)	-0.04 (-0.05 to -0.03)
Slovakia	86099.42 (81551.27-90799.28)	1805.92 (1706.77-1905.53)	66285.77 (63123.51-69453.28)	1801.94 (1702.9-1901.19)	-0.01 (-0.01 to -0.01)
Slovenia	28731.39 (27281.31-30181.58)	1804.69 (1705.62-1904.07)	24489.7 (23338.58-25630.91)	1798.57 (1699.54-1897.47)	-0.01 (-0.01 to -0.01)
Solomon Islands	7769.92 (7318.54-8298.54)	1725.94 (1633.35-1834.01)	13965.98 (13180.31-14886.94)	1727.94 (1634.82-1836.09)	0.01 (0.01 to 0.01)
Somalia	103495.48 (98072.34-108746.38)	981.63 (938.07-1027.47)	282699.79 (268051.69-297024.33)	984.19 (940.39-1030.19)	0.01 (0.01 to 0.01)
South Africa	451590.92 (430559.98-473497.24)	1042.6 (997.44-1089.55)	572263.82 (547922.59-597813.08)	1041.09 (996.08-1087.55)	-0.01 (-0.01 to -0.01)
South Sudan	73483.63 (69770.76-77157.68)	980.58 (936.64-1026.67)	120531.26 (114266.8-126818.58)	983.92 (939.87-1029.81)	0.01 (0.01 to 0.01)
Spain	1030015.36 (945119.77-1133434.71)	3182.02 (2908.75-3476.47)	1029814.99 (953156.86-1117361.73)	3180.95 (2907.72-3475.46)	0 (0 to 0)
Sri Lanka	309702.37 (290620.6-329004.99)	1668.59 (1569.06-1768.24)	329299.81 (311120.11-348845.6)	1653.8 (1557.94-1751.12)	-0.05 (-0.06 to -0.03)
Sudan	352420.92 (332193.86-372810.97)	1350.74 (1279.89-1426.05)	705431.97 (665040.33-746596.45)	1350.08 (1279.31-1425.33)	0 (0 to 0)
Suriname	8251.37 (7777.87-8713.51)	1946.07 (1841.15-2047.68)	10484.74 (9922.68-11029.07)	1944.65 (1839.58-2045.96)	0 (0 to 0)
Sweden	233797.96 (224553.1-243149.76)	3393.68 (3242.3-3551.41)	278139.36 (267245.58-288876.06)	3390.25 (3238.75-3547.55)	0 (0 to 0)
Switzerland	181657.04 (174042.41-189174.63)	3374.84 (3213.73-3526.54)	222529.91 (213470.72-231524.72)	3372.74 (3211.38-3524.22)	0 (0 to 0)
Syrian Arab Republic	233607.45 (220086.56-247204)	1350.54 (1279.91-1425.74)	181287.04 (171613.71-191857.28)	1355.96 (1284.37-1431.04)	0.01 (0.01 to 0.02)

Taiwan (Province of China)	466523.13 (434079.86-499077.48)	2322.88 (2165.85-2477.47)	411288.61 (385402.38-438395.12)	2369.65 (2202.89-2534.99)	0.18 (0.12 to 0.23)
Tajikistan	315503.33 (296788.78-334036.64)	4395.93 (4154.86-4637.51)	511629.85 (482246.28-540784.5)	4381.31 (4141.44-4622.99)	-0.01 (-0.01 to -0.01)
Thailand	974763.66 (920786.83-1028206.9)	1643.16 (1555.73-1729.14)	801708.01 (762870.35-841118.14)	1643.94 (1556.8-1730.01)	0 (0 to 0)
Timor-Leste	15922.01 (15007.48-16791.86)	1630.1 (1544.77-1715.12)	26883.62 (25356.6-28347.04)	1639.63 (1552.78-1725.48)	0.02 (0.02 to 0.02)
Togo	49271.96 (45616.58-52987.52)	1005.73 (938.3-1080.29)	100591.48 (93413.11-108058.71)	1004.89 (937.6-1079.36)	-0.02 (-0.02 to -0.01)
Tokelau	32.72 (30.83-34.96)	1729.28 (1635.62-1837.26)	23.54 (22.19-25.05)	1725.23 (1632.01-1833.28)	-0.01 (-0.02 to -0.01)
Tonga	2158.3 (2032.83-2305.05)	1729.85 (1636.39-1837.98)	2125.9 (2007.87-2265.12)	1731.28 (1637.93-1839.42)	0.01 (0 to 0.01)
Trinidad and Tobago	25757.09 (24293.29-27198.29)	1945.93 (1841-2047.38)	22786.42 (21592.97-23974.5)	1944.18 (1839.39-2045.46)	0 (0 to 0)
Tunisia	133358.42 (125798.26-141060.27)	1351.23 (1280.62-1426.46)	142254.53 (135064.28-149700.33)	1350.47 (1279.8-1425.63)	0 (0 to 0)
Turkmenistan	207730.36 (195393.65-219786.05)	4401.52 (4160.72-4643.64)	230542.94 (217825.65-243429.06)	4370.87 (4131.12-4612.49)	-0.02 (-0.02 to -0.02)
Tuvalu	188.56 (178.58-200.6)	1735.36 (1641.93-1843.63)	220.75 (208.67-234.75)	1721.96 (1629.11-1830.02)	-0.03 (-0.03 to -0.02)
Türkiye	1417271.43 (1330667.5-1516130.66)	2152.35 (2024.09-2297.34)	1596344.58 (1492722.31-1702581.05)	2161.66 (2016.31-2302.64)	0 (-0.02 to 0.01)
Uganda	288915.71 (266847.74-310952.21)	1288.84 (1200.13-1383.4)	715502.91 (659310.09-771374.55)	1288.47 (1199.69-1382.37)	-0.01 (-0.03 to 0)
Ukraine	873361.94 (840659.57-906538.48)	1973.01 (1897.56-2053.4)	556187.85 (537257.59-576047.88)	1965.29 (1890.17-2045.57)	-0.01 (-0.01 to -0.01)
United Arab Emirates	26865.61 (25394.1-28442.09)	1337.36 (1266.54-1412.65)	88052.62 (83355.82-93058.3)	1338.05 (1266.56-1413.36)	0 (-0.01 to 0)
United Kingdom	1835372.18 (1767695.62-1909285.89)	3877.12 (3711.26-4039.82)	2034646.91 (1960024.92-2109455.64)	3807.4 (3651.09-3961.73)	-0.09 (-0.13 to -0.04)
United Republic of Tanzania	478169.38 (452987.59-502569.81)	1440.45 (1375.06-1504.7)	1024342.4 (973291.12-1079548.96)	1427.07 (1360.42-1496.89)	-0.07 (-0.1 to -0.04)
United States	2098.75 (1984.47-2213.68)	1948.91 (1843.55-2050.54)	1295.6 (1230.03-1363.51)	1943.39 (1838.55-2044.62)	-0.01 (-0.01 to -0.01)
Virgin Islands	7453514.16 (7220727.8-7687819.55)	3169.6 (3064.98-3277.88)	9189104.25 (8911691.89-9489052.28)	3161.54 (3052.34-3272.83)	-0.04 (-0.06 to -0.01)
United States of America	95780.57 (90487.02-101269.99)	3212.51 (3032.93-3395.66)	91244.64 (86433.06-96268.17)	3211.17 (3031.86-3394.03)	0 (0 to 0)
Uruguay	1183547.81 (1113487.43-1252368.03)	4400.42 (4159.32-4642.28)	1533464.66 (1450580.53-1619045.69)	4386.45 (4146.27-4628.25)	-0.01 (-0.01 to -0.01)
Uzbekistan	3426.96 (3232.73-3655.76)	1728.03 (1635.35-1836.14)	6342.68 (5986.71-6760.67)	1730.09 (1636.88-1838.23)	0 (0 to 0.01)
Vanuatu	517031.12 (483816.14-554258.45)	2356.45 (2214.48-2517.36)	578622.03 (542806.76-614961.19)	2352.6 (2201.32-2503.24)	-0.02 (-0.03 to -0.01)
Venezuela (Bolivarian Republic of)	1351225.37 (1274274.61-1425434.15)	1650.13 (1562.43-1736.61)	1511422.52 (1434704.9-1587599.44)	1635.46 (1549.78-1721.01)	-0.03 (-0.03 to -0.03)
Viet Nam	265945.87 (250510.47-281117.3)	1350.45 (1279.66-1425.67)	567854.33 (534675.94-600792.91)	1351.41 (1280.78-1426.61)	0 (0 to 0)
Yemen	102880.54 (97554.31-108058.43)	986.32 (941.82-1032.6)	240738.66 (228589.21-253091.94)	986.14 (941.79-1032.5)	0 (0 to 0)
Zambia	144687.24 (135878.33-154296.29)	1037.67 (979.65-1102.66)	199503.59 (187724.64-212795.25)	1038.55 (980.43-1103.78)	0 (0 to 0)
Zimbabwe					

Table S2 Two hundred and four nations/territories trends in AD burden of incidence (1990-2021).

Location	Number 1990	ASR 1990	Number 2021	ASR 2021	EAPC_95%CI
Afghanistan	25066.39 (23279.18-26939.83)	184.51 (172.31-196.78)	81427.12 (75483.42-87851.39)	184.16 (171.92-196.48)	-0.01 (-0.01 to 0)
Albania	8711.07 (8089.39-9406.57)	230.99 (215.45-248.41)	4300.96 (4048.26-4581.97)	231.56 (215.94-248.95)	0 (0 to 0.01)
Algeria	60485.87 (54659.02-66040.69)	184.35 (168.91-200.06)	84615.41 (77364.69-91865.49)	184.23 (168.79-199.93)	-0.02 (-0.03 to -0.01)
American Samoa	146.96 (135.07-159.29)	236.16 (217.94-254.87)	106.25 (97.66-114.91)	236.37 (218.12-255.07)	0 (0 to 0)
Andorra	153.14 (143.16-163.04)	394.58 (365.4-423.53)	202.46 (190.56-214.55)	395.44 (366.2-424.35)	0.01 (0.01 to 0.02)
Angola	21722.96 (19964.36-23476.71)	146.42 (136.01-157.51)	67982.08 (62509.05-73636)	146.67 (136.24-157.75)	0.01 (0.01 to 0.01)
Antigua and Barbuda	159.92 (147.99-172.75)	263.46 (244.44-283.72)	185.68 (173.44-198.53)	263.12 (244.05-283.38)	-0.01 (-0.01 to -0.01)
Argentina	131986.17 (121666.79-142060.66)	388.08 (357.88-417.64)	144436.05 (133962.96-154818.12)	387.82 (357.72-417.34)	0 (0 to 0)
Armenia	15175.69 (13992.46-16443.75)	414.65 (382.76-447.58)	9451.97 (8764.93-10116.17)	413.28 (381.47-446.01)	-0.01 (-0.02 to -0.01)
Australia	46093.63 (42943.5-49254.14)	322.98 (298.64-346.59)	62855.51 (58635.58-67324.04)	323.06 (298.28-350.95)	0.01 (0 to 0.02)
Austria	23162.5 (21654.81-24593.5)	395.54 (366.22-424.45)	24907.37 (23393.72-26380.44)	395.23 (365.95-424.18)	0 (0 to 0)
Azerbaijan	34625.5 (31907.36-37571.36)	414.72 (382.86-447.66)	34689.48 (32118.93-37260.66)	412.26 (380.52-444.88)	-0.02 (-0.03 to -0.02)
Bahamas	677.31 (626.52-733.86)	263.35 (244.29-283.61)	796.68 (740.16-856.06)	263.35 (244.3-283.61)	0 (0 to 0)
Bahrain	1031.67 (959.23-1106.89)	183.61 (171.37-196.04)	2178.22 (2030.89-2325.14)	183.24 (171.04-195.68)	-0.01 (-0.01 to -0.01)
Bangladesh	326008.01 (300701.33-354835.48)	205.09 (190.06-221.99)	316057.23 (292084.89-342629.16)	205.42 (190.45-222.33)	0.01 (0.01 to 0.01)
Barbados	591.43 (550.48-636.27)	263.42 (244.33-283.67)	575.15 (537.61-613.46)	263.08 (243.98-283.33)	0 (0 to 0)
Belarus	16892.11 (15967.8-17896.62)	182.02 (171.01-193.53)	12808.27 (12180.18-13439.22)	181.36 (170.39-192.83)	-0.01 (-0.01 to -0.01)
Belgium	30225.77 (28282.7-32138.55)	395.47 (366.18-424.39)	33150.07 (31134.09-35152.85)	395.55 (366.26-424.5)	0 (0 to 0)
Belize	638.34 (587.05-692.58)	262.98 (243.91-283.16)	1072.31 (994.4-1159.72)	263.15 (244.11-283.38)	0 (0 to 0)
Benin	10415.29 (9706.85-11118.88)	145.61 (137.2-153.77)	26533.29 (24798.53-28231.68)	145.62 (137.21-153.8)	0 (0 to 0)
Bermuda	131.45 (122.68-140.89)	263.29 (244.2-283.54)	117.55 (110.68-125.15)	263.12 (244.04-283.34)	0 (0 to 0)
Bhutan	1705.34 (1573.22-1857.93)	205.17 (190.16-222.15)	1355.65 (1256.03-1463.88)	205.32 (190.3-222.33)	0 (0 to 0)
Bolivia (Plurinational State of)	18273.19 (17183.53-19491.56)	227.39 (214.69-240.54)	26906.86 (25370.73-28545.23)	227.24 (214.55-240.36)	0 (0 to 0)
Bosnia and Herzegovina	8997.8 (8407.92-9674.08)	232.27 (216.59-249.8)	4994.05 (4707.8-5308.38)	232.03 (216.38-249.53)	-0.01 (-0.01 to 0)
Botswana	2697.24 (2473.32-2945.78)	151.77 (140.16-164.81)	3602.71 (3324.89-3907.78)	151.54 (139.94-164.54)	0 (-0.01 to 0)
Brazil	477938.97 (451199.37-503836.19)	300.96 (286.2-315.76)	576541.37 (550985.23-603056.4)	301.19 (286.17-316.19)	0 (-0.01 to 0)
Brunei Darussalam	1288.59 (1187.25-1386.33)	421.88 (390.9-451.27)	1533.6 (1426.15-1641.63)	421.93 (390.99-451.23)	0 (0 to 0)
Bulgaria	15309.52 (14357.19-16360.09)	232.36 (216.68-249.87)	10129.62 (9551.73-10750.03)	231.96 (216.3-249.48)	-0.01 (-0.01 to -0.01)
Burkina Faso	20093.67 (18731.22-21421.23)	145.74 (137.31-153.93)	45553.09 (42531.03-48474.58)	145.74 (137.31-153.93)	0 (0 to 0)
Burundi	11375.75 (10551.14-12130.88)	143.6 (133.98-152.17)	25069.33 (23216.75-26776.45)	143.31 (133.71-151.88)	-0.01 (-0.01 to -0.01)
Cabo Verde	687.55 (642.68-731.21)	145.99 (137.55-154.18)	737.22 (695.78-778.43)	145.5 (137.07-153.66)	-0.01 (-0.01 to -0.01)
Cambodia	31507.54 (29186.88-34001.91)	221.07 (206.38-237.32)	38096.65 (35504.23-40909.72)	219.88 (205.19-235.86)	-0.02 (-0.02 to -0.01)
Cameroon	24120.45 (22602.32-25821.41)	162.8 (153.38-173.2)	65445.66 (61439.93-69813.46)	162.67 (153.19-172.36)	0.01 (0 to 0.02)
Canada	75316.9 (71379.91-79412.47)	316.39 (299.47-334.44)	95750.12 (90789.32-100573.44)	316.37 (299.46-334.49)	0 (0 to 0)
Central African Republic	5684.44 (5227.97-6139.26)	146.55 (136.14-157.62)	10408.19 (9582.41-11257.89)	146.53 (136.12-157.58)	0 (0 to 0)
Chad	12888.22 (12022.83-13743.97)	145.74 (137.3-153.94)	38431.42 (35809.97-41010.94)	145.46 (137.05-153.67)	-0.01 (-0.01 to -0.01)
Chile	53453.46 (49368.29-57682.76)	387.93 (357.81-417.46)	55903.19 (51983.92-59745.11)	387.73 (357.64-417.26)	0 (0 to 0)

China	2260726.63 (2146606.12-2376941.26)	197.94 (187.94-208.35)	2168642.71 (2075902.3-2264022.66)	196.63 (187.2-206.73)	0 (-0.03 to 0.03)
Colombia	96327.21 (89141.86-103996.21)	258.47 (240.02-278.2)	106153.68 (99101.15-113792.43)	258.38 (239.97-278.07)	0 (0 to 0)
Comoros	909.21 (842.88-970.33)	143.36 (133.78-151.93)	1126.37 (1047.68-1198.05)	143.3 (133.71-151.83)	0 (0 to 0)
Congo	4046.37 (3675.09-4403.49)	123.95 (113.75-134.05)	7527.25 (6867.01-8197.28)	123.77 (113.57-133.86)	-0.02 (-0.03 to -0.01)
Cook Islands	49.93 (45.89-54.12)	235.98 (217.76-254.67)	33.95 (31.56-36.31)	236.94 (218.58-255.6)	0.02 (0.01 to 0.02)
Costa Rica	9257.69 (8555.48-10005.48)	258.29 (239.87-277.98)	10079.45 (9398.31-10817.25)	258.55 (240.09-278.25)	0 (0 to 0)
Croatia	8592.73 (8051.35-9208.34)	232.28 (216.63-249.81)	6196.25 (5844.23-6572.53)	232.06 (216.4-249.57)	0 (-0.01 to 0)
Cuba	25582.87 (23851.12-27491.85)	262.8 (243.69-283.01)	22064.38 (20664.09-23524.36)	262.74 (243.58-282.94)	0 (0 to 0)
Cyprus	2625.11 (2406.99-2831.77)	375.77 (343.02-406.3)	3729.8 (3454.98-4000.5)	375.77 (343.03-406.32)	-0.01 (-0.01 to 0)
Czechia	18344.16 (17167.99-19625.8)	232.44 (216.75-249.96)	17144.52 (16152.37-18233.74)	232.05 (216.36-249.58)	-0.01 (-0.01 to -0.01)
Côte d'Ivoire	24988 (23324.78-26637.71)	145.27 (136.88-153.43)	51440.21 (48149.52-54680.18)	145.2 (136.81-153.38)	0 (0 to 0)
Democratic People's Republic of Korea	50336.19 (47138.62-53663.18)	235.09 (220.49-250.67)	48075.23 (45186.71-51107.24)	234.28 (219.67-249.79)	-0.01 (-0.01 to -0.01)
Democratic Republic of the Congo	81625.62 (74997.19-88240.28)	146.53 (136.11-157.64)	171435.62 (157798.97-185604.63)	146.4 (136.01-157.46)	0 (0 to 0)
Denmark	17327.83 (15991.61-18606.75)	452.33 (413.23-487.03)	19588.62 (18159.73-20987.28)	452.19 (413.12-486.9)	0.02 (0.01 to 0.03)
Djibouti	750.28 (694.8-799.32)	142.84 (133.31-151.33)	1937.07 (1804.72-2057.5)	142.61 (133.09-151.1)	-0.01 (-0.01 to 0)
Dominica	208.84 (192.95-225.45)	263.03 (243.86-283.28)	136.73 (127.22-147.02)	262.95 (243.86-283.12)	0 (0 to 0)
Dominican Republic	22245.8 (20532.5-24072.87)	263.3 (244.3-283.53)	27802.46 (25812.53-29894.68)	262.97 (243.86-283.18)	0 (-0.01 to 0)
Ecuador	26574.39 (24948.49-28555.73)	229.42 (216.49-244.22)	40120.23 (37878.53-42766.7)	229.38 (216.45-244.19)	0 (0 to 0.01)
Egypt	94451.03 (86758.68-102168.52)	130.68 (120.88-140.44)	156081.37 (143073.28-168191.02)	128.84 (118.69-138.11)	-0.09 (-0.12 to -0.06)
El Salvador	16954.52 (15659.01-18365.96)	258.61 (240.13-278.32)	16209.29 (15072.09-17456.99)	258.56 (240.08-278.15)	0 (0 to 0)
Equatorial Guinea	911.08 (838.08-985.37)	146.52 (136.14-157.56)	2590.65 (2382.43-2803.25)	145.81 (135.43-156.89)	-0.02 (-0.02 to -0.02)
Eritrea	6792.75 (6298.32-7250.57)	143.35 (133.78-151.88)	11307.94 (10488.83-12033.73)	143.27 (133.68-151.76)	0 (0 to 0)
Estonia	3254.97 (3053.51-3440.01)	229.15 (212.96-243.46)	2408.67 (2282.17-2537.38)	227.75 (211.63-242.01)	-0.02 (-0.03 to -0.02)
Eswatini	1760.48 (1615.18-1923.93)	151.84 (140.23-164.87)	1981.26 (1820.45-2160.54)	151.53 (139.93-164.54)	-0.01 (-0.01 to -0.01)
Ethiopia	97947.74 (92430.62-104001.18)	135.64 (128.94-142.75)	183476.04 (173495.75-194649.81)	135.63 (128.95-142.73)	0.06 (0.04 to 0.07)
Fiji	2071.84 (1902-2249.53)	236.46 (218.22-255.14)	2184.38 (2012.01-2358.62)	236.49 (218.25-255.18)	0 (0 to 0)
Finland	15528.13 (14547.56-16504.99)	395.64 (366.32-424.52)	15185.33 (14299.2-16102.11)	395.46 (366.19-424.38)	0 (0 to 0)
France	223481.83 (207528.91-240616.73)	474.02 (436.86-515.1)	235809.11 (220132.22-251940.27)	474.06 (436.9-515.16)	-0.02 (-0.03 to -0.01)
Gabon	2351.58 (2140.28-2570.3)	181.66 (166.68-196.82)	3697.13 (3359.37-4002.27)	181.16 (165.88-195.62)	-0.03 (-0.05 to 0)
Gambia	2008.14 (1873.52-2139.53)	145.45 (137.03-153.67)	4344.12 (4070.65-4614.56)	145.58 (137.17-153.78)	0 (0 to 0)
Georgia	20580.54 (18932.78-22203.6)	411.89 (377.59-444.71)	11919.08 (11000.87-12782.68)	412.64 (379.39-443.88)	0.02 (0.01 to 0.04)
Germany	238227.52 (224211.48-252475.9)	402.12 (376.27-429.35)	239716.76 (226161.11-252860.51)	400.88 (373.93-427.86)	-0.02 (-0.06 to 0.01)
Ghana	25851.59 (24438.35-27598.16)	127.57 (121.21-134.71)	51433.31 (48730.07-54623.64)	127.69 (121.31-134.86)	0.06 (-0.04 to 0.16)
Greece	28456.19 (26232.71-30594.47)	368.91 (338.16-400.69)	24966.77 (23313.82-26646.85)	371.25 (340.45-402.38)	0.03 (0.03 to 0.04)
Greenland	171.45 (161.94-181.6)	315.27 (298.46-333.39)	156.97 (148.73-165.55)	315.73 (298.9-334.11)	0 (0 to 0)
Grenada	274.6 (253.24-297.36)	263.37 (244.27-283.61)	224.58 (209.32-240.76)	262.79 (243.65-282.95)	-0.01 (-0.01 to -0.01)
Guam	344.87 (317.72-372.5)	235.9 (217.77-254.6)	330.68 (306.36-354.56)	236.23 (218.02-254.92)	0 (0 to 0)
Guatemala	31179.56 (28680.13-33864.58)	258.61 (240.14-278.38)	41359.15 (38300.12-44741.32)	258.7 (240.24-278.45)	0 (0 to 0)
Guinea	12333.8 (11513.93-13141.47)	145.61 (137.18-153.8)	26012.72 (24323.76-27671.9)	145.62 (137.2-153.82)	0 (0 to 0)
Guinea-Bissau	2061.89 (1923.51-2195.84)	145.79 (137.35-153.98)	3907.25 (3656.8-4155.64)	145.69 (137.28-153.88)	0 (0 to 0)

(continues)

Table S2 Continued.

Location	Number 1990	ASR 1990	Number 2021	ASR 2021	EAPC_95%CI
Guyana	2449.76 (2263.16-2646.87)	263.24 (244.19-283.46)	1978.37 (1831.94-2128.71)	263.1 (244.03-283.34)	0 (0 to 0)
Haiti	22012.39 (20328.45-23842)	263.56 (244.6-283.81)	37256.64 (34460.74-40238.68)	263.29 (244.26-283.57)	0 (0 to 0)
Honduras	17023.4 (15679.66-18496.35)	258.44 (239.99-278.15)	27437.62 (25435.76-29642.67)	258.56 (240.1-278.25)	0 (0 to 0)
Hungary	23129.2 (21405.17-25090.67)	297.05 (272.78-325.61)	18975.46 (17685.58-20406.03)	296.46 (272.22-324.96)	-0.04 (-0.06 to -0.02)
Iceland	974.27 (898.7-1048.9)	424.9 (390.78-458.54)	1166.68 (1082.86-1250.59)	423.32 (389.46-459.33)	-0.02 (-0.03 to -0.02)
India	2195219.28 (2063928.56-2345408.51)	207.51 (196.05-220.9)	2580420.9 (2438451.18-2744920.69)	207.53 (196.07-220.95)	-0.02 (-0.04 to -0.01)
Indonesia	463308.15 (436077.19-491414.43)	220.99 (208.91-233.08)	551028.01 (523084.42-580319.59)	222.89 (210.9-235.3)	0.04 (0.03 to 0.05)
Iran (Islamic Republic of)	156056.95 (146043.35-166775.58)	202.42 (191.18-214)	150043.38 (141348.48-158662)	204.18 (192.55-216.84)	0.05 (0.04 to 0.06)
Iraq	47275.7 (43824.76-50988.93)	184.11 (171.88-196.43)	79672.51 (74004.78-85526.89)	184.06 (171.83-196.39)	0 (0 to 0)
Ireland	12932.54 (12002.08-13897.46)	395.43 (366.13-424.4)	15338.33 (14351.86-16329.6)	395.59 (366.27-424.57)	0 (0 to 0)
Israel	20227.79 (18680.97-21724.54)	395.62 (366.28-424.62)	37141.04 (34409.1-39788.91)	395.49 (366.2-424.45)	0 (0 to 0)
Italy	181778.19 (172284.83-191021.33)	453.55 (427.93-480.67)	176007.01 (167571.48-184244.7)	453.41 (427.77-480.54)	-0.01 (-0.01 to 0)
Jamaica	6857.35 (6324.48-7430.35)	263.32 (244.28-283.57)	5932.53 (5518.39-6367.8)	263.08 (244.02-283.31)	0 (0 to 0)
Japan	450799.65 (428843.3-473321.04)	494.16 (467.66-521.68)	397124.02 (381075.79-415858.35)	494.75 (467.73-525.79)	-0.02 (-0.05 to 0)
Jordan	9195.93 (8295.32-10032.94)	182.35 (166.55-197.84)	21657.69 (19799.32-23559.69)	182.22 (166.36-197.68)	-0.01 (-0.01 to -0.01)
Kazakhstan	74224.04 (68395.93-80447.19)	415.23 (383.2-448.22)	79700.84 (73570.9-86088.76)	414.54 (382.63-447.44)	-0.01 (-0.01 to 0)
Kenya	41348.15 (39110.24-43915.78)	126.92 (121.15-133.01)	75776.52 (71353.32-80003.78)	133.53 (126.59-140.24)	0.23 (0.2 to 0.26)
Kiribati	228.32 (209.59-247.7)	236.8 (218.53-255.49)	318.49 (292.89-345.13)	236.88 (218.6-255.56)	0 (0 to 0)
Kuwait	3680.88 (3341.39-4012.25)	191.85 (174.99-208.33)	6681.66 (6146.1-7202.6)	191.17 (174.26-207.88)	-0.03 (-0.04 to -0.02)
Kyrgyzstan	23639.61 (21754.47-25686.81)	415.24 (383.24-448.25)	31386.16 (28895.48-33988.49)	414.58 (382.64-447.51)	0 (0 to 0)
Lao People's Democratic Republic	12423.28 (11513.16-13400.34)	220.4 (205.71-236.48)	17161.88 (15987.91-18416.37)	219.66 (204.99-235.63)	-0.01 (-0.01 to -0.01)
Latvia	2426.85 (2308.01-2552.46)	104.71 (98.95-110.79)	1432.64 (1367.87-1499.08)	104.03 (98.4-109.82)	-0.02 (-0.02 to -0.01)
Lebanon	6391.33 (5952.27-6849.21)	184.23 (172.03-196.51)	8700.54 (8140.98-9281.91)	184.09 (171.85-196.36)	0 (0 to 0)
Lesotho	3127.29 (2865.93-3413.63)	152.02 (140.35-165.11)	3045.97 (2799.61-3316.25)	151.73 (140.1-164.77)	-0.01 (-0.01 to 0)
Liberia	5045.89 (4708.54-5376.17)	145.45 (137.03-153.63)	9585.89 (8992.72-10176.31)	145.33 (136.94-153.53)	-0.01 (-0.01 to -0.01)
Libya	10161.71 (9412.06-10940.23)	184.23 (171.94-196.68)	10086.91 (9387.28-10781.21)	184.16 (171.92-196.49)	0 (-0.01 to 0)
Lithuania	5948.6 (5624.55-6289.05)	182.02 (171-193.53)	3687.7 (3513.94-3871.97)	181.38 (170.4-192.86)	-0.01 (-0.01 to -0.01)
Luxembourg	1146.06 (1072.72-1217.87)	395.58 (366.26-424.51)	1821.35 (1709.76-1931.47)	395.35 (366.06-424.31)	0 (0 to 0)
Madagascar	23510.38 (21813.85-25076.74)	143.32 (133.74-151.88)	50709.18 (46894.5-54047.27)	143.4 (133.81-151.96)	0 (0 to 0)
Malawi	19790.57 (18380.69-21091.78)	143.48 (133.88-152.05)	34405.37 (31791.69-36657.99)	143.55 (133.94-152.11)	0 (0 to 0)
Malaysia	45997.85 (42689.09-49585.39)	219.51 (204.85-235.49)	61467.07 (57443.08-65941.34)	218.95 (204.31-234.83)	-0.01 (-0.01 to -0.01)
Maldives	710.15 (657.33-766.34)	219.14 (204.46-235.07)	868.71 (810.08-931)	216.87 (202.25-232.34)	-0.04 (-0.05 to -0.03)
Mali	19345.19 (17836.57-20890.29)	155.28 (144.49-166.06)	53031.97 (49033.6-57032.21)	154.88 (144.71-165.22)	-0.01 (-0.01 to -0.01)
Malta	1270.97 (1183.99-1358.45)	395.58 (366.26-424.51)	1252.99 (1181.29-1327.22)	395.04 (365.74-424)	0 (-0.01 to 0)
Marshall Islands	149.79 (136.62-163.96)	236.42 (218.19-255.14)	135.21 (124.38-146.22)	236.39 (218.14-255.08)	0 (0 to 0)
Mauritania	4093.82 (3822.15-4357.06)	145.52 (137.13-153.71)	8032 (7532.65-8532.86)	145.57 (137.16-153.75)	0 (0 to 0)
Mauritius	2382.68 (2220.23-2559.28)	219.86 (205.19-235.83)	2046.06 (1919.99-2182.84)	219.84 (205.16-235.82)	0 (0 to 0)
Mexico	237760.31 (224142.18-252164.57)	231.2 (219.35-244.5)	261919.06 (248766.3-277237.94)	229.25 (217.62-242.62)	-0.05 (-0.06 to -0.04)

Micronesia (Federated States of)	321.32 (293.65-350.44)	236.32 (218.1-255.03)	237.09 (218.26-256.41)	236.38 (218.16-255.08)	0 (0 to 0)
Monaco	77.55 (73.06-82.02)	395.07 (365.69-424.06)	102.43 (96.67-108.37)	396.04 (366.68-424.93)	0.01 (0.01 to 0.01)
Mongolia	12176.4 (11183.6-13256.37)	414.8 (382.8-447.81)	15430.33 (14211.34-16717.76)	414.54 (382.61-447.45)	0 (0 to 0)
Montenegro	1310.92 (1224.57-1411.09)	232.22 (216.53-249.71)	1048.38 (986.09-1117.2)	231.78 (216.15-249.21)	-0.01 (-0.01 to -0.01)
Morocco	57403.73 (53317.34-61664.55)	184.4 (172.17-196.73)	63944.65 (59687.61-68434.03)	184.23 (172.01-196.56)	0 (0 to 0)
Mozambique	26399.43 (24484.29-28177.29)	143.59 (134-152.19)	60246.95 (55684.35-64373.32)	143.62 (134.01-152.19)	0 (0 to 0)
Myanmar	101874.57 (94476.09-109710.98)	220.26 (205.56-236.31)	119976.01 (111985.23-128622.65)	220.22 (205.54-236.29)	0 (0 to 0)
Namibia	2821.63 (2593.09-3076.61)	151.64 (140.04-164.66)	4027.94 (3704.56-4386.75)	151.71 (140.09-164.74)	0 (0 to 0)
Nauru	31.83 (29.17-34.61)	236.16 (217.91-254.84)	30.95 (27.62-32.58)	236.39 (218.18-255.09)	0 (0 to 0)
Nepal	56381.52 (52055.18-61319.37)	205.35 (190.36-222.26)	64056.71 (59200.7-69405.03)	205.54 (190.58-222.4)	0 (0 to 0)
Netherlands	45748.73 (42770.87-48645.41)	395.57 (366.28-424.47)	48845.17 (45944.21-51725.44)	395.5 (366.21-424.45)	0 (0 to 0)
New Zealand	12414.52 (11735.1-13150.09)	412.8 (388.77-439.74)	16456.6 (15590.6-17303.98)	414.66 (390.18-438.66)	0.02 (0.02 to 0.03)
Nicaragua	13925.97 (12818.01-15143.8)	258.64 (240.16-278.37)	17120.46 (15895.87-18483.29)	258.37 (239.95-278.03)	0 (0 to 0)
Niger	17427.42 (16244.7-18601.66)	145.48 (137.07-153.7)	54200.03 (50497.36-57828.51)	145.57 (137.17-153.72)	0 (0 to 0)
Nigeria	178033.1 (168169.76-188223.29)	147.76 (140.85-155.18)	444551.87 (420746.75-470918.91)	147.98 (140.97-155.41)	0.01 (0 to 0.01)
Niue	6 (5.51-6.53)	236.21 (217.99-254.93)	3.35 (3.1-3.59)	236.26 (218.02-254.98)	0 (0 to 0.01)
North Macedonia	4208.67 (3927-4531.52)	232.08 (216.43-249.57)	3272.84 (3085.31-3486.67)	231.6 (215.95-249.08)	-0.01 (-0.01 to -0.01)
Northern Mariana Islands	104.98 (96.9-113.02)	236.85 (218.51-255.54)	94.77 (87.84-101.62)	235.95 (217.75-254.64)	-0.01 (-0.02 to -0.01)
Norway	14372.77 (13680.08-15077.84)	426.5 (403.14-449.97)	16917.2 (16104.41-17703.1)	427.69 (404.22-452.01)	0.02 (0 to 0.04)
Oman	4888.94 (4459.11-5335.62)	181.64 (166.45-196.44)	8038.56 (7397.71-8707.8)	180.94 (166.44-195.19)	-0.03 (-0.04 to -0.02)
Pakistan	325944.67 (306145.25-348586.81)	207.25 (195.81-220.68)	574657.94 (540664.64-613709.36)	207.4 (195.95-220.85)	0 (0 to 0)
Palau	35.68 (32.85-38.62)	236.24 (218.04-254.93)	31.34 (29.18-33.52)	235.36 (217.3-253.92)	-0.02 (-0.02 to -0.01)
Palestine	5830.72 (5294.24-6341.33)	191.39 (175.17-206.58)	11035.09 (10110-11940.89)	188.91 (173.86-203.46)	-0.02 (-0.04 to -0.01)
Panama	6845.04 (6332.41-7397.71)	258.22 (239.83-277.95)	10413.9 (9684.82-11210.86)	258.15 (239.77-277.83)	0 (0 to 0)
Papua New Guinea	12647.7 (11599.37-13747.89)	235.95 (217.76-254.64)	30326.51 (27848.02-32879.95)	235.87 (217.67-254.54)	0 (0 to 0)
Paraguay	15289.43 (14148.14-16428.26)	299.95 (279.41-319.76)	20489.36 (19068.96-21843.48)	299.79 (279.28-319.58)	0 (0 to 0)
Peru	56605.16 (53041.04-60145.32)	225.17 (212.46-238.01)	77592.93 (73236.91-82049.29)	224.82 (212.08-237.72)	0.01 (-0.01 to 0.03)
Philippines	175653.76 (164998.45-185763.48)	223.25 (211.26-234.76)	253948.21 (239867.18-267666.13)	222.89 (210.92-234.42)	-0.01 (-0.01 to -0.01)
Poland	78035.4 (73793.69-82581.41)	237.1 (223.56-251.68)	60498.45 (57719.85-63428.64)	236.73 (223.18-251.32)	-0.01 (-0.01 to -0.01)
Portugal	30759.3 (28696.36-32813.03)	395.73 (366.39-424.69)	27768.9 (26175.81-29372.57)	395.8 (366.46-424.76)	0 (0 to 0)
Puerto Rico	8992.27 (8341.46-9692)	263.17 (244.11-283.44)	5822.31 (5459.1-6205.72)	263.11 (244.02-283.37)	0 (0 to 0)
Qatar	847.01 (789.48-909.2)	182.72 (170.57-195.16)	4082.3 (3810.91-4352.62)	182.86 (170.69-195.32)	-0.01 (-0.01 to 0)
Republic of Korea	165453.78 (152963.38-179059.24)	434.92 (402.59-468.11)	134273.07 (125819.66-143008.68)	435.35 (403.91-468.57)	0.02 (0 to 0.04)
Republic of Moldova	7996.12 (7528.5-8501.92)	182.27 (171.22-193.77)	4639.39 (4411.81-4867.67)	181.16 (170.18-192.62)	-0.02 (-0.02 to -0.02)
Romania	33126.09 (31027.78-35286.09)	165.4 (153.77-177.26)	21640.45 (20314.06-22977.46)	168.13 (156.44-180.02)	0.08 (0.06 to 0.09)
Russian Federation	301888.23 (288207.91-317393.7)	224.32 (212.94-237.09)	262288.58 (251570.21-277405.97)	236.2 (224.27-249.38)	0.24 (0.18 to 0.29)
Rwanda	11416.97 (10512.94-12347.96)	110.65 (102.98-118.41)	17254.21 (15956.94-18566.3)	110.6 (102.95-118.35)	-0.03 (-0.07 to 0.01)
Saint Kitts and Nevis	118.03 (109-127.88)	263.32 (244.24-283.58)	116.25 (108.56-124.19)	263.17 (244.1-283.38)	0 (0 to 0)
Saint Lucia	416.44 (383.58-451.47)	263.49 (244.45-283.73)	348.28 (325.56-372.06)	262.93 (243.81-283.14)	-0.01 (-0.01 to -0.01)
Saint Vincent and the Grenadines	320.05 (294.5-348.21)	263.24 (244.13-283.47)	248.79 (231.73-267.83)	262.91 (243.82-283.09)	0 (0 to 0)

(continues)

Table S2 Continued.

Location	Number 1990	ASR 1990	Number 2021	ASR 2021	EAPC_95%CI
Samoa	513.58 (470.4-558.55)	235.8 (217.67-254.49)	606.98 (557.74-658.71)	236.22 (218.01-254.91)	0.01 (0.01 to 0.01)
San Marino	67.04 (62.74-71.2)	395.75 (366.42-424.71)	83.84 (79.06-88.84)	395.17 (365.79-424.22)	-0.01 (-0.01 to -0.01)
Sao Tome and Principe	237.09 (221.84-252.38)	145.61 (137.2-153.82)	345.94 (325.02-366.87)	145.48 (137.08-153.67)	0 (0 to 0)
Saudi Arabia	37982.05 (35198.12-40938.06)	183.66 (171.44-196.07)	55058.2 (51393.23-58943.16)	183.36 (171.14-195.69)	-0.01 (-0.01 to -0.01)
Senegal	15852.79 (14784.46-16892.12)	145.71 (137.28-153.92)	28091.9 (26345.44-29808.07)	145.43 (137.02-153.6)	-0.01 (-0.01 to -0.01)
Serbia	18342.88 (17151.1-19691)	234.8 (218.84-252.37)	12880.99 (12150.89-13690.35)	231.29 (215.71-248.74)	-0.06 (-0.06 to -0.05)
Seychelles	171.27 (159.1-184.02)	219.89 (205.21-235.85)	197.58 (185.41-210.94)	218.99 (204.34-234.78)	-0.02 (-0.02 to -0.02)
Sierra Leone	8269.45 (7726.44-8803.95)	145.56 (137.13-153.75)	16066.54 (15046.26-17067.1)	145.55 (137.13-153.74)	0 (0 to 0)
Singapore	9334.61 (8591.22-10101.4)	391.09 (358.06-422.1)	15386.48 (14354.33-16474.5)	389.04 (358.98-420.79)	-0.02 (-0.03 to -0.02)
Slovakia	10603.32 (9901.21-11399.98)	232.63 (216.94-250.16)	8674.8 (8171.4-9231.67)	232.12 (216.45-249.65)	-0.01 (-0.01 to -0.01)
Slovenia	3507.38 (3285.65-3759.12)	232.37 (216.71-249.93)	3168.57 (2986.58-3368.06)	231.7 (216.04-249.22)	-0.01 (-0.01 to -0.01)
Solomon Islands	1126.23 (1030.44-1226.5)	236.01 (217.78-254.7)	1960.49 (1800.16-2126.35)	236.2 (217.98-254.88)	0 (0 to 0)
Somalia	16323.55 (15143.48-17428.61)	142.96 (133.42-151.46)	44217.83 (40988.67-47178.8)	143.24 (133.66-151.73)	0.01 (0 to 0.01)
South Africa	66858.26 (62974.65-70710.63)	153.47 (145.05-161.78)	81658.5 (77176.63-86160.86)	153.33 (144.93-161.65)	0 (0 to 0)
South Sudan	11257.04 (10432.71-12006.67)	142.74 (133.23-151.27)	18100.72 (16772.26-19291.21)	143.14 (133.62-151.71)	0.01 (0.01 to 0.01)
Spain	111082.97 (102448.04-120297.91)	384.8 (351.63-419.61)	116001.24 (107586.11-124691.81)	384.75 (351.57-419.57)	0 (0 to 0.01)
Sri Lanka	39431.49 (36474.37-42314.37)	221.38 (205.72-236.75)	41905.54 (39156.89-44733.15)	220.59 (205.43-235.9)	-0.02 (-0.02 to -0.01)
Sudan	50981.79 (47291.29-54934.81)	183.99 (171.75-196.28)	95127.33 (88155.92-101910.68)	184.07 (171.86-196.33)	0 (0 to 0)
Suriname	1092.55 (1009.34-1182.68)	263.32 (244.25-283.57)	1358.35 (1263.47-1464.35)	263.05 (243.95-283.3)	0 (-0.01 to 0)
Sweden	27473.8 (26210.81-28781.39)	404.07 (382.93-427.92)	31708.34 (30288.45-33221.07)	403.91 (382.77-427.76)	0 (0 to 0)
Switzerland	20364.03 (19057.98-21622.53)	395.5 (366.22-424.41)	25068.61 (23552.4-26550.49)	395.3 (366.03-424.24)	0 (0 to 0)
Syrian Arab Republic	32954.71 (30509.61-35576.06)	184.14 (171.91-196.45)	22418.67 (20820.87-23913.21)	184.55 (172.34-196.84)	0.01 (0 to 0.01)
Taiwan (Province of China)	51993.06 (47858.18-56150.66)	281.25 (260.15-302.51)	46025.85 (42983.83-49082.42)	284.82 (263.57-307.04)	0.13 (0.08 to 0.17)
Tajikistan	32734.07 (30037.7-35716.73)	414.72 (382.8-447.67)	50217.96 (46257.33-54542.43)	413.73 (381.88-446.59)	-0.01 (-0.01 to -0.01)
Thailand	122076.84 (113622.87-131573.99)	219.87 (205.2-235.89)	101142.59 (95091.61-107508.94)	219.76 (205.09-235.79)	0 (0 to 0)
Timor-Leste	2334.16 (2163.3-2510.35)	218.72 (204.06-234.55)	3611.2 (3346.93-3886.93)	219.28 (204.63-235.26)	0.01 (0.01 to 0.01)
Togo	7393.09 (6828.12-7982.42)	142.48 (132.86-152.65)	14409.63 (13342.71-15510.52)	142.44 (132.81-152.57)	-0.01 (-0.02 to -0.01)
Tokelau	4.41 (4.04-4.81)	236.39 (218.11-255.05)	2.91 (2.67-3.15)	235.99 (217.8-254.7)	-0.01 (-0.01 to -0.01)
Tonga	304.77 (279.21-331.41)	236.39 (218.14-255.04)	300.19 (276.06-325.54)	236.42 (218.17-255.08)	0 (0 to 0)
Trinidad and Tobago	3408.44 (3151.01-3694.74)	263.17 (244.09-283.4)	2918.85 (2724.45-3129.73)	262.96 (243.85-283.16)	0 (0 to 0)

Tunisia	18078.36 (16778.72-19361.87)	184.2 (171.98-196.51)	18864.67 (17635.41-20131.65)	184.11 (171.88-196.39)	0 (0 to 0)
Turkmenistan	20907.05 (19212.91-22768.26)	415.11 (383.14-448.12)	21840.02 (20150.08-23607.16)	413.27 (381.36-446.1)	-0.01 (-0.01 to -0.01)
Tuvalu	28.57 (26.24-30.91)	236.61 (218.32-255.24)	29.86 (27.5-32.24)	235.81 (217.68-254.52)	-0.01 (-0.01 to -0.01)
Türkiye	160670.48 (147421.23-174159.03)	247.3 (228.3-267.31)	170637.76 (157358.99-183905.77)	248.02 (227.29-268.8)	0 (-0.01 to 0.01)
Uganda	43047.75 (39513.58-46765.72)	171.75 (158.69-185.15)	99659.16 (91285.16-108768.26)	171.75 (158.73-185.15)	-0.01 (-0.02 to 0)
Ukraine	85992.51 (81626.81-90678.47)	190.39 (179.55-202.41)	55733.47 (53447.13-58295.86)	189.57 (178.77-201.58)	-0.01 (-0.01 to -0.01)
United Arab Emirates	3800.02 (3534.01-4085.49)	182.89 (170.69-195.35)	11703.87 (10892.11-12567.76)	182.74 (170.43-195.22)	0 (-0.01 to 0)
United Kingdom	200318.2 (190564.04-209913.18)	435.62 (412.31-458.99)	216609.69 (206535.08-227886.37)	430.3 (406.36-455.45)	-0.06 (-0.1 to -0.02)
United Republic of Tanzania	66092.17 (61375.74-70876.64)	183.85 (172.23-196.01)	135195.06 (125508.48-146023.64)	182.87 (170.88-196.04)	-0.05 (-0.07 to -0.03)
United States Virgin Islands	283.17 (262.57-305.29)	263.35 (244.34-283.62)	167.5 (157.2-178.54)	262.72 (243.64-282.93)	-0.01 (-0.01 to -0.01)
United States of America	770603.6 (739275.16-803066.36)	336.56 (321.57-351.78)	922005.35 (886551.21-959007.75)	336.57 (321.52-351.42)	-0.02 (-0.04 to 0)
Uruguay	11320.19 (10466.42-12130.48)	387.94 (357.8-417.48)	10138.15 (9415.92-10837.17)	387.74 (357.7-417.26)	0 (0 to 0)
Uzbekistan	120006.27 (110278.4-130719.25)	415.02 (383.06-448.01)	151167.03 (139527.09-163702.32)	413.74 (381.89-446.55)	-0.01 (-0.01 to -0.01)
Vanuatu	505.45 (462.63-549.34)	236.16 (217.93-254.83)	884.5 (811.89-960.04)	236.45 (218.2-255.13)	0 (0 to 0)
Venezuela (Bolivarian Republic of)	66630.96 (61079.13-72400.9)	299.82 (277.12-323.9)	71991.27 (66867.01-77446.82)	299.4 (277.48-322.22)	-0.01 (-0.02 to -0.01)
Viet Nam	182501.94 (169211.28-196828.26)	220.31 (205.62-236.38)	198084.9 (185491.98-212309.44)	219.16 (204.53-235.09)	-0.02 (-0.02 to -0.02)
Yemen	39344.12 (36393.5-42539.78)	184.2 (171.99-196.51)	77326.88 (71594.98-83042.39)	184.24 (172.01-196.56)	0 (0 to 0)
Zambia	16041.85 (14886.37-17103.27)	143.42 (133.83-152.01)	35515.83 (32836.09-37878.35)	143.41 (133.81-151.97)	0 (0 to 0)
Zimbabwe	21876.17 (20064.32-23885.01)	151.62 (140.04-164.6)	29415.36 (26998.59-32149.11)	151.76 (140.13-164.81)	0 (0 to 0)

Table S3 204 nations/territories trends in AD burden of disability-adjusted life years (1990-2021).

Location	Number 1990	ASR 1990	Number 2021	ASR 2021	EAPC_95%CI
Afghanistan	7493.24 (3847.05-12719.84)	58.9 (30.23-99.77)	24861.79 (12739.36-42260.58)	58.89 (30.36-99.41)	0.01 (0.01 to 0.01)
Albania	2981.38 (1550.7-5126.56)	79.15 (41.1-136.42)	1498.14 (785.32-2568.44)	79.42 (41.55-136)	0.01 (0.01 to 0.02)
Algeria	19356.89 (9919.5-31918.26)	59.14 (30.42-97.3)	26932.97 (13887.35-44617.32)	59.29 (30.61-98.23)	-0.01 (-0.03 to 0)
American Samoa	44.47 (22.6-75.76)	75.77 (38.47-129.34)	37.39 (19.03-63.57)	75.7 (38.58-128.73)	0.01 (0 to 0.01)
Andorra	63.24 (33.15-106.63)	147.49 (77.37-249.3)	82.94 (43.24-137.87)	147.67 (76.82-246.24)	0.01 (0 to 0.01)
Angola	5852.73 (2960.6-9862.78)	42.9 (21.81-72.45)	19289.45 (9924.64-32014.83)	43.27 (22.35-72.38)	0.03 (0.02 to 0.03)
Antigua and Barbuda	53.08 (27.73-88.92)	84.98 (44.36-142.33)	62.66 (32.44-104.59)	84.82 (43.84-142.57)	-0.01 (-0.01 to -0.01)
Argentina	48143.64 (24548.57-81418.28)	140.57 (71.65-237.26)	56566.95 (28995.84-95443.16)	140.49 (71.65-236.68)	0 (-0.01 to 0)
Armenia	6937.62 (3588.69-11594.31)	192.6 (99.56-321.76)	4557.94 (2325.65-7563.72)	192.57 (97.98-320.82)	0 (-0.01 to 0)
Australia	15177.61 (7822.91-25060.86)	103.5 (53.2-171.68)	20660.17 (10761.15-34607.62)	103.67 (53.97-174.29)	0.01 (0 to 0.02)
Austria	9092.55 (4795.54-15021.3)	147.96 (77.45-246.53)	9578.56 (4952.56-15841.33)	147.93 (75.72-246.43)	0 (0 to 0)
Azerbaijan	15835.6 (8107.4-26922.73)	192.92 (99.06-327.9)	17216.11 (8809.17-28634.89)	191.94 (98.16-320.47)	-0.02 (-0.02 to -0.02)
Bahamas	230.89 (121.68-383.72)	84.98 (44.83-140.81)	283.88 (147.55-482.54)	84.99 (43.88-144.89)	0 (0 to 0)
Bahrain	325.2 (168.41-558.53)	59.03 (30.51-101.44)	744.91 (386.01-1282.94)	58.97 (30.52-101.22)	-0.01 (-0.01 to 0)
Bangladesh	95940.18 (49121.43-161399.73)	63.97 (32.87-108.26)	105109.85 (53081.76-177899.72)	64.49 (32.61-109.07)	0.04 (0.03 to 0.04)
Barbados	201.72 (106.02-341.01)	85.15 (44.64-143.94)	195.1 (102.42-324.81)	84.85 (43.97-143.46)	-0.01 (-0.01 to -0.01)
Belarus	7787.9 (3996.89-13090.72)	85.47 (43.75-143.9)	5660.58 (2887.72-9621.68)	85.32 (43.34-145.21)	0 (0 to 0)
Belgium	11751.73 (6196.17-19403.37)	147.89 (77.33-245.22)	12890.09 (6722.08-21430.48)	147.98 (77.06-245.92)	0 (0 to 0)
Belize	201.41 (105.64-348.11)	84.86 (44.67-146.05)	367.24 (191.88-615.93)	84.76 (44.21-142.42)	0.01 (0 to 0.01)
Benin	2990.5 (1531.78-5025.67)	45.25 (23.49-76.17)	7918.42 (4020.07-13576.29)	45.5 (23.01-77.72)	0.02 (0.01 to 0.02)
Bermuda	43.07 (22.15-72.31)	85.19 (43.61-144.46)	38.8 (20.06-65.34)	84.99 (43.6-142.95)	0 (-0.01 to 0)
Bhutan	525.49 (271.61-877.02)	63.81 (33.07-106.78)	447.84 (229.32-754)	64.17 (32.86-107.89)	0.02 (0.02 to 0.03)
Bolivia (Plurinational State of)	5753.73 (2981.74-9909.6)	73.87 (38.54-125.97)	8897.12 (4568.84-15005.19)	73.97 (38-124.91)	0.01 (0.01 to 0.02)
Bosnia and Herzegovina	3208.28 (1675.11-5401.15)	79.5 (41.5-133.89)	1719.55 (886.2-2924.44)	79.56 (40.85-135.18)	0 (0 to 0.01)
Botswana	790.81 (399.26-1367.07)	45.49 (23.16-78.99)	1104.52 (558.5-1925.94)	45.34 (22.91-79.04)	0 (-0.01 to 0)
Brazil	167600.48 (87433.46-277654.04)	102.07 (53.29-168.67)	201107.04 (104842.16-333071.82)	102.41 (53.31-169.88)	0.01 (0 to 0.02)
Brunei Darussalam	497.14 (253.18-829.65)	167.82 (85.9-280)	646.64 (333.75-1093.37)	167.94 (86.2-283.33)	0 (-0.01 to 0)
Bulgaria	5377.56 (2752.12-9333.9)	79.53 (40.7-138.39)	3425.13 (1754.39-5829.37)	79.48 (40.42-134.56)	0 (0 to 0)
Burkina Faso	5791.62 (2986.03-9882.26)	45.22 (23.08-76.84)	13345.51 (6883.36-22791.2)	45.41 (23.54-77.59)	0.03 (0.03 to 0.04)
Burundi	3127.65 (1635.23-5167.18)	42.97 (22.39-71.39)	7294.44 (3774.27-12156.89)	43.15 (22.32-72.3)	0.02 (0.01 to 0.02)
Cabo Verde	207.04 (105.94-353.84)	45.71 (23.43-77.85)	243.4 (124.85-413.4)	45.65 (23.37-77.59)	-0.01 (-0.01 to 0)
Cambodia	9622.68 (4965.32-16296.42)	72.21 (37.36-122.53)	12677.76 (6542.23-21712.34)	71.8 (37-122.94)	-0.01 (-0.01 to 0)
Cameroon	7389.06 (3796.24-12338.87)	54.35 (28-90.3)	21505.76 (10925.45-36089.11)	54.54 (27.78-91.98)	0.05 (0.04 to 0.07)
Canada	30764.34 (16136.6-50830.42)	124.29 (64.95-205.57)	39387.02 (20191.47-65286.71)	124.2 (63.7-206.89)	0 (0 to 0)
Central African Republic	1532.23 (774.53-2607.76)	42.78 (21.8-73.02)	2976.71 (1539.51-4948.03)	42.87 (22.2-71.84)	0.02 (0.02 to 0.03)
Chad	3637.77 (1877.73-6212.31)	45.35 (23.2-77.34)	11132.29 (5744.89-19160.38)	45.42 (23.34-77.45)	0 (0 to 0.01)
Chile	19298.26 (9871.1-32458.74)	140.44 (71.91-236.42)	21689.1 (11282.83-36979)	140.32 (72.5-239.85)	0 (0 to 0)
China	702325.6 (364129.71-1178115.94)	59.85 (31.01-100.45)	677518.92 (350336.06-1138532.72)	59.53 (30.92-99.89)	0.01 (-0.01 to 0.03)
Colombia	30516.83 (15610.63-50295.41)	82.22 (42.05-135.72)	35281 (18107.23-58303.49)	82.32 (42.01-136.26)	0 (0 to 0.01)
Comoros	259.28 (135.04-443.8)	43.14 (22.43-73.66)	345.82 (178.43-571.17)	43.21 (22.38-71.51)	0.02 (0.01 to 0.02)

Congo	1092.18 (553.19-1855.64)	34.48 (17.56-58.67)	2153.78 (1104.69-3670.5)	34.52 (17.71-58.95)	-0.01 (-0.02 to 0)
Cook Islands	16.31 (8.34-27)	75.9 (38.81-126.03)	11.51 (5.86-19.32)	76.36 (38.92-127.99)	0.02 (0.02 to 0.03)
Costa Rica	2914.41 (1485.14-4938.98)	82.24 (41.92-138.9)	3389.41 (1753.22-5652.22)	82.21 (42.39-137.08)	0 (0 to 0.01)
Croatia	3061.38 (1591.78-5150.06)	79.76 (41.45-134.16)	2123.29 (1094.8-3671.75)	79.69 (41.09-138.06)	0 (0 to 0)
Cuba	8505.48 (4527.59-14338.18)	84.79 (45.08-142.82)	7352.33 (3829.51-12272.5)	84.75 (44.18-141.9)	0.01 (0.01 to 0.01)
Cyprus	967.14 (494.14-1594.42)	133.37 (68.13-220.16)	1341.97 (689.36-2204.15)	133.31 (67.98-219.19)	-0.01 (-0.02 to 0)
Czechia	6597.72 (3362.54-11191.09)	79.62 (40.75-135.23)	5730.33 (2966.28-9761.95)	79.61 (40.89-134.84)	0 (0 to 0)
Côte d'Ivoire	7259.02 (3675.87-12116.42)	45.11 (22.92-75.69)	15581.51 (8079.6-26851.15)	45.46 (23.43-78.17)	0.02 (0.01 to 0.02)
Democratic People's Republic of Korea	16005.64 (8138.6-27652.69)	76.92 (39.14-133.09)	16476.27 (8488.5-27886.84)	76.71 (39.57-130.38)	-0.01 (-0.01 to -0.01)
Republic of Korea	21830.97 (11134.7-37198.03)	42.59 (21.76-72.83)	49629.67 (25136.5-83855.95)	42.96 (21.96-72.45)	0.03 (0.02 to 0.04)
the Congo					
Denmark	7688.9 (4038.53-12663.79)	187.72 (97.69-311.57)	8508.88 (4498.2-14192.76)	188.08 (98.83-313.32)	0.05 (0.03 to 0.07)
Djibouti	221.04 (114.79-371.59)	42.85 (22.18-72.21)	584.51 (302.92-973.63)	43.02 (22.29-71.7)	0 (0 to 0.01)
Dominica	67.77 (35.04-115.79)	84.83 (43.77-144.17)	48.61 (25.04-80.66)	84.59 (43.84-139.57)	-0.01 (-0.01 to -0.01)
Dominican Republic	7067 (3659.67-11642.09)	84.96 (44.35-140.53)	9073.65 (4758.96-15258.06)	84.91 (44.54-143.07)	0 (-0.01 to 0)
Ecuador	8780.11 (4530.5-14801.9)	75.29 (39.12-126.72)	13562.39 (7005.38-22470.47)	75.53 (39.02-125)	0.02 (0.01 to 0.02)
Egypt	25844.06 (13323.67-44663.41)	37.15 (19.23-64.3)	44526.35 (23164.7-73642.68)	36.78 (19.2-61.04)	-0.08 (-0.11 to -0.05)
El Salvador	5317.85 (2729.98-8913.98)	81.92 (42.03-137.31)	5310.22 (2725.16-8820.16)	82.24 (42.22-136.72)	0.02 (0.01 to 0.02)
Equatorial Guinea	240.78 (123.13-403.5)	42.5 (21.74-71.02)	795.23 (411.17-1364.93)	42.73 (22.05-73.01)	0.02 (0.01 to 0.02)
Eritrea	1906.61 (962.54-3286.47)	42.72 (21.64-72.09)	3353.7 (1720.3-5681.05)	43.05 (22.19-73.23)	0.02 (0.02 to 0.03)
Estonia	2447.46 (1262.31-4131.61)	181.33 (93.56-305.93)	1681.1 (858.45-2781.8)	180.86 (91.83-299.3)	-0.03 (-0.04 to -0.01)
Eswatini	505.74 (261.54-855.19)	45.65 (23.61-77.34)	604.29 (307.81-1045.44)	45.38 (23.12-78.48)	-0.02 (-0.03 to -0.02)
Ethiopia	26389.53 (13646.33-44051.45)	39.11 (20.23-65.06)	52923.7 (27252.05-89494.39)	39.41 (20.31-66.59)	0.1 (0.07 to 0.12)
Fiji	677.11 (352.68-1122.7)	75.77 (39.52-125.96)	711.82 (363.89-1192.82)	75.8 (38.77-127.05)	0.01 (0 to 0.01)
Finland	6011.92 (3120.63-10081.39)	147.81 (76.56-248.22)	6007.25 (3109.95-10097.02)	147.89 (76.28-248.19)	0 (0 to 0)
France	102118.72 (52595.44-172307.69)	205.25 (105.27-346.14)	108309.01 (55551.35-181507.08)	205.27 (105.28-345.38)	-0.04 (-0.06 to -0.01)
Gabon	704.06 (368.01-1179.13)	57.2 (30.09-95.38)	1198.07 (622.57-2009.07)	57.47 (29.99-96.53)	-0.01 (-0.04 to 0.02)
Gambia	586.15 (296.69-996.5)	45.4 (23.16-77.62)	1341.39 (697.43-2329.58)	45.52 (23.51-78.96)	0.01 (0.01 to 0.02)
Georgia	9711.61 (4993.36-16202.29)	191.08 (98.19-318.58)	5570.64 (2836.78-9554.36)	191.72 (96.85-328.19)	0.03 (0.02 to 0.05)
Germany	92546.82 (47739.84-153785.4)	151.95 (78.04-253.79)	92134.83 (47830.76-154516.85)	151.29 (77.56-252.14)	-0.02 (-0.08 to 0.04)
Ghana	7231.22 (3790.29-12189.99)	37.44 (19.63-63.41)	15058.1 (7725.02-25359.18)	37.65 (19.3-63.52)	0.09 (-0.02 to 0.2)
Greece	10876.64 (5523.92-17743.61)	129.37 (66.04-212.59)	9050.95 (4779.27-14723.66)	130.25 (67.56-211.99)	0.04 (0.03 to 0.05)
Greenland	66.42 (34.71-110.77)	122.73 (64.14-204.45)	62.37 (32.31-104.52)	123.14 (63.72-206.07)	0.02 (0.02 to 0.02)
Grenada	86.76 (44.83-145.14)	84.74 (43.89-141.02)	75.75 (39.47-126.21)	84.47 (43.84-141.34)	-0.01 (-0.02 to -0.01)
Guam	108.57 (55.05-182.95)	75.71 (38.41-127.9)	106.49 (55.57-180.81)	75.87 (39.42-128.8)	0.01 (0 to 0.01)
Guatemala	9342.57 (4786.74-15682.32)	81.74 (41.97-136.34)	13873.56 (7029.97-23173.56)	82.19 (41.63-136.91)	0.02 (0.02 to 0.02)
Guinea	3498.5 (1811.71-6010.77)	45.37 (23.49-77.06)	7858.23 (4077.97-13364.59)	45.52 (23.69-77.8)	0.01 (0 to 0.01)
Guinea-Bissau	604.39 (312.35-1027.24)	45.25 (23.5-76.27)	1188.29 (617.87-2017.66)	45.54 (23.5-77.36)	0.02 (0.02 to 0.03)
Guyana	762.39 (396.41-1278.5)	84.48 (44.16-141.41)	642.06 (331.38-1069.86)	84.41 (43.61-140.19)	0.01 (0 to 0.01)
Haiti	6616.69 (3429.51-11170.93)	84.04 (43.24-141.83)	11819.65 (6088.58-20041.76)	84.08 (43.36-142.33)	0 (-0.01 to 0)
Honduras	5169.49 (2613.17-8645.17)	81.93 (41.68-136.03)	8995.71 (4610.69-15375.09)	82.1 (42.16-139.84)	0.01 (0.01 to 0.02)
Hungary	9506.58 (4926.39-16021.81)	115.41 (59.24-192.85)	7276.66 (3809.52-12158.67)	115.28 (59.18-193.44)	-0.05 (-0.08 to -0.02)

(continues)

Table S3 Continued.

Location	Number 1990	ASR 1990	Number 2021	ASR 2021	EAPC_95%CI
Iceland	396.14 (207.13-661.24)	167 (87.17-278.31)	473.34 (244.46-779.12)	165.87 (85.51-274.12)	-0.03 (-0.04 to -0.02)
India	667967.49 (344563.82-1122662.25)	63.78 (32.92-107.26)	862682.81 (442421.53-1432992.21)	64.22 (33-106.61)	0 (-0.02 to 0.01)
Indonesia	154206.46 (79179.53-258642.32)	71.72 (36.88-119.94)	186745.27 (97621.23-311692.64)	72.45 (37.88-120.99)	0.05 (0.04 to 0.06)
Iran (Islamic Republic of)	50720.77 (26304.31-84583.47)	66.47 (34.4-110.91)	52066.2 (26496.8-87972.22)	67.53 (34.36-113.83)	0.08 (0.07 to 0.1)
Iraq	14507.1 (7524.9-24764.7)	59.08 (30.54-100.34)	26728.91 (13538.75-44730.42)	59.18 (30.04-99.36)	0.01 (0 to 0.01)
Ireland	5193.84 (2682.44-8807.88)	147.79 (76.21-250.02)	6026.98 (3171.41-10098.06)	147.8 (77.07-248.32)	0 (0 to 0.01)
Ireland	7688.59 (3995.38-12658.37)	148.18 (77-243.7)	13850.66 (7234.31-23054.55)	148.17 (77.35-246.83)	0 (0 to 0)
Israel	80140.57 (41831.54-133954.89)	181.25 (94.05-304.27)	75460.2 (38851.2-126154.32)	181.1 (94.01-305.36)	-0.01 (-0.02 to 0)
Italy	2265.88 (1168.77-3906.31)	85.04 (43.97-145.76)	2061.87 (1065.94-3494.14)	84.77 (43.97-144.2)	0 (-0.01 to 0)
Jamaica	216047.15 (110383.74-359290.06)	214.48 (109.22-357.97)	181382.18 (93536.14-300726.4)	215.1 (109.77-358.88)	-0.02 (-0.06 to 0.02)
Japan	2884.57 (1477-4746.09)	58.29 (29.92-95.9)	7411.31 (3876.81-12200.01)	58.3 (30.54-96.17)	0 (-0.01 to 0)
Jordan	33927.55 (17433.12-56664.77)	192.55 (99.21-321.58)	36100.69 (18603.78-60594.9)	193.06 (99.32-324.16)	0.01 (0.01 to 0.02)
Kazakhstan	11338.05 (5885.1-19239.26)	36.5 (18.86-61.79)	22787.2 (11718.57-38102.4)	38.64 (19.91-64.59)	0.27 (0.23 to 0.3)
Kenya	68.69 (35.36-114.94)	75.57 (38.92-126.94)	102.99 (52.17-171.07)	75.78 (38.52-126.01)	0.01 (0.01 to 0.02)
Kiribati	1193.58 (616.93-1960.3)	63.07 (32.61-103.64)	2314.26 (1181.07-3819.71)	62.72 (31.81-104.89)	-0.05 (-0.06 to -0.03)
Kuwait	10450.86 (5376.27-17396.36)	192.97 (99.34-320.71)	14555.2 (7498.56-24298.02)	192.76 (99.34-321.42)	0 (0 to 0.01)
Kyrgyzstan	3830.22 (1952.68-6480.87)	72.1 (36.93-121.36)	5644.36 (2896.21-9744.53)	71.97 (37.02-124.16)	0 (0 to 0.01)
Lao People's Democratic Republic	856.22 (436.26-1462.37)	38.7 (19.62-65.84)	487.15 (251.45-838.44)	38.56 (19.75-66.52)	-0.01 (-0.02 to -0.01)
Latvia	1995.19 (1033.62-3357.54)	59.05 (30.51-99.6)	2903.06 (1476.99-4912.39)	59.15 (30.06-100.39)	0 (0 to 0.01)
Lebanon	908.06 (470.09-1535.64)	45.61 (23.65-76.52)	950.84 (490.11-1626.91)	45.33 (23.4-77.46)	-0.01 (-0.02 to -0.01)
Lesotho	1438.89 (740.12-2496.25)	44.94 (23.27-77.9)	2971.8 (1526.55-5114.54)	45.19 (23.38-77.24)	0.02 (0.01 to 0.02)
Liberia	3260.62 (1677.29-5641.97)	59.55 (30.65-103.37)	3547.99 (1796.23-6198.22)	59.32 (30.2-103.37)	-0.01 (-0.02 to -0.01)
Libya	2718.06 (1395.74-4642.15)	85.5 (43.87-146.13)	1568.81 (806.71-2617)	85.12 (43.35-141)	-0.01 (-0.01 to 0)
Lithuania	440.08 (228.68-730.52)	147.88 (77-246.81)	705.32 (366.03-1176.5)	147.67 (76.6-248.28)	0 (0 to 0)
Luxembourg	6602.75 (3413.5-10935.51)	42.87 (22.22-71.38)	15206.06 (7953.7-26440.93)	43.14 (22.65-74.3)	0.03 (0.03 to 0.03)
Madagascar	5405.4 (2702.46-9073.11)	42.65 (21.51-72.24)	10476.93 (5406.44-17556.08)	43.06 (22.23-72.23)	0.04 (0.04 to 0.05)
Malawi	14836.28 (7614.19-25097.72)	71.7 (36.79-121.56)	21168.5 (10944.67-36111.86)	71.54 (36.8-122.17)	-0.01 (-0.02 to -0.01)
Malaysia	213.3 (110.73-370.35)	71.2 (37.08-123.42)	297.89 (155.45-508.18)	69.86 (36.01-119.77)	-0.08 (-0.1 to -0.06)
Maldives	5637.04 (2880.55-9606.88)	49.89 (25.62-84.32)	15919.7 (8303.79-26849.82)	49.75 (25.92-84.1)	-0.01 (-0.02 to 0)
Mali	491.96 (255.97-815.11)	147.97 (76.88-245.59)	471.05 (244.97-790.56)	147.74 (76.22-249.28)	-0.01 (-0.01 to 0)
Malta	47.64 (24.47-81.55)	75.62 (38.88-128.84)	44.94 (23.09-76.92)	75.71 (38.87-129.74)	0 (0 to 0.01)
Marshall Islands	1195.22 (608.56-2047.2)	45.41 (23.21-78.17)	2493.17 (1303.88-4176.56)	45.72 (23.96-76.71)	0.02 (0.01 to 0.02)
Mauritania	815.93 (414.05-1397.04)	71.68 (36.45-122.64)	702.79 (366.52-1189.64)	71.82 (36.95-122.07)	0 (0 to 0.01)
Mauritius	72634.29 (37389.28-123418.68)	70.35 (36.21-119.19)	83145 (42838.98-139806.38)	69.19 (35.65-116.51)	-0.08 (-0.09 to -0.07)
Mexico	102.44 (52.91-170.26)	75.57 (39.03-125.81)	80.52 (41.53-136.09)	75.77 (39.16-128.21)	0 (0 to 0.01)
Micronesia (Federated States of)	30 (15.48-50.32)	147.85 (75.87-247.79)	38.83 (20.47-64.82)	148.14 (77.03-247.67)	0.01 (0.01 to 0.02)
Monaco	5407.81 (2798.8-9153.02)	192.19 (99.84-325.33)	6984.03 (3581.25-11622.81)	192.8 (98.97-321.28)	0.01 (0.01 to 0.01)
Mongolia	464.31 (239.67-788.47)	79.62 (41.07-135.16)	360.96 (187.12-609.11)	79.51 (40.88-134.2)	0 (-0.01 to 0)
Montenegro	18194.1 (9393.61-30526.17)	59.4 (30.67-99.47)	21098.57 (10818.38-35959.45)	59.3 (30.44-101.15)	0 (0 to 0)
Morocco					

Mozambique	7384.68 (3800.17-12645.03)	42.75 (22.19-73.03)	17506.49 (9036.5-29665.61)	42.87 (22.07-72.88)	0.03 (0.02 to 0.03)
Myanmar	33655.76 (17423.08-57252.72)	71.7 (37.17-122.56)	40322.9 (20854.64-68321.04)	72.11 (37.34-122.33)	0.02 (0.02 to 0.03)
Namibia	816.63 (417.89-1373.39)	45.43 (23.28-76.42)	1235.16 (625.58-2117.1)	45.57 (23.1-78.15)	0.01 (0.01 to 0.01)
Nauru	9.69 (4.97-16.26)	75.78 (39.04-127.84)	9.66 (4.95-16.41)	75.81 (39-128.6)	0 (0 to 0.01)
Nepal	16444.24 (8531.95-28097.25)	63.9 (33.07-109.12)	20899.1 (10788.81-35288.66)	64.61 (33.42-109.28)	0.03 (0.03 to 0.04)
Netherlands	17840 (9213.06-29727.4)	148.1 (76.25-248.7)	18870.3 (9860.47-31781)	147.96 (76.15-250.69)	0 (0 to 0)
New Zealand	4483.84 (2294.53-7486.97)	146.26 (74.81-244.41)	6097.97 (3147.78-10150.97)	147.58 (75.76-245.99)	0.05 (0.04 to 0.06)
Nicaragua	4287.57 (2201.87-7128.19)	81.97 (41.93-135.68)	5635.66 (2860.83-9370.19)	82.2 (41.75-136.42)	0.01 (0 to 0.01)
Niger	4941.8 (2551.48-8455.25)	45.22 (23.2-76.42)	15807.82 (8074.57-26920.48)	45.57 (23.5-77.95)	0.03 (0.02 to 0.03)
Nigeria	51369.89 (26548.82-87133.96)	45.65 (23.58-77.42)	134904.83 (69754.82-227566.95)	45.97 (23.78-77.36)	0.03 (0.03 to 0.04)
Niue	1.98 (1.03-3.38)	75.93 (39.51-129.67)	1.13 (0.58-1.88)	75.82 (39.06-126.19)	0 (0 to 0)
North Macedonia	1493.73 (773.4-2504.01)	79.5 (41.15-133.3)	1139.27 (593.44-1919.48)	79.32 (41.06-133.76)	0 (-0.01 to 0)
Northern Mariana Islands	33.69 (17.41-56.24)	76.15 (39.09-128.1)	32.38 (16.46-55.35)	75.82 (38.46-128.72)	-0.02 (-0.03 to 0)
Norway	5640.88 (2879.9-9376.56)	162.11 (82.79-270.99)	6833.7 (3493.1-11446.51)	163.18 (83.38-274.92)	0.03 (0.01 to 0.06)
Oman	1464.73 (759.03-2405.52)	57.77 (29.81-94.43)	2593.51 (1311.45-4405.15)	57.77 (29.18-98.54)	-0.03 (-0.05 to -0.01)
Pakistan	95877.94 (49147.43-158260.61)	63.75 (32.7-105.52)	178464.05 (91846.51-300521.1)	64.04 (32.98-107.87)	0.02 (0.01 to 0.02)
Palau	12.04 (6.2-19.99)	75.81 (39-125.89)	10.54 (5.37-17.9)	75.32 (38.36-127.07)	-0.03 (-0.03 to -0.02)
Palestine	1767.45 (905.61-2995.35)	62.6 (32.27-105.55)	3705.8 (1932.6-6281.81)	61.6 (32.17-104.32)	-0.02 (-0.04 to -0.01)
Panama	2214.18 (1137.59-3724.03)	82.13 (42.08-138.66)	3425 (1758.44-5735.01)	82.1 (42.1-137.45)	0 (0 to 0.01)
Papua New Guinea	3860.34 (1996.98-6541.98)	75.11 (38.72-126.96)	9257.18 (4771.27-15661.2)	75.41 (39.01-127.55)	0.01 (0.01 to 0.01)
Paraguay	5086.58 (2618.46-8446.76)	104.8 (54.03-173.95)	7453.36 (3890.85-12501.59)	104.76 (54.63-175.42)	0 (0 to 0)
Peru	18364.5 (9321.26-30870.29)	72.92 (37.16-122.51)	25526.13 (13340.64-43149.98)	73.02 (38.19-123.51)	0.03 (0 to 0.05)
Philippines	55489.49 (28917.6-93126.83)	72.14 (37.59-120.74)	84958.56 (43946.7-142139.25)	72.17 (37.32-120.69)	0 (0 to 0.01)
Poland	27764.69 (14414.22-46606.9)	80.48 (41.85-134.91)	20352.83 (10580.69-34222.31)	80.4 (41.88-133.63)	0 (0 to 0)
Portugal	12648.22 (6540.03-20800.85)	147.72 (75.87-242.99)	10793.8 (5624.76-17974.01)	148.07 (76.46-248.88)	0.01 (0 to 0.01)
Puerto Rico	3008.93 (1556.02-5131.27)	84.99 (43.87-144.73)	2045.49 (1073.91-3434.48)	84.81 (44.24-142.14)	0 (0 to 0)
Qatar	260.68 (132.86-433.22)	58.65 (29.93-98.2)	1327.51 (673.67-2232.28)	58.86 (30.09-101.31)	-0.01 (-0.01 to 0)
Republic of Korea	75702.64 (38906.38-127039.72)	178.31 (91.52-298.25)	60079.36 (31051.58-101144.94)	178.59 (92.05-302.14)	0.03 (0.01 to 0.05)
Republic of Moldova	3742.21 (1910.31-6173.79)	85.54 (43.6-141.17)	2004.84 (1032.56-3311.37)	85.11 (43.62-140.23)	-0.01 (-0.01 to -0.01)
Romania	10838.94 (5500.35-18672.96)	53.14 (26.96-91.46)	6828.06 (3481.97-11754.86)	53.93 (27.5-91.67)	0.07 (0.06 to 0.09)
Russian Federation	190226.42 (97787.62-316269.33)	144.47 (74.12-240.17)	157395.9 (80700.28-260654.57)	148.92 (75.96-247.16)	0.15 (0.11 to 0.2)
Rwanda	2919.55 (1513.42-4905.46)	30 (15.67-50.25)	4720.11 (2431.02-8034.47)	30.12 (15.45-51.39)	0 (-0.04 to 0.04)
Saint Kitts and Nevis	38.89 (20.17-66.18)	84.8 (43.97-144.15)	39.43 (20.63-67.09)	84.87 (44.21-145.18)	0 (0 to 0.01)
Saint Lucia	135.49 (69.85-225.93)	84.85 (43.82-141.16)	118.62 (61.82-201.12)	84.65 (43.88-143.92)	-0.01 (-0.01 to -0.01)
Saint Vincent and the Grenadines	108.35 (55.97-181.01)	84.84 (43.88-141.05)	85.1 (43.95-142.12)	84.61 (43.74-141.37)	-0.01 (-0.01 to 0)
Samoa	162.33 (81.79-273.89)	75.61 (38.26-127.26)	190 (98.77-318.84)	75.88 (39.53-127.17)	0.01 (0.01 to 0.02)
San Marino	27.6 (14.32-46.36)	148.33 (76.29-251.2)	33.69 (17.49-55.78)	147.92 (77.25-247.16)	-0.01 (-0.01 to -0.01)
Sao Tome and Principe	72.36 (36.92-123.97)	45.67 (23.48-78.02)	112.19 (57.72-188.9)	45.69 (23.63-76.89)	0.01 (0 to 0.01)
Saudi Arabia	11924.95 (6019.46-19957.36)	59.02 (29.89-99.48)	18725.84 (9635.18-31404.96)	58.98 (30.39-99.5)	0 (-0.01 to 0)
Senegal	4587.91 (2313-7750.11)	45.26 (23.15-77.24)	8671.91 (4525.96-14768.76)	45.37 (23.76-77.59)	0.01 (0.01 to 0.02)
Serbia	6481.06 (3337.97-11127.09)	80.17 (41.29-137.19)	4592.29 (2344.03-7765.53)	79.47 (40.48-131.84)	-0.03 (-0.04 to -0.03)
Seychelles	57.36 (29.06-97.22)	71.92 (36.44-121.83)	65.38 (34.04-112.72)	71.41 (37.11-122.97)	-0.04 (-0.04 to -0.03)

(continues)

Table S3 Continued.

Location	Number 1990	ASR 1990	Number 2021	ASR 2021	EAPC_95%CI
Sierra Leone	2352.99 (1206.42-3998.22)	45.21 (23.08-76.56)	4885.31 (2516.05-8303.54)	45.41 (23.44-77.05)	0.02 (0.01 to 0.02)
Singapore	3741.44 (1947.42-6300.58)	144.51 (75.43-243.18)	5613.44 (2893.26-9420.06)	143.23 (73.22-240.14)	-0.04 (-0.05 to -0.03)
Slovakia	3798.02 (1988.79-6468.36)	79.79 (41.88-135.4)	2903.22 (1499.93-4902.59)	79.55 (40.64-133.56)	0 (0 to 0)
Slovenia	1263.73 (647.94-2138.39)	79.65 (40.61-134.89)	1071.64 (549.71-1808.88)	79.45 (40.79-134.17)	-0.01 (-0.01 to 0)
Solomon Islands	342.03 (174.32-569.8)	75.59 (38.75-125.59)	614.61 (315.24-1036.82)	75.73 (38.81-127.99)	0.01 (0.01 to 0.01)
Somalia	4517.68 (2307.66-7624.18)	42.68 (21.84-71.99)	12386.53 (6421.41-21059.71)	42.92 (22.31-73)	0.02 (0.02 to 0.02)
South Africa	19782.47 (10343.88-33523.2)	45.54 (23.78-77.1)	25019.59 (12969.85-42413.56)	45.51 (23.57-77.11)	0 (0 to 0)
South Sudan	3200.81 (1685.89-5464.14)	42.55 (22.41-72.92)	5266.6 (2729.35-9069.5)	42.8 (22.27-73.57)	0.02 (0.02 to 0.02)
Spain	44824.71 (22945.12-73667.76)	139.52 (71.26-230.22)	44238.9 (23000.79-73198.62)	139.12 (71.96-231.86)	0 (-0.01 to 0)
Sri Lanka	13586.92 (6963.23-22599.04)	73.02 (37.5-121.41)	14388.34 (7385.79-24403.3)	72.52 (37.33-122.81)	-0.04 (-0.05 to -0.03)
Sudan	15442.99 (8032.19-25747.83)	58.99 (30.74-98.77)	30938.89 (15917.68-52178.88)	59.03 (30.37-99.29)	0.01 (0.01 to 0.01)
Suriname	360.73 (187.04-606.86)	84.75 (44.15-141.42)	454.05 (237.29-754.22)	84.45 (44.16-140.1)	0 (-0.01 to 0)
Sweden	10132.57 (5197.09-16821.67)	148.7 (75.87-248.04)	12026.16 (6151.31-19732.41)	148.64 (75.65-245.45)	0 (-0.01 to 0)
Switzerland	7859.1 (4149.7-13066.66)	147.68 (77.36-248.2)	9580.68 (4999.7-16065.83)	147.66 (76.39-248.2)	0 (0 to 0)
Syrian Arab Republic	10278.33 (5317.73-17518.16)	59.18 (30.66-100.44)	7925.01 (4045.97-13384.85)	59.35 (30.48-99.2)	0.01 (0 to 0.01)
Taiwan (Province of China)	20481.42 (10579.6-34111.93)	101.89 (52.55-169.4)	17788.25 (9250.37-29774.02)	104.06 (53.35-174.32)	0.18 (0.12 to 0.23)
Tajikistan	13879.07 (7119.8-23722.55)	192.39 (98.81-328.16)	22523.58 (11644.36-38485.29)	192.19 (99.57-327.69)	0 (0 to 0)
Thailand	42859.74 (22427.94-73558.74)	72.11 (37.6-124.42)	34891.32 (18228.78-59614.21)	72.27 (37.36-124.17)	0.01 (0.01 to 0.02)
Timor-Leste	697.02 (355.28-1194.36)	71 (36.44-121.57)	1181.43 (616.5-1997.98)	71.8 (37.67-121.3)	0.05 (0.04 to 0.05)
Togo	2148.82 (1087.23-3557.43)	43.69 (21.98-72.6)	4401.05 (2278.83-7645.11)	43.82 (22.73-75.52)	-0.01 (-0.01 to 0)
Tokelau	1.44 (0.74-2.44)	75.96 (39.25-128.04)	1.03 (0.52-1.73)	75.66 (38.34-127.01)	-0.01 (-0.02 to -0.01)
Tonga	95.18 (48.74-165.01)	75.95 (38.9-131.18)	93.74 (47.56-157.53)	76.09 (38.58-127.45)	0 (0 to 0.01)

Trinidad and Tobago	1126.21 (578.84-1872.21)	84.75 (43.69-140.93)	982.48 (511.01-1631.53)	84.57 (43.73-139.12)	0 (0 to 0)
Tunisia	5871.68 (2998.81-10178.45)	59.32 (30.35-102.92)	6231.47 (3195.12-10633.21)	59.29 (30.34-100.71)	0.01 (0 to 0.01)
Turkmenistan	9127.4 (4689.82-15600.14)	192.49 (99.33-327.64)	10124.18 (5221.84-17016.79)	191.7 (98.94-322.39)	-0.01 (-0.01 to -0.01)
Tuvalu	8.3 (4.22-13.87)	76.17 (38.78-127.17)	9.71 (4.93-16.18)	75.64 (38.42-126.12)	-0.01 (-0.02 to -0.01)
Türkiye	62118.48 (32141.55-104526.73)	94.03 (48.75-158.19)	69694.07 (35866.74-116408.59)	94.69 (48.63-157.57)	0.01 (-0.01 to 0.02)
Uganda	12570.58 (6317.67-21681.9)	55.8 (28.53-96.32)	31417.64 (16164.73-52675.57)	56.27 (29.12-94.91)	0.02 (0.01 to 0.04)
Ukraine	38223.57 (19509.66-64484.5)	86.79 (44.2-146.08)	24128 (12347.81-40161.47)	86.53 (43.92-144.19)	0 (-0.01 to 0)
United Arab Emirates	1183.24 (599.89-1963.2)	58.71 (29.88-97.57)	3859.25 (1964.09-6514.87)	58.83 (29.86-100.09)	0 (-0.01 to 0.01)
United Kingdom	79573.36 (41067.36-131601.34)	169.57 (87.09-281.31)	87780.08 (45184.78-146768.1)	166.44 (85.62-279.55)	-0.09 (-0.13 to -0.04)
United Republic of Tanzania	20679.97 (10796.71-33893.48)	62.02 (32.46-102.68)	44939.51 (23028.82-74734.29)	62.33 (32.17-103.23)	-0.02 (-0.05 to 0.01)
United States Virgin Islands	91.76 (46.94-152.46)	85.07 (43.68-141.07)	55.41 (28.79-92.66)	84.7 (43.66-141.28)	-0.01 (-0.02 to -0.01)
United States of America	321520.82 (165532.02-531870.16)	137.61 (70.98-227.96)	390321.8 (202080.45-641027.53)	136.56 (70.53-224.92)	-0.05 (-0.08 to -0.02)
Uruguay	4182.85 (2128.75-6996.12)	140.67 (71.44-235.54)	3954.24 (2056.18-6611.91)	140.51 (72.56-237.05)	0 (0 to 0)
Uzbekistan	51971.13 (26777.35-88165.85)	192.31 (99.31-324.35)	67264.3 (34384.62-114193.5)	192.15 (98.23-326.03)	0 (0 to 0)
Vanuatu	150.91 (76.97-250.33)	75.72 (38.71-126.07)	279.35 (143.63-470.24)	75.9 (39.13-127.67)	0.01 (0.01 to 0.01)
Venezuela (Bolivarian Republic of)	22713.08 (11694.15-38192.49)	102.97 (53.27-172.86)	25208.24 (13075-42804.9)	102.76 (53.36-174.81)	-0.02 (-0.02 to -0.01)
Viet Nam	59271.57 (30388.85-102237.36)	72.11 (37.14-124.51)	66451.37 (34059.17-114518.93)	71.96 (36.83-123.85)	-0.01 (-0.01 to 0)
Yemen	11571.3 (5995.95-20016.98)	58.54 (30.34-100.55)	24694.87 (12836.17-43372.14)	58.59 (30.35-102.25)	0.01 (0.01 to 0.01)
Zambia	4492.8 (2301.43-7558.88)	42.9 (21.88-72.43)	10534.05 (5464.59-17758.34)	42.95 (22.35-72.58)	0.03 (0.02 to 0.03)
Zimbabwe	6370.17 (3248.89-10810.63)	45.48 (23.2-77.45)	8770.96 (4536.86-14893.72)	45.48 (23.55-77.6)	0 (0 to 0.01)

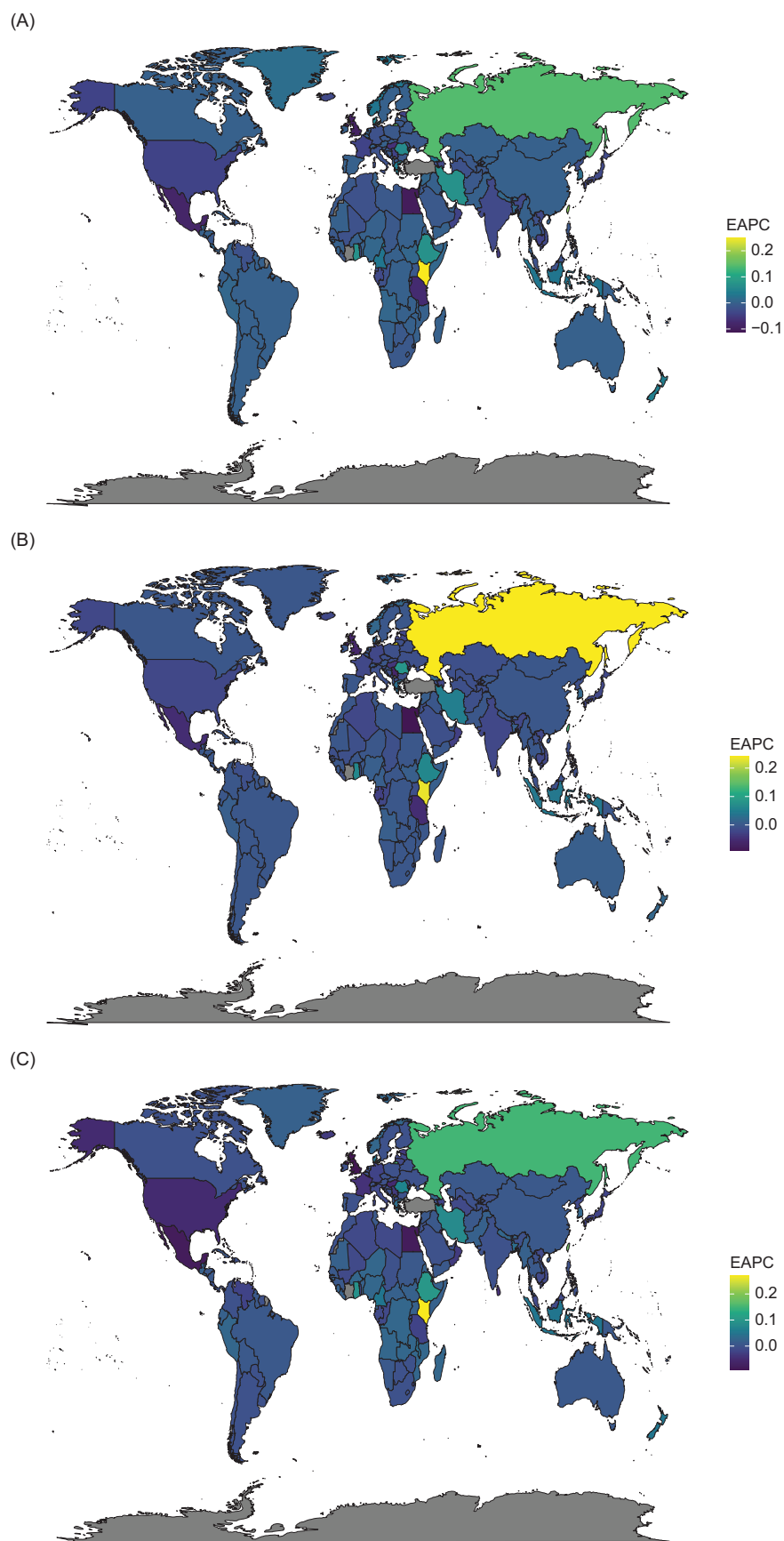


Figure S1 Global disease burden of atopic dermatitis for both sexes in 204 countries and territories. (A) EAPC for prevalence. (B) EAPC for incidence. (C) EAPC for DALYs. Estimated annual percentage change (EAPC); Disability-adjusted life years (DALYs).

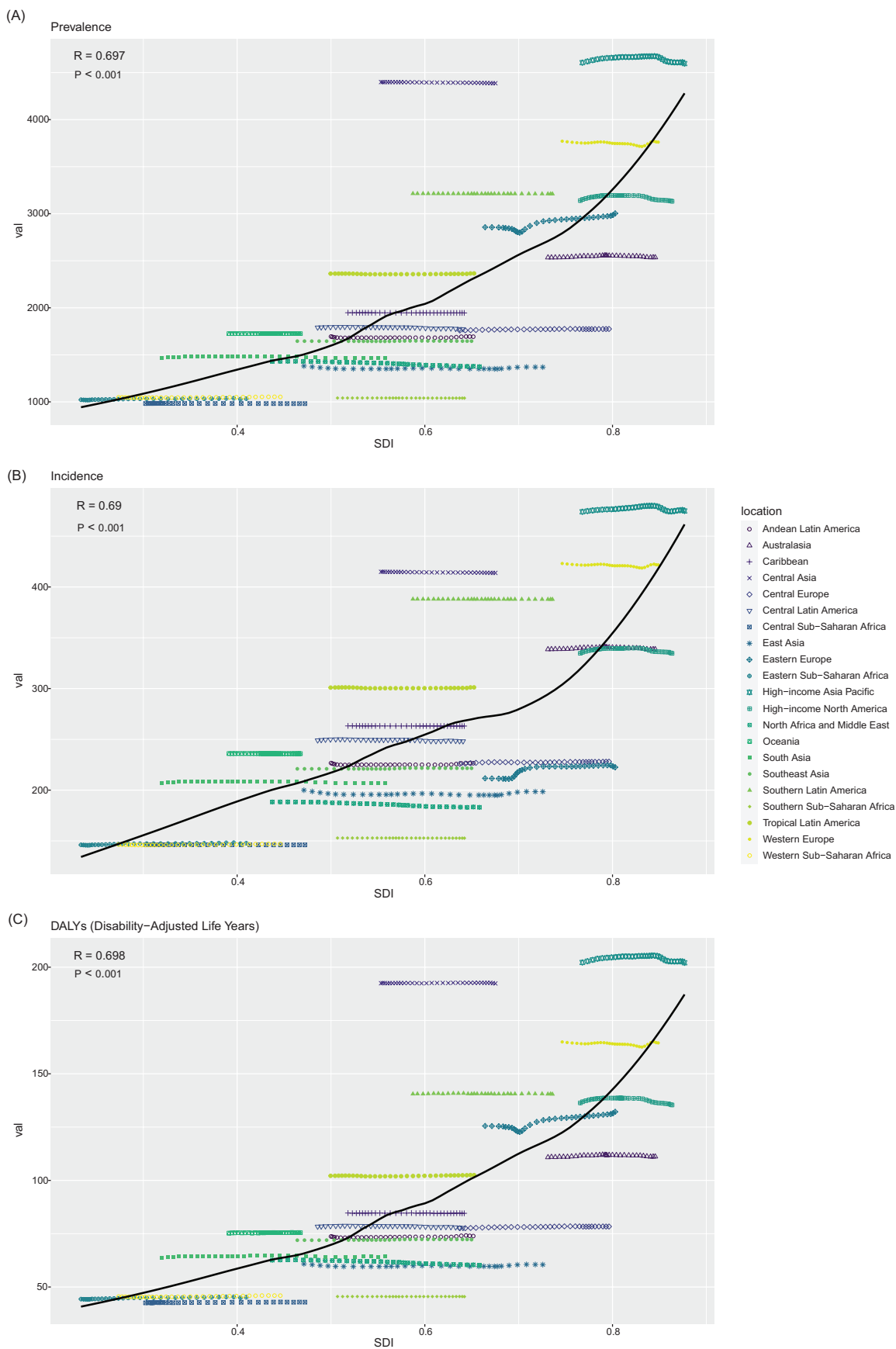


Figure S2 Association between ASPR, ASIR, age-standardized DALY rate and SDI in atopic dermatitis. Age-standardized rates of prevalence (ASPR); Age-standardized rates of incidence (ASIR); Disability-adjusted life years (DALYs); Socio-Demographic Index (SDI).



Checklist of information that should be included in new reports of global health estimates

Item #	Checklist item	Reportd on page #
Objectives and funding		
1	Define the indicator(s), populations (including age, sex, and geographic entities), and time period(s) for which estimates were made.	Methods / “Data Sources” and “Definitions” section
2	List the funding sources for the work.	No funding
Data Inputs		
<i>For all data inputs from multiple sources that are synthesized as part of the study:</i>		
3	Describe how the data were identified and how the data were accessed.	As mentioned in the Methods / “Definitions” section, the details have been published previously.
4	Specify the inclusion and exclusion criteria. Identify all ad-hoc exclusions.	As mentioned in the Methods / “Definitions” section, the details have been published previously.
5	Provide information on all included data sources and their main characteristics. For each data source used, report reference information or contact name/institution, population represented, data collection method, year(s) of data collection, sex and age range, diagnostic criteria or measurement method, and sample size, as relevant.	Available via online data source tools (http://ghdx.healthdata.org/gbd-2017/data-input-sources).
6	Identify and describe any categories of input data that have potentially important biases (e.g., based on characteristics listed in item 5).	As mentioned in the Methods / “Definitions” section, the details have been published previously.
<i>For data inputs that contribute to the analysis but were not synthesized as part of the study:</i>		
7	Describe and give sources for any other data inputs.	Available via online data source tools (http://ghdx.healthdata.org/gbd-2017/data-input-sources).
<i>For all data inputs:</i>		
8	Provide all data inputs in a file format from which data can be efficiently extracted (e.g., a spreadsheet rather than a PDF), including all relevant meta-data listed in item 5. For any data inputs that cannot be shared because of ethical or legal reasons, such as third-party ownership, provide a contact name or the name of the institution that retains the right to the data.	All analytical data can be accessed by entering the keyword “atopic dermatitis” on the GBD website (https://vizhub.healthdata.org/gbd-results/).
Data analysis		
9	Provide a conceptual overview of the data analysis method. A diagram may be helpful.	All analytical data can be accessed by entering the keyword “atopic dermatitis” on the GBD website (https://vizhub.healthdata.org/gbd-results/).
10	Provide a detailed description of all steps of the analysis, including mathematical formulae. This description should cover, as relevant, data cleaning, data pre-processing, data adjustments and weighting of data sources, and mathematical or statistical model(s).	As mentioned in the Methods / “Statistical Analysis” section, the details have been published previously.
11	Describe how candidate models were evaluated and how the final model(s) were selected.	As mentioned in the Methods / “Statistical Analysis” section, the details have been published previously.
12	Provide the results of an evaluation of model performance, if done, as well as the results of any relevant sensitivity analysis.	As mentioned in the Methods / “Statistical Analysis” section, the details have been published previously.

13	Describe methods for calculating uncertainty of the estimates. State which sources of uncertainty were, and were not, accounted for in the uncertainty analysis.	Methods / “Statistical Analysis” section
14	State how analytic or statistical source code used to generate estimates can be accessed.	Methods / “Statistical Analysis” section
Results and Discussion		
15	Provide published estimates in a file format from which data can be efficiently extracted.	Results, and online data tools (data visualization tools, and data query tools, http://ghdx.healthdata.org/gbd-2017)
16	Report a quantitative measure of the uncertainty of the estimates (e.g. uncertainty intervals).	Results, and online data tools (data visualization tools, and data query tools, http://ghdx.healthdata.org/gbd-2017)
17	Interpret results in light of existing evidence. If updating a previous set of estimates, describe the reasons for changes in estimates.	Discussion, paragraph 1-9
18	Discuss limitations of the estimates. Include a discussion of any modelling assumptions or data limitations that affect interpretation of the estimates.	Discussion, paragraph 10

This checklist should be used in conjunction with the GATHER statement and Explanation and Elaboration document, found on gather-statement.org

Figure S3 Association between ASPR, ASIR, age-standardized DALYs rate and SDI in atopic dermatitis for 204 countries and territories, in 2021. Age-standardized rates of prevalence (ASPR); Age-standardized rates of incidence (ASIR); Disability-adjusted life years (DALYs); Socio-Demographic Index (SDI).

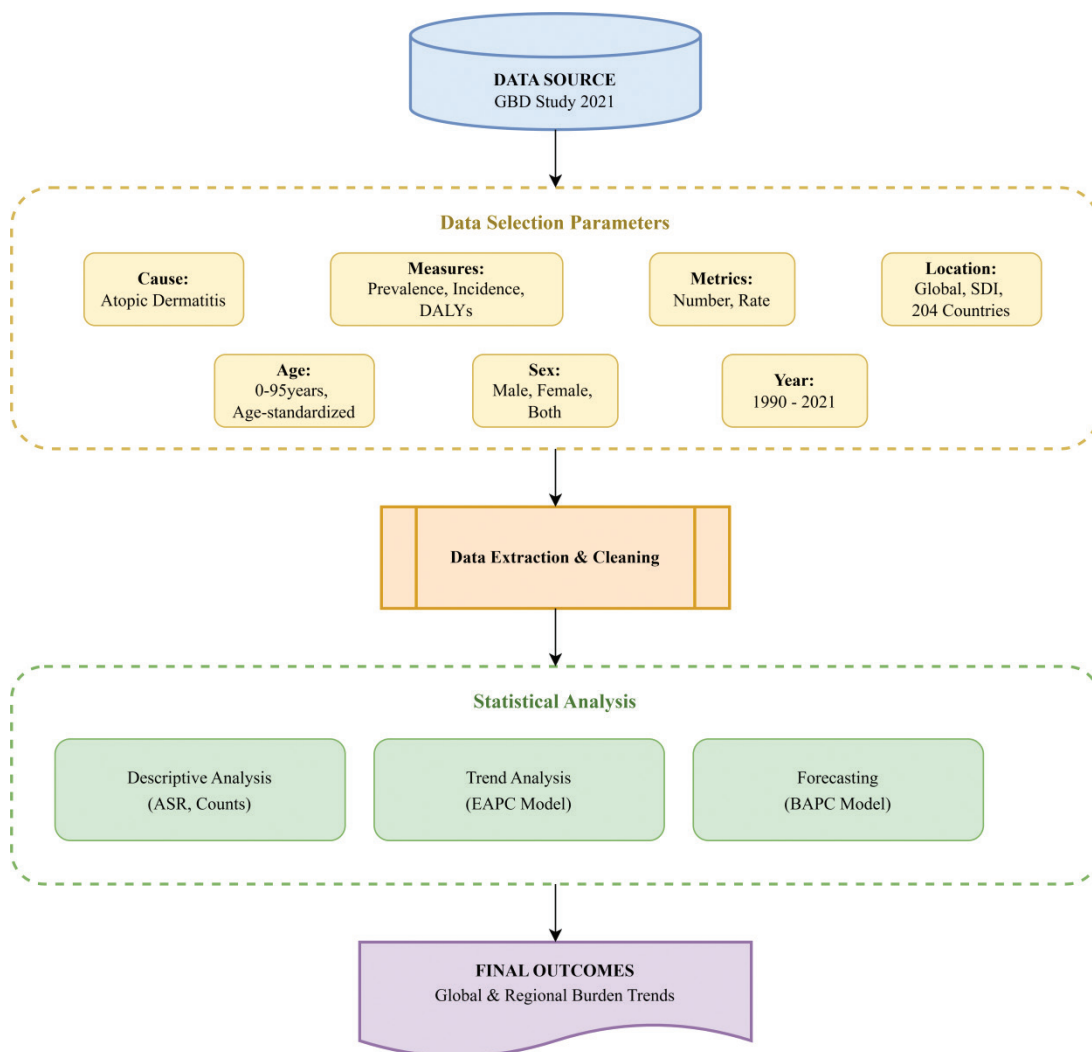


Figure S4 Flow Chart.

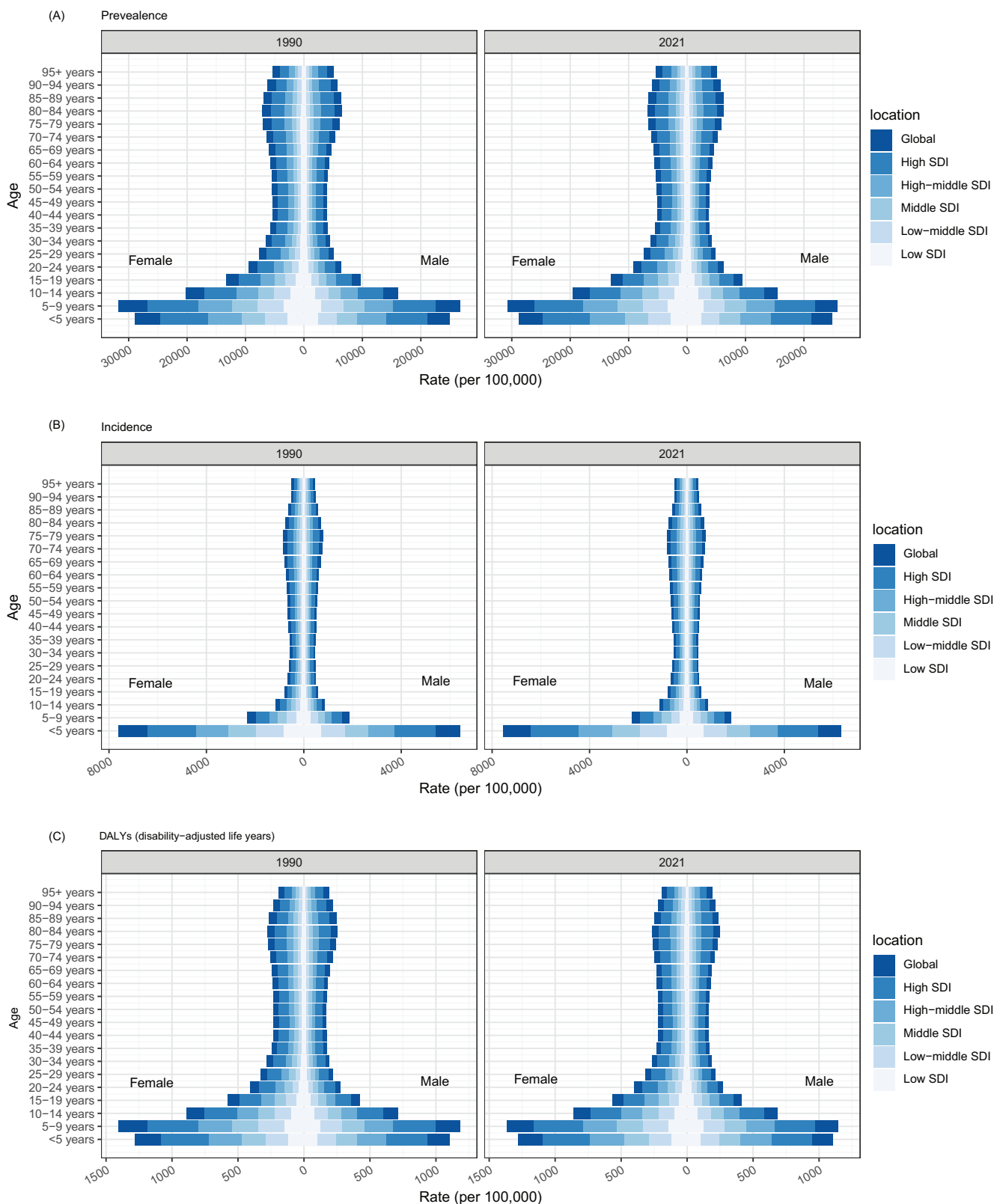


Figure S5 Age-standardized rates of atopic dermatitis by sex, age group, and socio-demographic index, 1990 and 202. (A) Prevalence. (B) Incidence. (C) DALYs. *Disability-adjusted life years (DALYs)*.