

SUPPLEMENTAL MATERIAL

Table S1. The age-standardized rates (ASRs) of prevalence per 100,000 populations for subtypes of heart failure in 1990 and 2019 globally and in 21 Global Burden of Diseases (GBD) regions

Regions	Treated heart failure						Mild heart failure						Moderate heart failure						Severe heart failure					
	1990			2019			1990			2019			1990			2019			1990			2019		
	95% uncertainty interval (UI)						95% UI						95% UI						95% UI					
	ASRs		ASRs		ASRs		ASRs		ASRs		ASRs		ASRs		ASRs		ASRs		ASRs		ASRs		ASRs	
	per	lower	upper	per	lower	upper	per	lower	upper	per	lower	upper	per	lower	upper	per	lower	upper	per	lower	upper	per	lower	upper
	100,000			100,000			100,000			100,000			100,000			100,000			100,000			100,000		
Global	283.86	22638	34894	263.35	21426	32108	142.23	99.69	191.72	132.20	93.06	178.44	92.32	64.19	127.59	85.86	60.11	119.53	247.59	196.04	308.51	230.49	184.89	285.93
Andean Latin America	210.32	16774	26044	184.49	14498	23312	84.25	61.11	111.98	83.47	58.33	113.64	50.05	35.02	71.54	52.20	36.62	74.11	117.33	86.96	158.12	132.84	99.83	177.66
Australasia	427.90	33404	52547	276.43	21855	33713	215.73	146.15	29807	139.41	94.87	19030	140.22	99.57	19234	90.62	64.39	12351	377.21	29498	46849	243.79	19271	303.74
Caribbean	200.00	15258	25890	192.23	14754	25041	100.79	68.12	13994	96.92	65.65	13482	65.53	44.79	92.60	63.02	43.09	89.91	176.28	13459	23067	169.51	12955	224.75
Central Asia	214.54	16223	27795	200.47	15258	25844	108.19	72.10	15187	101.10	67.96	14073	70.38	48.38	101.58	65.76	44.55	94.36	189.27	14536	24754	176.85	135.70	232.34
Central Europe	290.67	22560	36374	265.18	21668	31837	146.59	100.53	20231	133.73	94.50	17929	95.34	66.31	13507	86.98	61.35	11834	256.43	19996	32573	233.96	189.16	289.18
Central Latin America	214.23	17147	26373	186.18	14709	23262	98.00	69.65	13259	87.00	61.13	11821	61.58	43.10	86.51	55.10	38.43	77.57	157.74	120.50	20747	142.78	11025	187.17
Central Sub-Saharan Africa	183.90	13248	24854	177.80	12917	23822	92.78	61.47	13350	89.71	59.02	12855	60.32	39.85	89.90	58.32	38.27	85.54	162.26	11586	21663	156.87	11239	212.57

East Asia	390.58	31051	48740	373.55	29713	46362	196.95	13614	26890	188.37	13152	25595	128.15	87.70	17918	122.56	84.32	17150	344.63	26987	43780	329.59	25799	41655
Eastern Europe	206.88	16277	25816	206.39	16388	25644	104.33	73.01	14033	104.08	72.61	14084	67.85	47.41	93.23	67.69	47.02	93.04	182.51	14365	23092	182.07	14285	22997
Eastern Sub-Saharan Africa	280.58	21515	35565	299.35	23044	38151	141.51	95.83	19755	150.98	10232	21066	91.99	62.10	13028	98.15	66.34	14087	247.56	18525	31977	264.12	19648	34039
High-income Asia Pacific	210.58	17019	26133	164.04	13862	19382	106.21	73.59	14432	82.73	58.77	10897	69.08	49.11	97.07	53.80	38.67	72.38	185.73	14786	23094	144.71	12003	17456
High-income North America	471.16	38116	57259	425.36	36043	50103	237.46	16757	31989	214.39	15197	28409	154.40	10936	21253	139.38	99.44	18582	415.17	33052	51290	374.95	30738	44934
North Africa and Middle East	292.36	22209	37826	288.98	22433	36391	147.42	10031	20592	145.70	10084	20218	95.89	64.99	13943	94.77	65.28	13501	257.90	19712	33971	254.94	19872	32951
Oceania	299.79	22931	39132	304.88	23341	39695	151.17	10166	20868	153.75	10340	21593	98.33	67.67	14313	100.02	68.42	14468	264.51	19989	34928	268.99	20417	35163
South Asia	137.83	10895	17327	143.65	11292	17981	69.50	48.18	96.10	72.44	49.91	10007	45.22	31.03	63.09	47.13	32.62	66.08	121.62	94.69	15540	126.75	99.19	16309
Southeast Asia	268.62	20873	34399	278.49	21754	35478	135.45	93.14	18591	140.41	97.30	19173	88.10	60.01	12514	91.34	62.49	12917	236.99	18348	30540	245.70	19192	31326
Southern Latin America	314.82	25183	38789	242.22	19147	30477	132.11	94.98	17710	111.51	77.39	15493	80.13	55.51	11317	70.23	49.09	10021	194.40	14410	26062	180.43	13622	23547
Southern Sub-Saharan Africa	272.70	21019	34904	244.01	18800	31348	137.52	94.64	19018	123.05	84.58	17066	89.42	61.05	12795	80.02	54.76	11450	240.59	18198	31077	215.29	16208	27723

Tropical

Latin	216.03	17399	26360	193.20	15559	23851	98.48	70.79	13328	90.43	64.90	12362	61.79	43.20	86.30	57.31	40.00	80.35	157.93	12085	20486	148.62	11377	19313
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America

Western

Europe

	269.81	21385	33255	214.24	17386	25869	136.02	93.62	18494	107.97	75.84	14523	88.46	62.57	12127	70.20	49.77	96.39	237.94	18845	29608	188.85	15087	23315
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Western Sub-

Saharan

	218.48	16909	27713	233.73	17963	29884	110.20	75.70	15204	117.89	79.96	16300	71.67	48.04	10020	76.67	51.22	10809	192.77	14502	25029	206.23	15448	26700
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Africa

Table S2. The age-standardized rates (ASRs) of years lived with disabilities (YLDs) per 100,000 populations for subtypes of heart failure in 1990 and 2019 globally and in 21 Global Burden of Diseases (GBD) regions

Regions	Treated heart failure						Mild heart failure						Moderate heart failure						Severe heart failure					
	1990			2019			1990			2019			1990			2019			1990			2019		
	95% uncertainty interval (UI)						95% UI						95% UI						95% UI					
	ASRs		ASRs		ASRs		ASRs		ASRs		ASRs		ASRs		ASRs		ASRs		ASRs		ASRs		ASRs	
	per	lower	upper	per	lower	upper	per	lower	upper	per	lower	upper	per	lower	upper	per	lower	upper	per	lower	upper	per	lower	upper
	100,000			100,000			100,000			100,000			100,000			100,000			100,000			100,000		
	Global	13.58	7.92	20.79	12.62	7.36	19.30	5.78	3.13	9.59	5.37	2.92	8.95	6.44	3.67	10.18	6.00	3.44	9.50	42.80	27.66	62.22	39.93	25.96
Andean Latin America	10.04	5.95	15.07	8.82	5.21	13.46	3.41	1.86	5.53	3.39	1.84	5.60	3.48	1.99	5.44	3.64	2.07	5.73	20.10	12.43	30.36	22.92	14.20	34.61
Australasia	20.60	12.14	32.23	13.33	7.90	21.03	8.81	4.74	14.81	5.71	3.08	9.57	9.84	5.62	15.65	6.38	3.69	10.03	65.68	42.82	97.17	42.58	27.44	62.95
Caribbean	9.56	5.69	14.99	9.21	5.43	14.38	4.09	2.14	6.93	3.94	2.10	6.81	4.57	2.63	7.27	4.41	2.50	7.06	30.43	19.22	45.78	29.37	18.69	43.96
Central Asia	10.24	6.11	16.08	9.58	5.73	14.95	4.38	2.34	7.38	4.10	2.19	6.95	4.90	2.75	7.85	4.58	2.58	7.38	32.64	20.65	48.12	30.54	19.44	44.84
Central Europe	13.95	8.21	21.48	12.75	7.60	19.36	5.97	3.23	10.05	5.46	3.00	9.06	6.68	3.79	10.56	6.10	3.52	9.65	44.57	28.74	64.95	40.74	26.79	59.35
Central Latin America	10.22	6.06	15.57	8.91	5.24	13.59	3.97	2.15	6.56	3.53	1.90	5.92	4.28	2.48	6.78	3.85	2.20	6.12	27.09	17.18	40.82	24.67	15.44	37.64
Central Sub-Saharan Africa	8.76	4.99	13.84	8.50	4.77	13.34	3.76	1.96	6.51	3.64	1.92	6.21	4.19	2.27	6.92	4.06	2.19	6.65	27.86	16.96	42.31	27.07	16.42	40.88

East Asia	18.55	10.81	28.47	17.85	10.35	27.52	7.94	4.28	13.45	7.64	4.11	12.75	8.87	5.01	14.28	8.54	4.84	13.74	59.00	37.82	87.04	56.91	36.30	84.06
Eastern Europe	9.90	5.86	15.21	9.88	5.88	15.11	4.23	2.27	7.09	4.23	2.27	7.11	4.73	2.68	7.48	4.73	2.71	7.40	31.59	20.23	46.01	31.56	20.05	45.93
Eastern Sub-Saharan Africa	13.31	7.70	20.91	14.25	8.31	22.15	5.70	3.05	9.39	6.10	3.25	10.18	6.36	3.55	10.28	6.81	3.82	10.90	42.24	26.52	62.84	45.30	28.29	67.81
High-income Asia Pacific	10.15	6.06	15.82	7.93	4.82	12.12	4.35	2.37	7.09	3.39	1.89	5.52	4.86	2.78	7.67	3.80	2.21	5.87	32.44	21.01	46.88	25.38	16.69	36.48
High-income North America	22.74	13.53	34.67	20.49	12.68	30.41	9.73	5.37	16.08	8.76	4.97	14.50	10.88	6.30	17.29	9.80	5.81	15.13	72.68	46.55	106.08	65.44	43.02	94.83
North Africa and Middle East	13.98	8.17	21.49	13.87	8.13	21.37	5.98	3.16	10.00	5.94	3.17	9.99	6.68	3.80	10.97	6.64	3.72	10.77	44.51	28.30	66.85	44.30	28.85	66.35
Oceania	14.25	8.33	22.21	14.51	8.40	22.77	6.10	3.27	10.32	6.21	3.31	10.58	6.82	3.83	11.00	6.94	3.89	11.10	45.32	28.58	67.20	46.18	29.40	68.18
South Asia	6.47	3.76	9.94	6.78	3.93	10.40	2.77	1.48	4.60	2.90	1.54	4.85	3.09	1.75	5.00	3.24	1.83	5.22	20.43	13.05	30.18	21.49	13.74	32.33
Southeast Asia	12.73	7.39	19.46	13.28	7.82	20.27	5.45	2.90	9.12	5.68	3.05	9.54	6.09	3.49	9.76	6.35	3.64	10.17	40.40	25.82	60.07	42.25	27.19	62.67
Southern Latin America	15.15	9.05	22.85	11.67	6.94	17.95	5.39	2.90	8.80	4.56	2.49	7.70	5.62	3.22	8.72	4.93	2.82	7.81	33.75	20.79	50.42	31.45	19.91	47.61
Southern Sub-Saharan Africa	12.98	7.70	20.51	11.64	6.87	18.36	5.56	3.04	9.24	4.98	2.69	8.23	6.20	3.53	9.71	5.57	3.15	8.76	41.26	25.66	62.77	37.07	22.91	56.03

Table S3. The age-standardized rates (ASRs) of prevalence per 100,000 populations for heart failure in 1990 and 2019 globally and in 21 Global Burden of Diseases (GBD) regions by sex

Regions	1990						2019					
	Males			Females			Males			Females		
	95% uncertainty interval (UI)			95% UI			95% UI			95% UI		
	ASRs per 100,000	lower	upper	ASRs per 100,000	lower	upper	ASRs per 100,000	lower	upper	ASRs per 100,000	lower	upper
Global	864.24	703.70	1048.41	685.99	561.61	834.72	785.70	649.52	944.89	646.15	537.36	783.01
Andean Latin America	562.82	449.81	715.01	369.03	294.38	457.73	559.75	433.68	718.77	357.88	282.69	450.79
Australasia	1265.88	1000.01	1538.13	1075.23	856.46	1308.97	857.90	688.50	1050.53	656.12	532.05	788.83
Caribbean	702.08	539.88	909.26	404.44	321.37	513.01	682.17	528.13	880.77	390.64	307.71	501.97
Central Asia	652.99	508.28	834.48	529.14	409.11	684.46	627.34	491.04	795.36	478.48	370.40	617.10
Central Europe	904.97	717.50	1123.44	697.14	548.91	872.07	855.08	713.84	1016.43	610.74	509.86	731.43
Central Latin America	629.40	499.20	780.87	443.51	357.40	557.66	573.32	455.64	718.72	388.21	310.20	488.80
Central Sub-Saharan Africa	581.64	428.38	774.88	430.13	316.15	573.84	579.17	427.70	766.85	419.58	305.98	553.02
East Asia	1085.73	875.57	1339.93	1005.90	814.21	1249.35	991.23	808.02	1228.71	1001.01	819.06	1245.62
Eastern Europe	582.92	464.72	714.88	536.95	427.34	661.27	574.95	467.34	700.80	538.38	427.98	659.54
Eastern Sub-Saharan Africa	961.68	765.25	1207.38	581.54	453.13	736.81	1059.12	844.06	1322.71	609.98	475.46	770.77

High-income Asia Pacific	645.81	534.51	782.54	504.36	412.33	623.04	515.80	444.92	598.55	376.87	325.60	436.41
High-income North America	1528.53	1259.67	1856.70	1094.97	918.09	1303.05	1344.62	1159.53	1556.54	993.84	866.22	1140.37
North Africa and Middle East	912.98	703.30	1163.90	675.26	527.26	854.68	879.44	697.33	1101.27	686.58	557.61	850.08
Oceania	875.69	679.90	1133.87	744.66	579.73	972.67	893.47	697.66	1160.60	753.88	591.97	969.00
South Asia	391.80	316.14	489.41	355.18	286.64	444.32	406.15	326.94	503.61	374.85	303.13	465.75
Southeast Asia	910.84	723.55	1154.72	582.76	463.50	736.41	956.76	767.92	1202.26	599.25	478.71	750.96
Southern Latin America	850.06	681.47	1074.46	620.96	491.30	785.88	721.30	563.95	915.07	514.42	403.38	655.19
Southern Sub-Saharan Africa	891.21	696.19	1124.96	642.49	499.62	808.31	864.36	674.75	1091.08	542.55	425.12	684.92
Tropical Latin America	690.38	559.34	851.78	411.99	339.53	505.28	636.92	514.39	789.46	382.03	312.82	472.13
Western Europe	885.49	715.83	1077.81	624.96	509.21	757.02	693.11	574.34	830.22	488.09	405.60	583.42
Western Sub-Saharan Africa	675.39	532.58	847.80	522.06	411.12	658.54	728.99	569.09	920.63	551.20	434.55	701.13

Table S4. The age-standardized rates (ASRs) of years lived with disabilities (YLDs) per 100,000 populations for heart failure in 1990 and 2019 globally and in 21 Global Burden of Diseases (GBD) regions by sex

Regions	1990						2019					
	Males			Females			Males			Females		
	95% uncertainty interval (UI)			95% UI			95% UI			95% UI		
	ASRs per 100,000	lower	upper	ASRs per 100,000	lower	upper	ASRs per 100,000	lower	upper	ASRs per 100,000	lower	upper
Global	77.38	50.15	111.97	61.44	39.63	88.87	70.58	45.81	101.35	57.99	37.72	83.46
Andean Latin America	45.31	28.60	65.88	29.43	18.63	42.40	47.83	30.25	69.25	30.71	19.25	44.76
Australasia	114.19	73.82	165.71	97.30	61.93	142.04	77.67	49.56	113.63	59.54	39.45	86.60
Caribbean	62.84	39.77	90.81	36.34	23.22	52.57	61.26	39.04	89.23	35.22	22.39	51.33
Central Asia	58.55	36.77	83.88	47.31	30.01	68.91	56.38	35.76	81.55	42.82	27.26	61.78
Central Europe	81.69	52.14	117.52	62.81	40.39	90.75	77.32	51.22	110.71	55.13	36.09	79.17
Central Latin America	53.50	34.52	77.18	38.42	24.83	56.21	49.48	31.45	71.71	34.09	22.03	49.50
Central Sub-Saharan Africa	51.90	32.09	77.42	38.40	23.25	57.23	51.85	31.25	77.03	37.62	22.83	55.92

East Asia	96.97	62.64	142.02	89.35	57.7 8	130.9 3	89.16	57.1 6	129.9 7	89.65	58.2 5	131.7 2
Eastern Europe	52.46	34.28	75.79	48.19	31.3 6	69.15	51.83	33.8 6	74.10	48.38	31.2 0	69.88
Eastern Sub-Saharan Africa	85.36	54.80	122.80	51.56	33.1 0	75.37	94.38	60.6 6	135.6 3	54.37	34.8 0	79.99
High-income Asia Pacific	58.59	38.09	85.05	45.65	29.6 9	66.49	46.93	31.4 6	66.57	34.25	23.0 8	48.26
High-income North America	138.53	90.65	200.14	99.51	64.7 0	143.0 8	121.62	81.7 6	170.6 0	90.06	60.0 9	126.1 8
North Africa and Middle East	82.03	51.34	119.51	60.37	38.2 8	87.96	79.41	50.0 9	114.0 3	61.81	40.3 4	89.58
Oceania	78.37	49.83	113.15	66.00	42.6 5	96.93	80.14	50.5 4	115.9 0	66.88	43.3 2	97.47
South Asia	34.40	22.11	49.89	30.99	19.8 8	45.15	35.94	23.2 2	52.08	32.99	21.0 4	48.09
Southeast Asia	80.97	51.77	117.60	51.49	33.1 4	74.55	85.64	54.9 9	124.4 7	53.42	34.5 5	77.06
Southern Latin America	69.47	44.29	101.13	52.56	33.3 3	76.38	62.23	40.0 7	92.15	45.27	28.6 7	66.12
Southern Sub-Saharan Africa	79.35	50.34	116.18	57.30	36.4 8	84.53	77.21	48.8 8	112.0 6	48.56	30.9 4	71.66
Tropical Latin America	58.74	37.70	85.95	35.54	23.0 0	52.02	55.30	35.7 3	81.10	33.55	21.7 0	49.28
Western Europe	80.36	51.39	117.59	56.72	36.6 9	82.89	62.98	40.7 3	90.54	44.36	29.1 7	63.74

Western Sub-Saharan Africa	60.02	38.27	86.59	46.38	30.0 7	67.82	64.99	41.4 6	95.66	49.20	31.5 4	72.76
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Figure S1. Global age-standardized point prevalence rate of treated heart failure per 100,000 population in 2019. Visualization using the Global Burden of Diseases (GBD) Compare Tool (<https://www.healthdata.org/data-visualization/gbd-compare>).

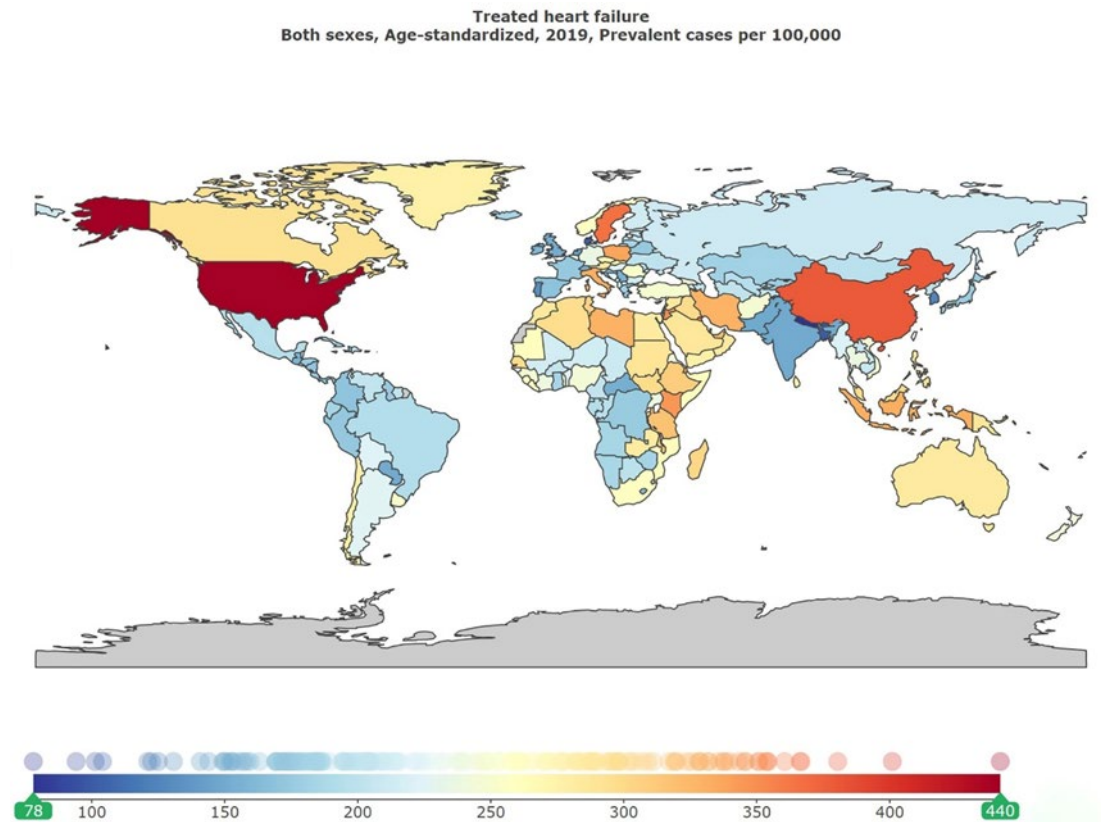


Figure S2. Global age-standardized point prevalence rate of mild heart failure per 100,000 population in 2019. Visualization using the Global Burden of Diseases (GBD) Compare Tool (<https://www.healthdata.org/data-visualization/gbd-compare>).

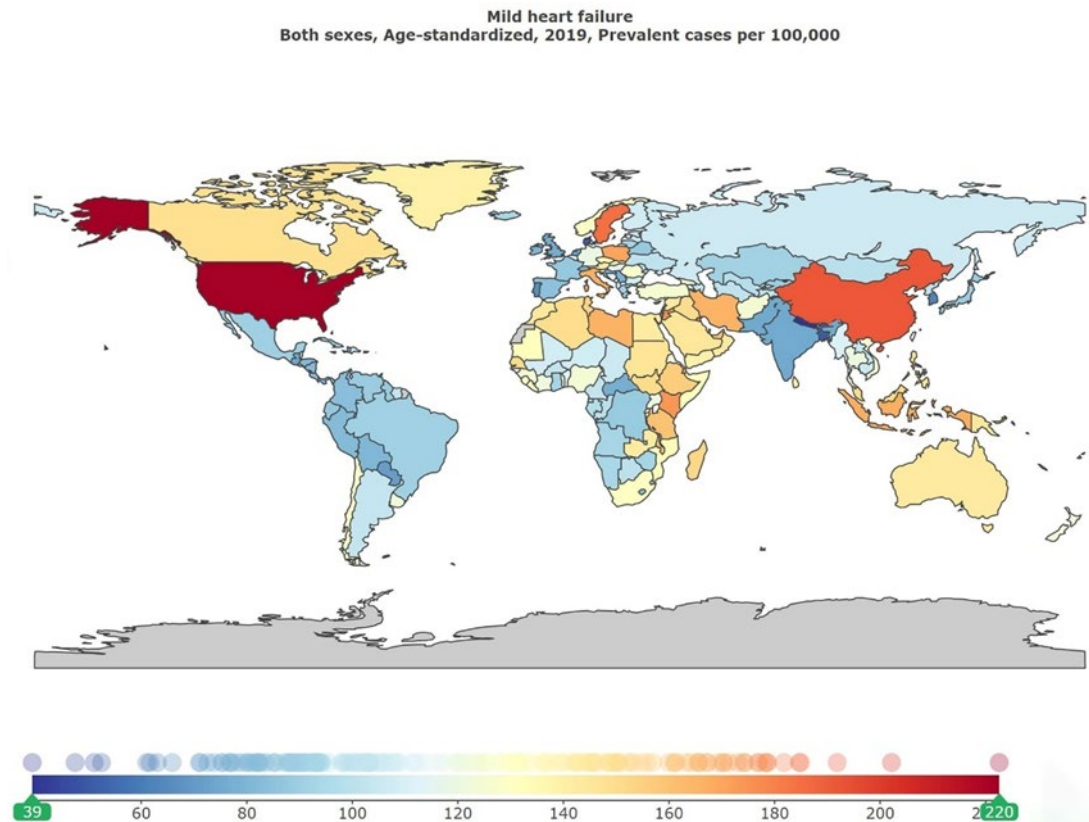


Figure S3. Global age-standardized point prevalence rate of moderate heart failure per 100,000 population in 2019. Visualization using the Global Burden of Diseases (GBD) Compare Tool (<https://www.healthdata.org/data-visualization/gbd-compare>).

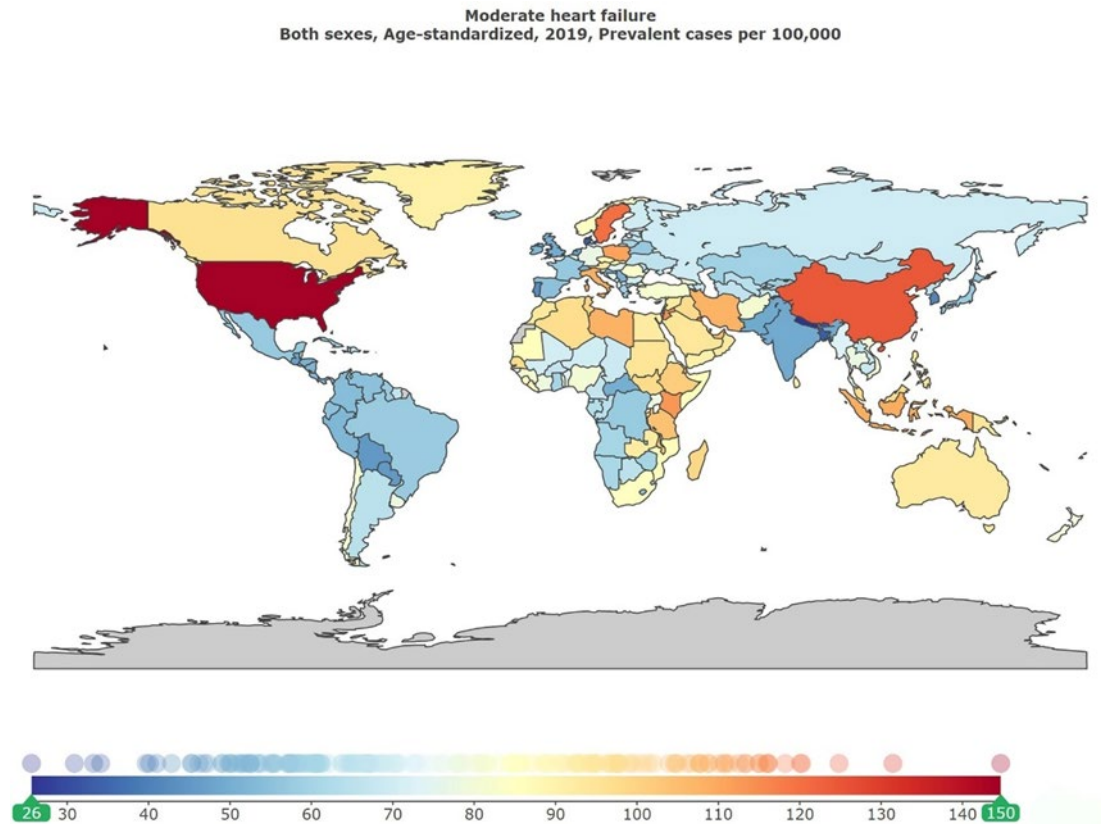


Figure S4. Global age-standardized point prevalence rate of severe heart failure per 100,000 population in 2019. Visualization using the Global Burden of Diseases (GBD) Compare Tool (<https://www.healthdata.org/data-visualization/gbd-compare>).

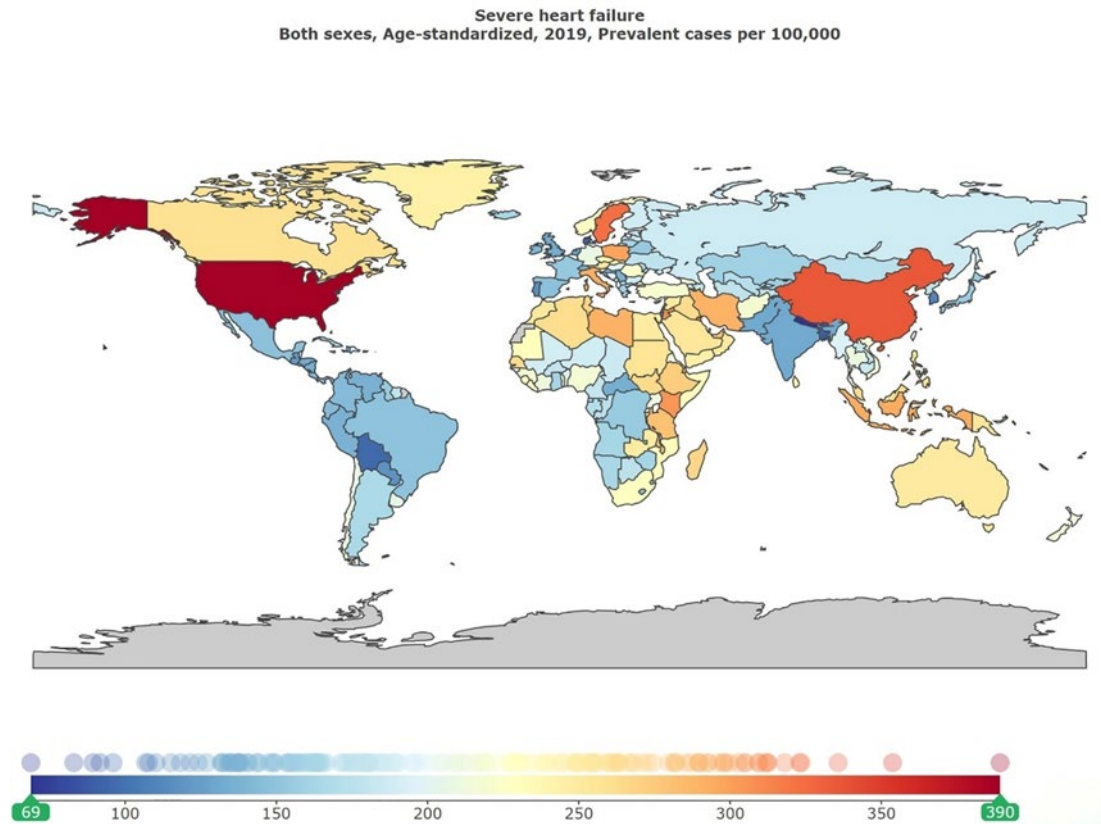
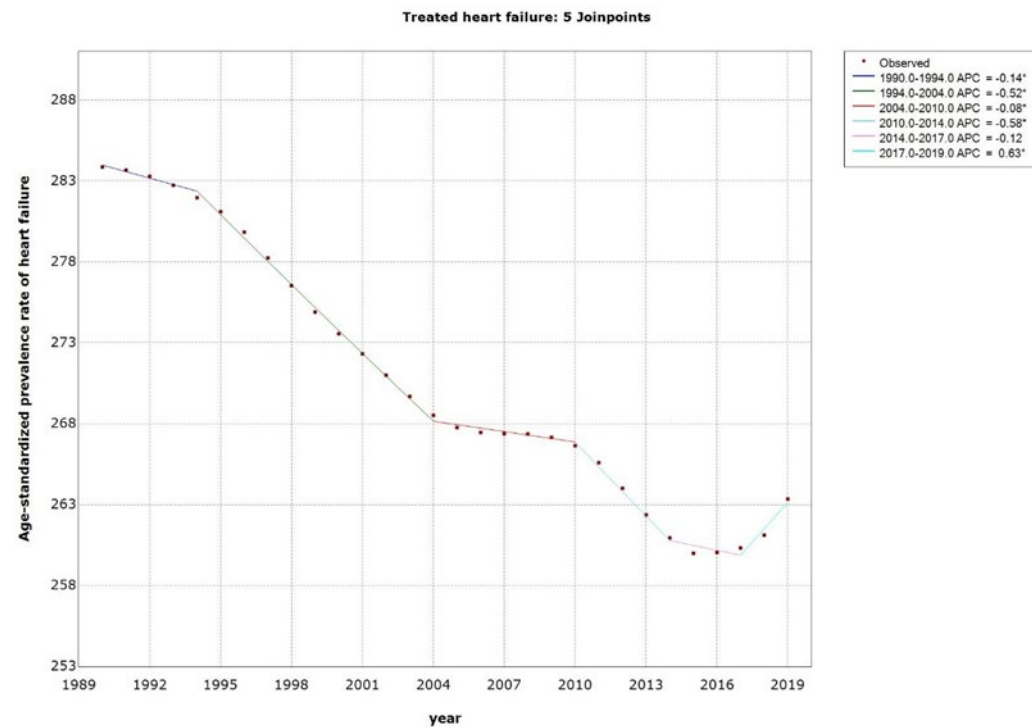
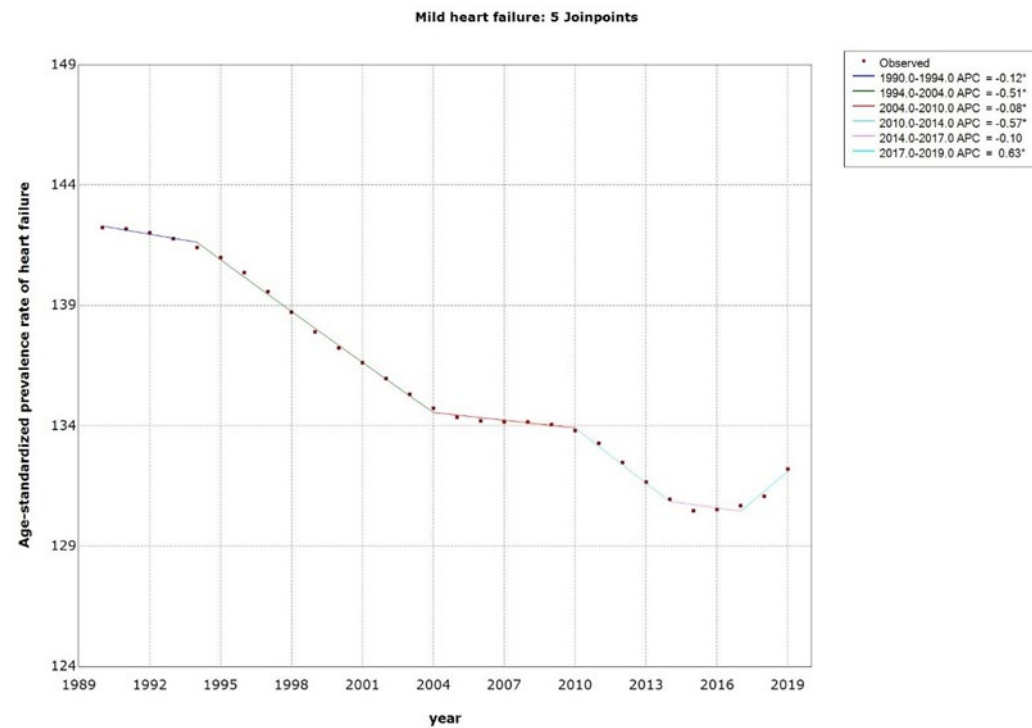


Figure S5. The Joinpoint regression analysis showing annual percentage (APC) change for age-standardized prevalence rate of treated heart failure globally from 1990 to 2019.



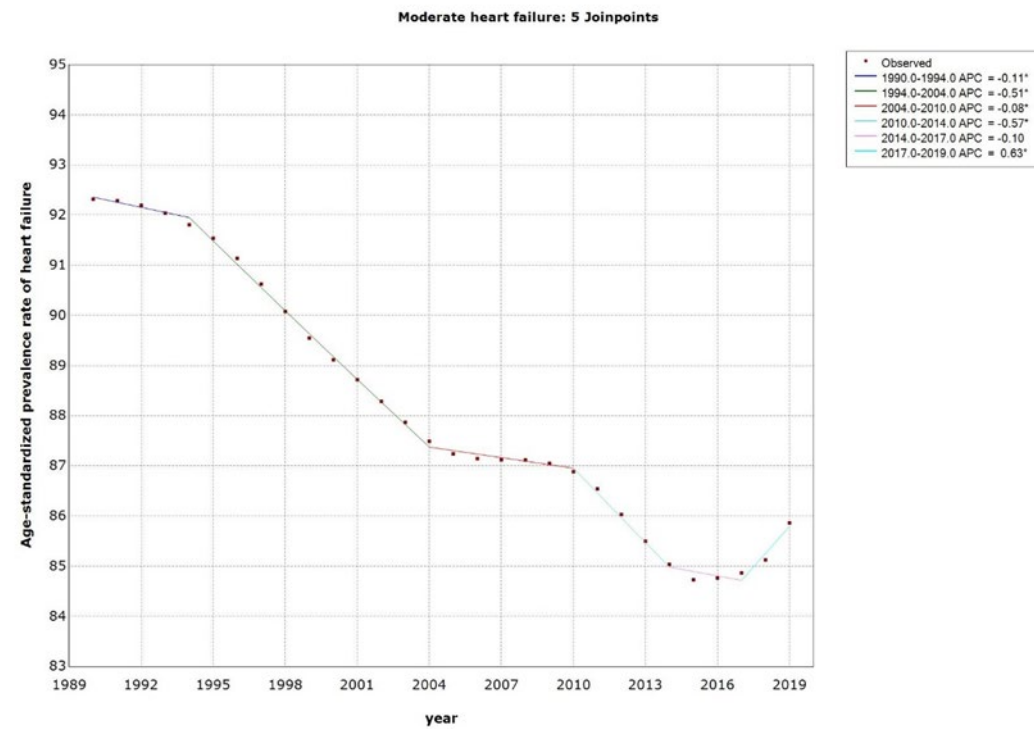
* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 5 Joinpoints.

Figure S6. The Joinpoint regression analysis showing annual percentage (APC) change for age-standardized prevalence rate of mild heart failure globally from 1990 to 2019.



* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 5 Joinpoints.

Figure S7. The Joinpoint regression analysis showing annual percentage (APC) change for age-standardized prevalence rate of moderate heart failure globally from 1990 to 2019.



* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 5 Joinpoints.

Figure S8. The Joinpoint regression analysis showing annual percentage (APC) change for age-standardized prevalence rate of severe heart failure globally from 1990 to 2019.

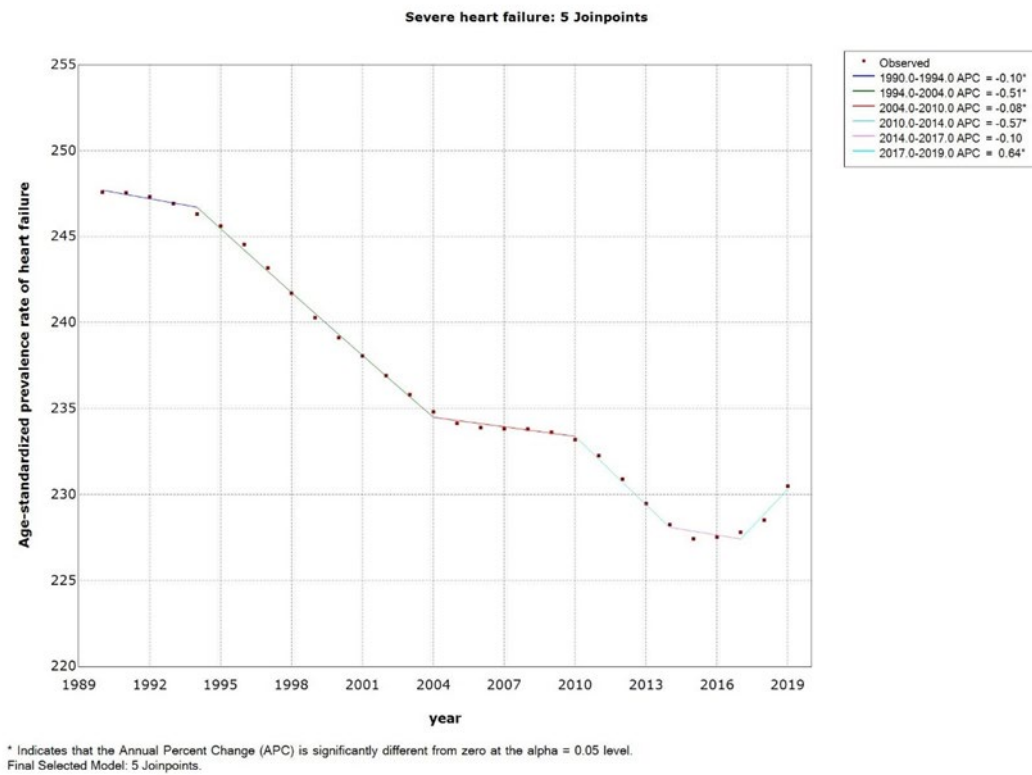
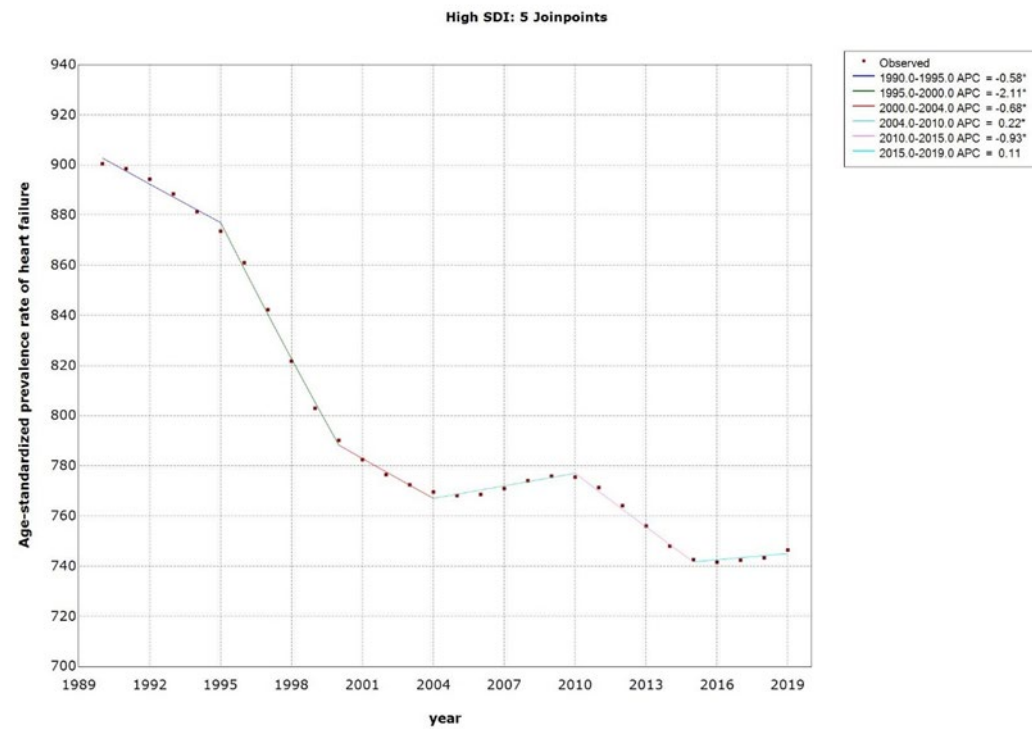
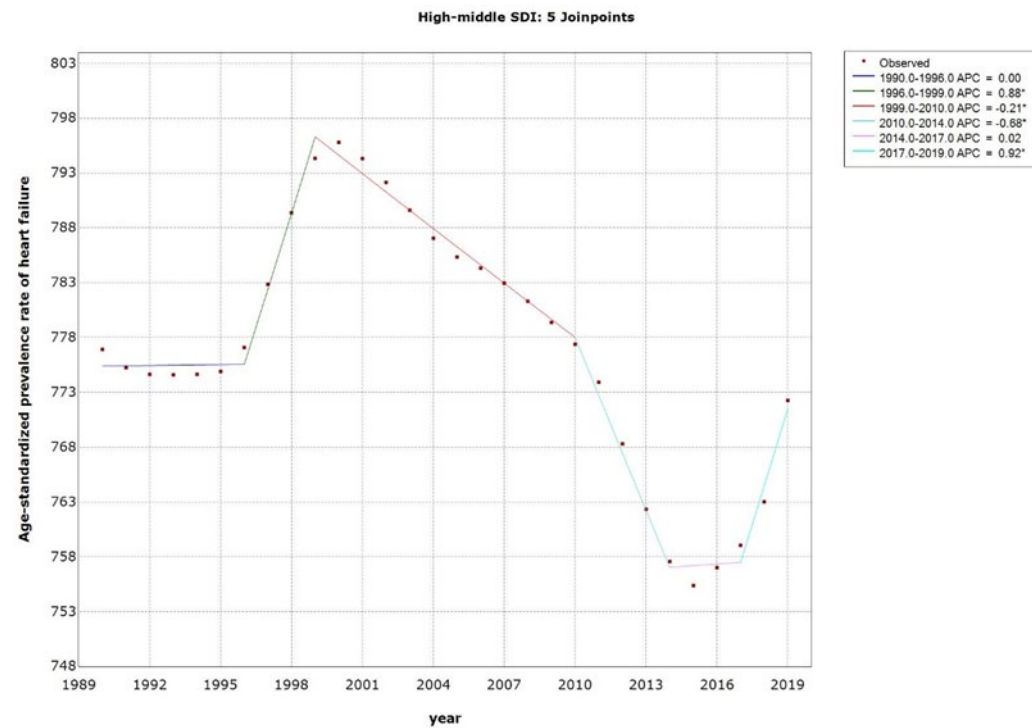


Figure S9. The Joinpoint regression analysis showing annual percentage (APC) change for age-standardized prevalence rate of heart failure in High Socio-demographic Index (SDI) regions from 1990 to 2019.



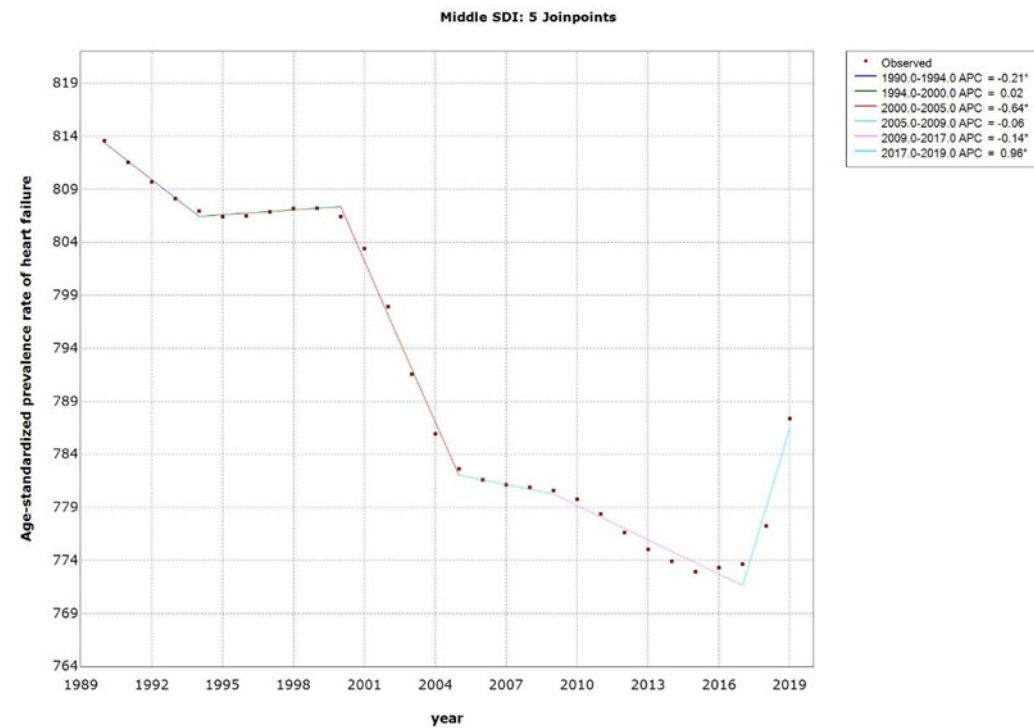
* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 5 Joinpoints.

Figure S10. The Joinpoint regression analysis showing annual percentage (APC) change for age-standardized prevalence rate of heart failure in High-middle Socio-demographic Index (SDI) regions from 1990 to 2019.



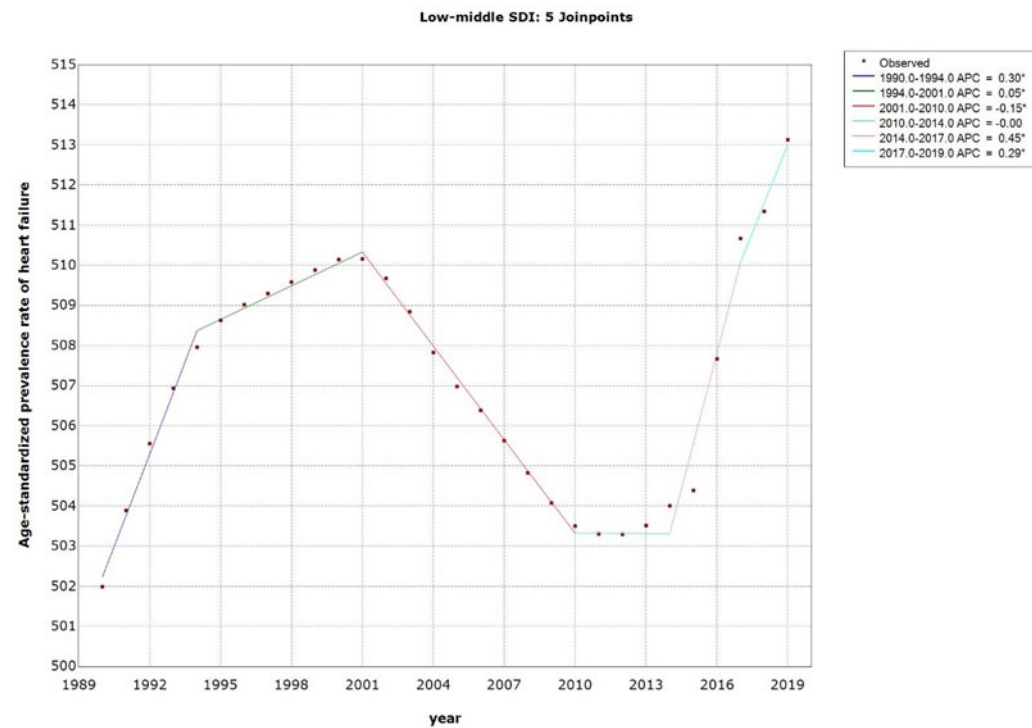
* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 5 Joinpoints.

Figure S11. The Joinpoint regression analysis showing annual percentage (APC) change for age-standardized prevalence rate of heart failure in Middle Socio-demographic Index (SDI) regions from 1990 to 2019.



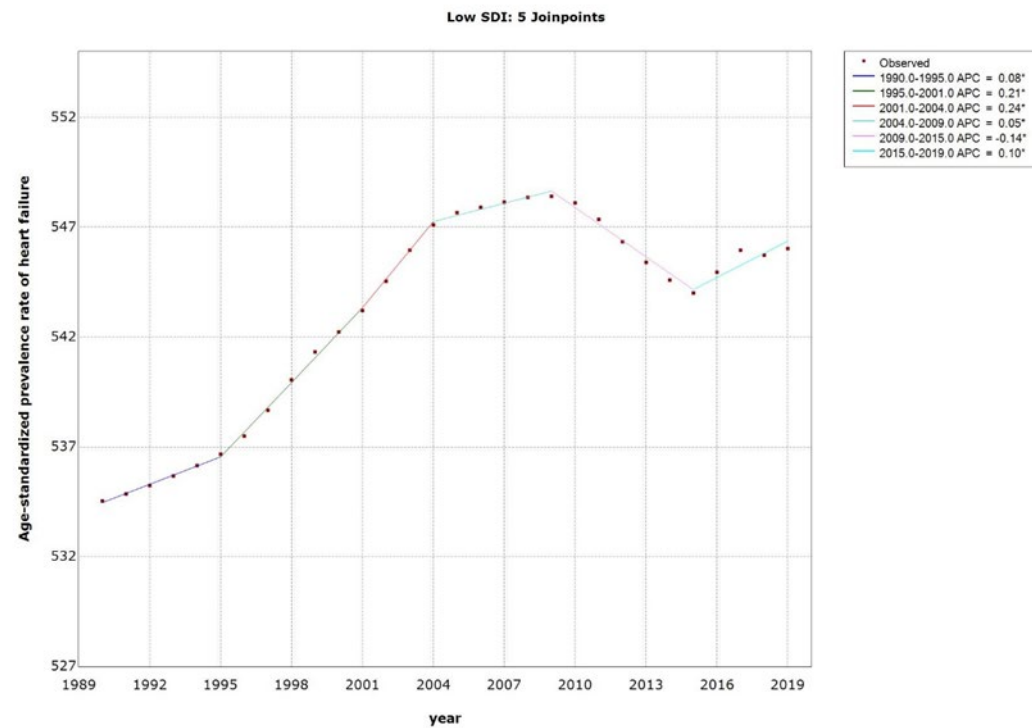
* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 4 Joinpoints.

Figure S12. The Joinpoint regression analysis showing annual percentage (APC) change for age-standardized prevalence rate of heart failure in Low-middle Socio-demographic Index (SDI) regions from 1990 to 2019.



* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 4 Joinpoints.

Figure S13. The Joinpoint regression analysis showing annual percentage (APC) change for age-standardized prevalence rate of heart failure in Low Socio-demographic Index (SDI) regions from 1990 to 2019.



* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 4 Joinpoints.

Figure S14. The Joinpoint regression analysis showing annual percentage (APC) change for age-standardized prevalence rate of heart failure in Andean Latin America from 1990 to 2019.

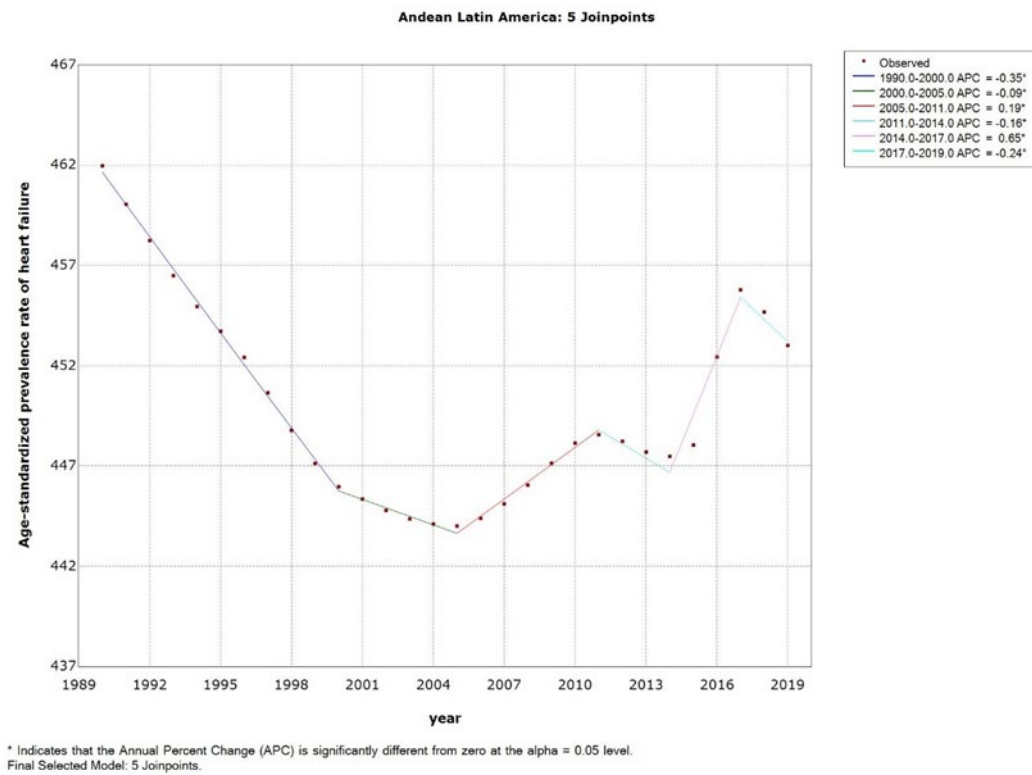
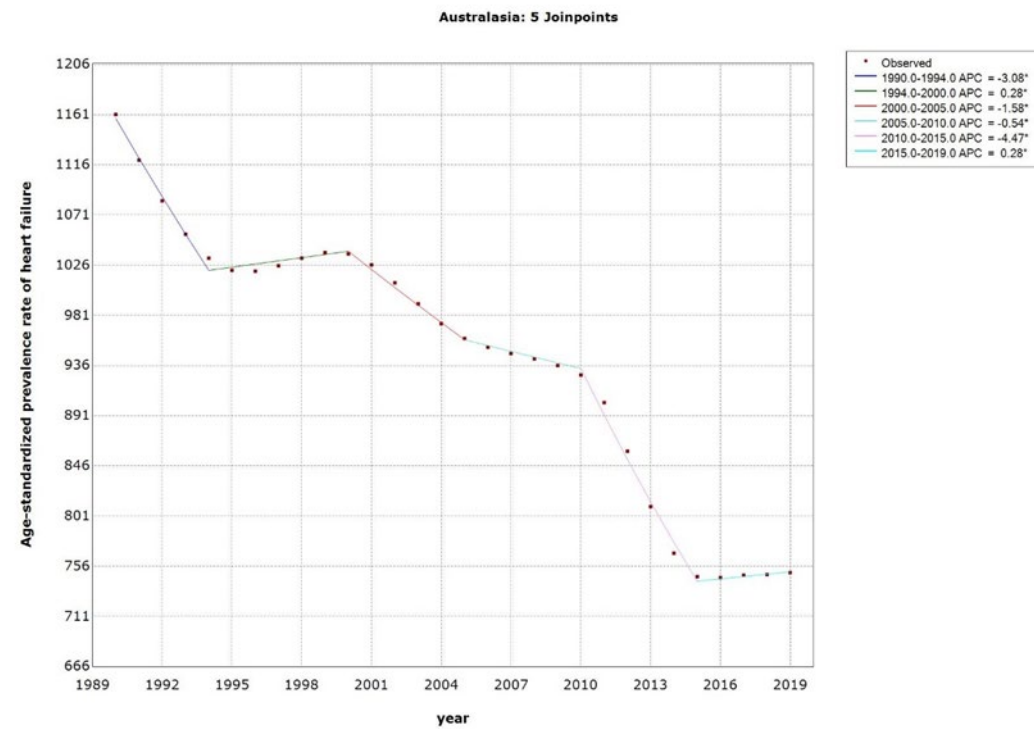
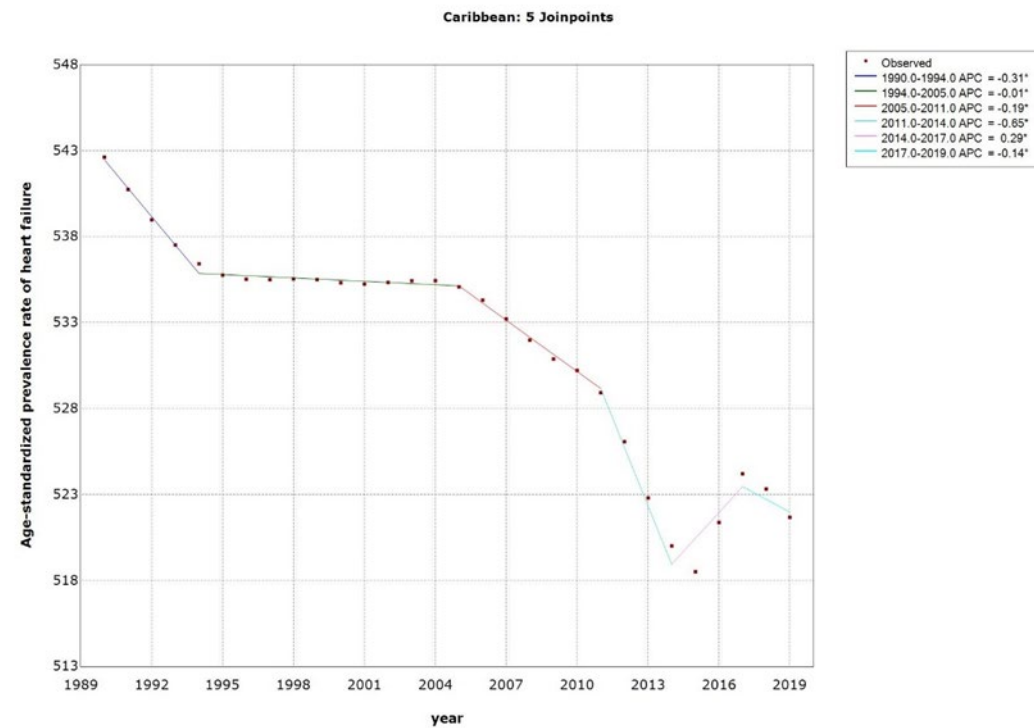


Figure S15. The Joinpoint regression analysis showing annual percentage (APC) change for age-standardized prevalence rate of heart failure in Australasia from 1990 to 2019.



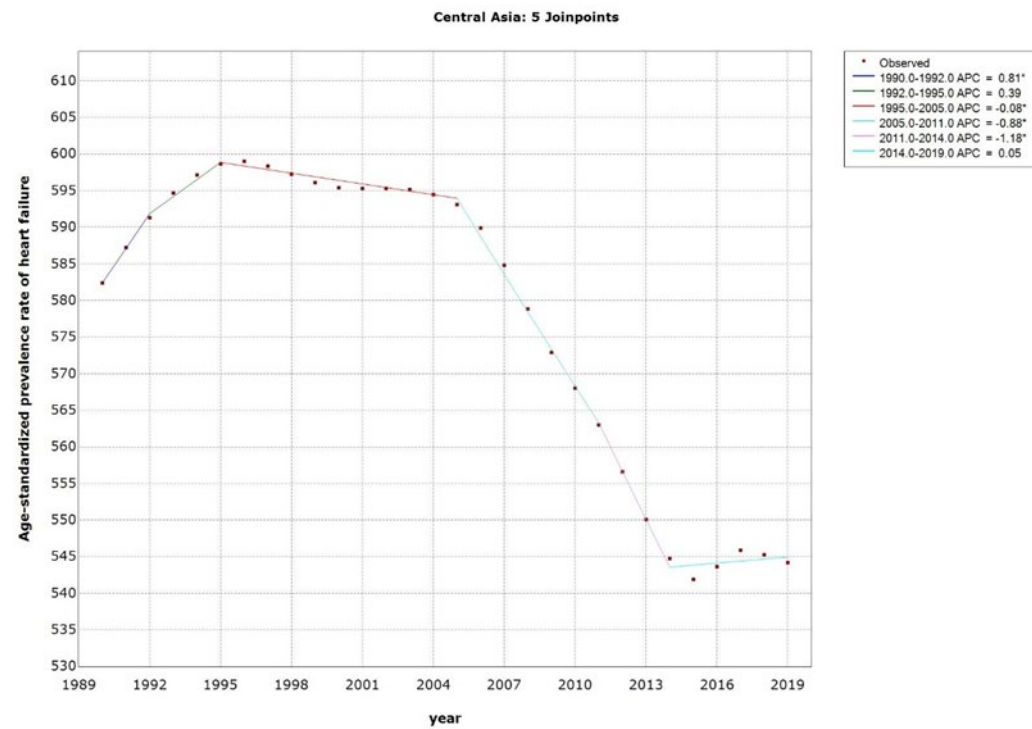
* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 5 Joinpoints.

Figure S16. The Joinpoint regression analysis showing annual percentage (APC) change for age-standardized prevalence rate of heart failure in Caribbean from 1990 to 2019.



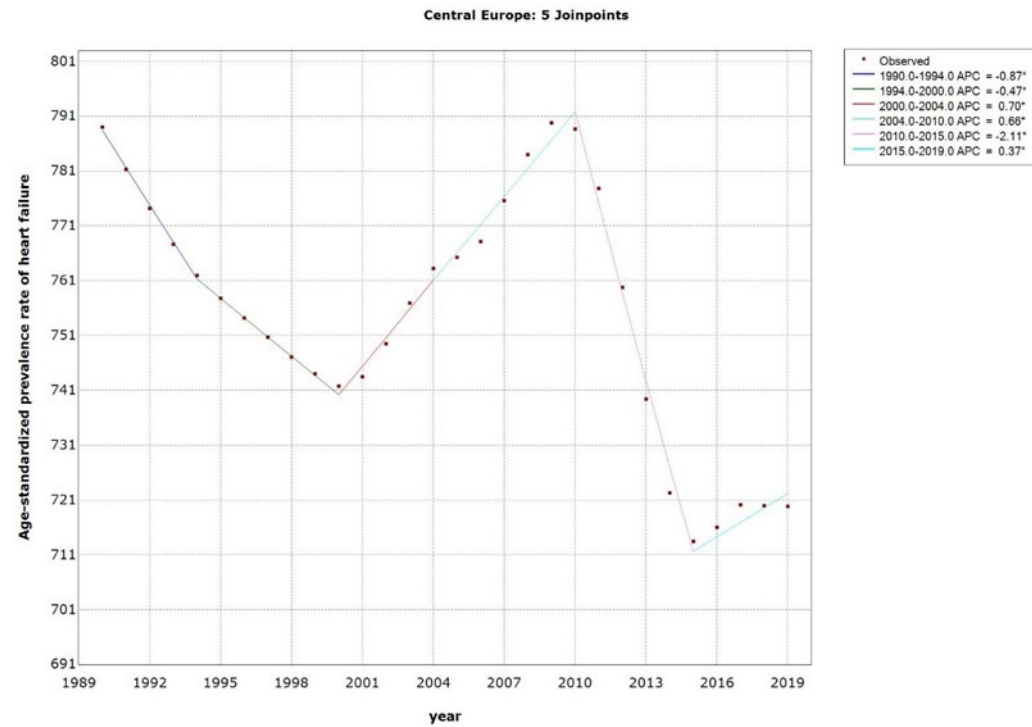
* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 5 Joinpoints.

Figure S17. The Joinpoint regression analysis showing annual percentage (APC) change for age-standardized prevalence rate of heart failure in Central Asia from 1990 to 2019.



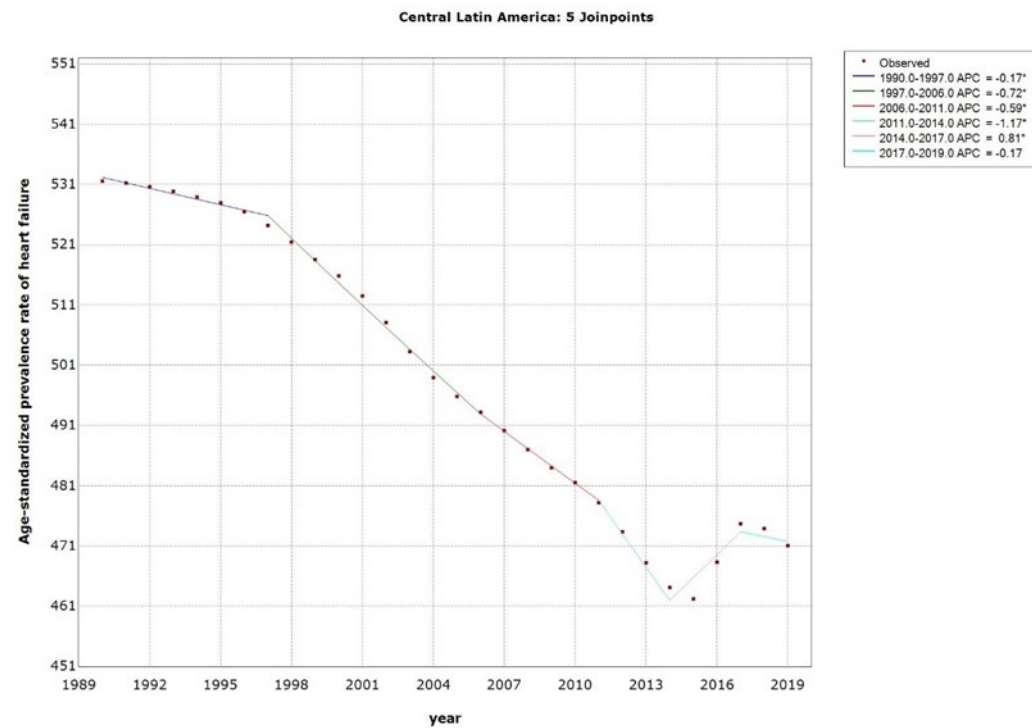
* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 3 Joinpoints.

Figure S18. The Joinpoint regression analysis showing annual percentage (APC) change for age-standardized prevalence rate of heart failure in Central Europe from 1990 to 2019.



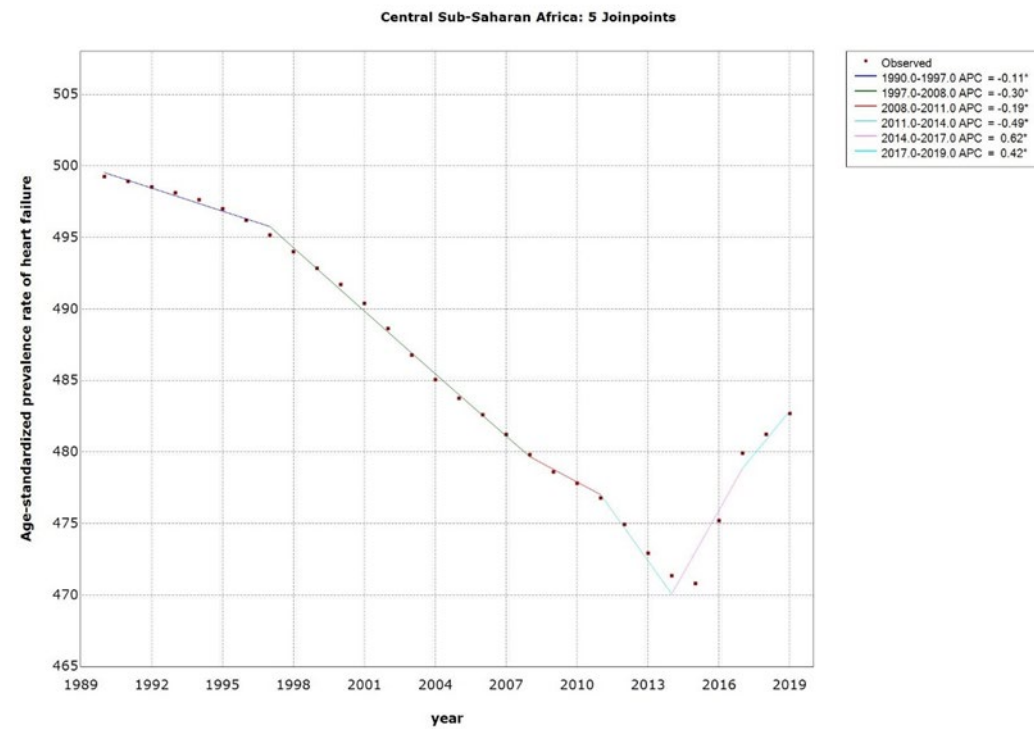
* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 4 Joinpoints.

Figure S19. The Joinpoint regression analysis showing annual percentage (APC) change for age-standardized prevalence rate of heart failure in Central Latin America from 1990 to 2019.



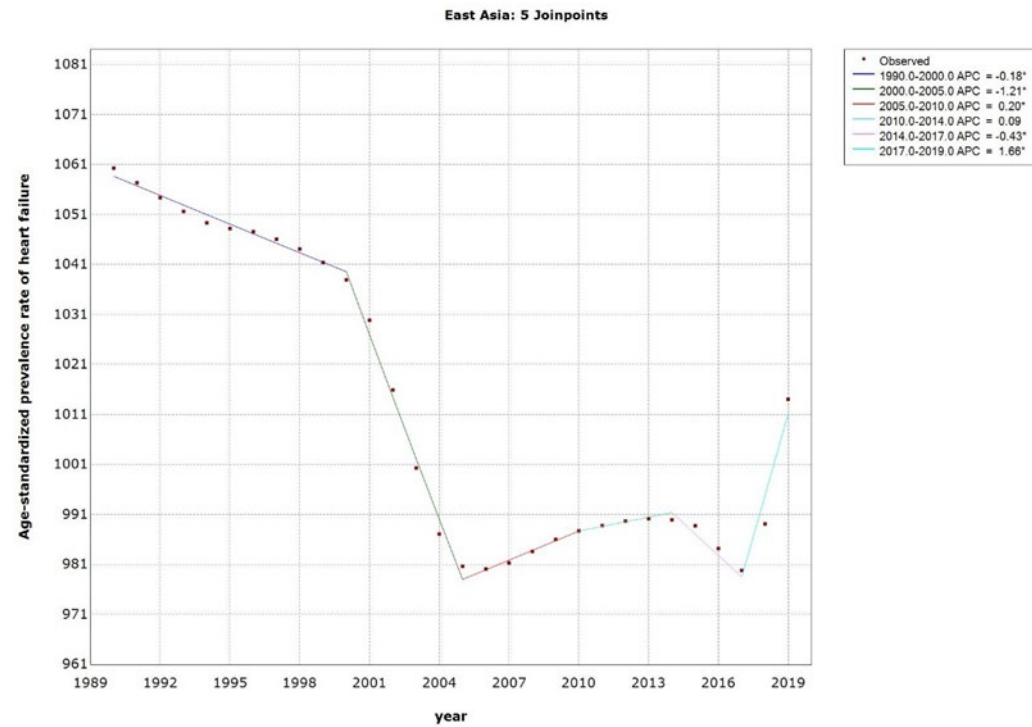
* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 4 Joinpoints.

Figure S20. The Joinpoint regression analysis showing annual percentage (APC) change for age-standardized prevalence rate of heart failure in Central Sub-Saharan Africa from 1990 to 2019.



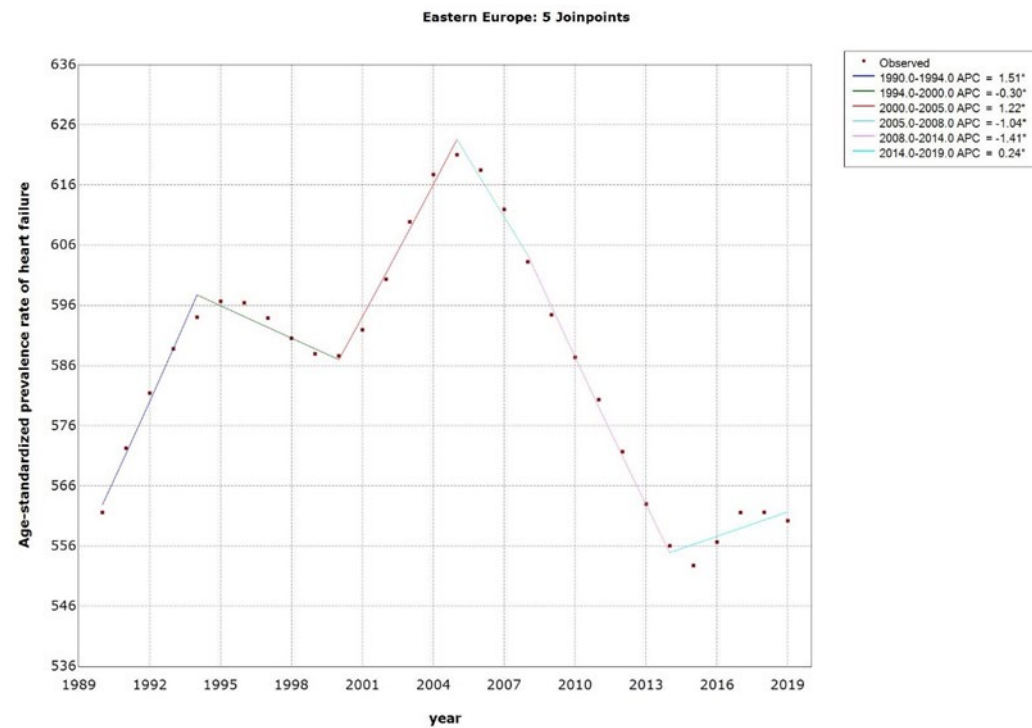
* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 2 Joinpoints.

Figure S21. The Joinpoint regression analysis showing annual percentage (APC) change for age-standardized prevalence rate of heart failure in East Asia from 1990 to 2019.



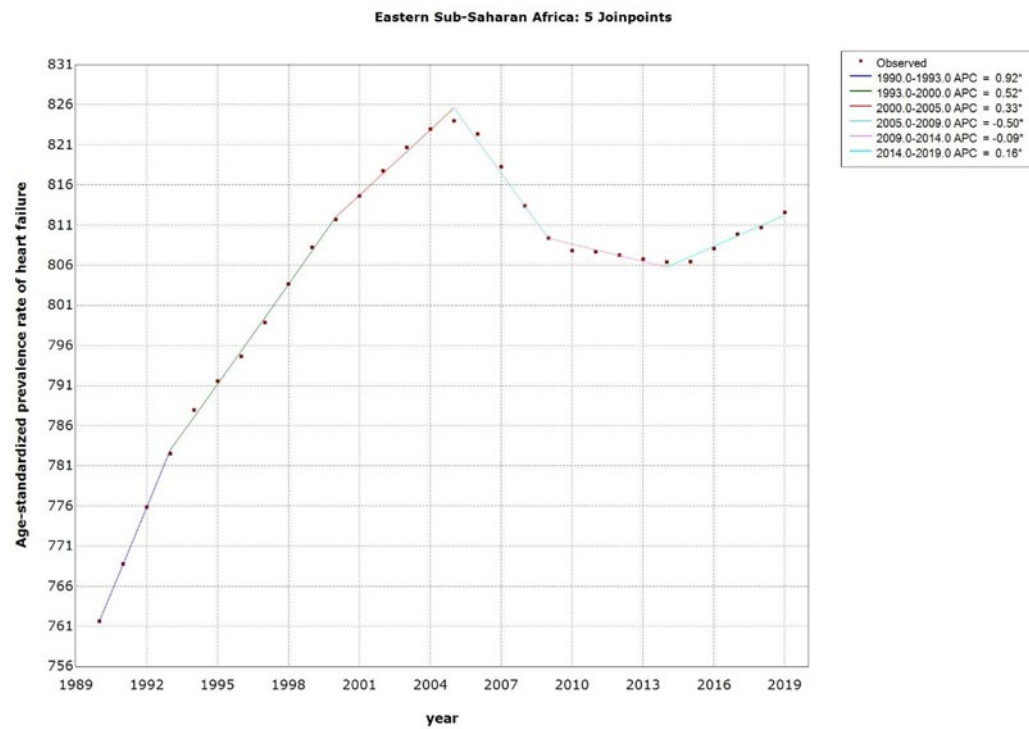
* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 4 Joinpoints.

Figure S22. The Joinpoint regression analysis showing annual percentage (APC) change for age-standardized prevalence rate of heart failure in Eastern Europe from 1990 to 2019.



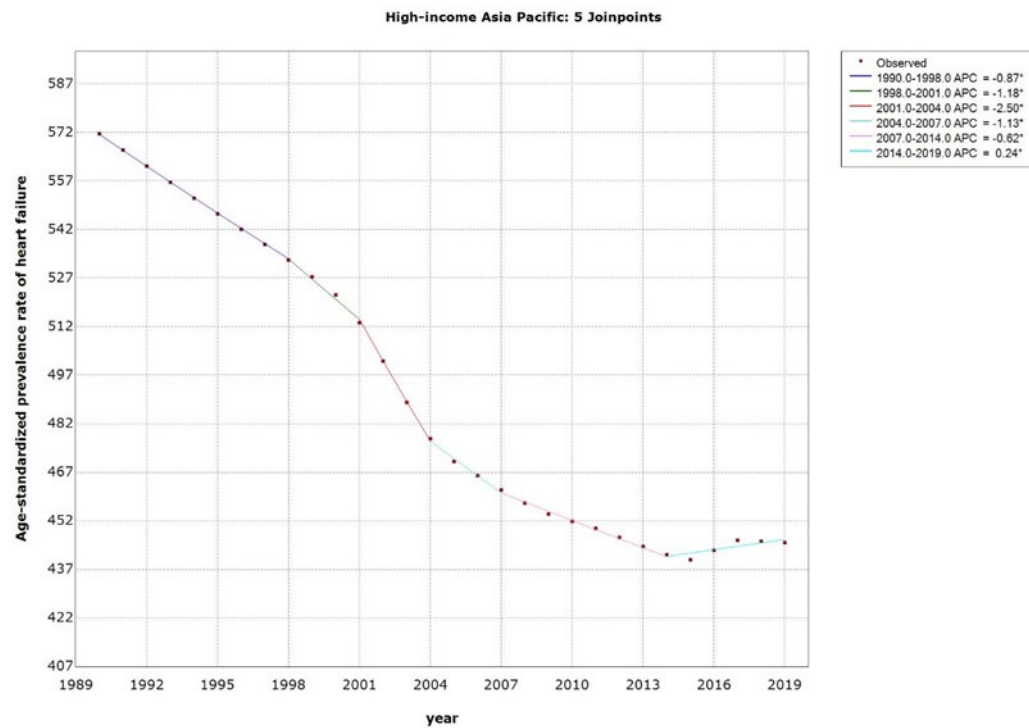
* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 4 Joinpoints.

Figure S23. The Joinpoint regression analysis showing annual percentage (APC) change for age-standardized prevalence rate of heart failure in Eastern Sub-Saharan Africa from 1990 to 2019.



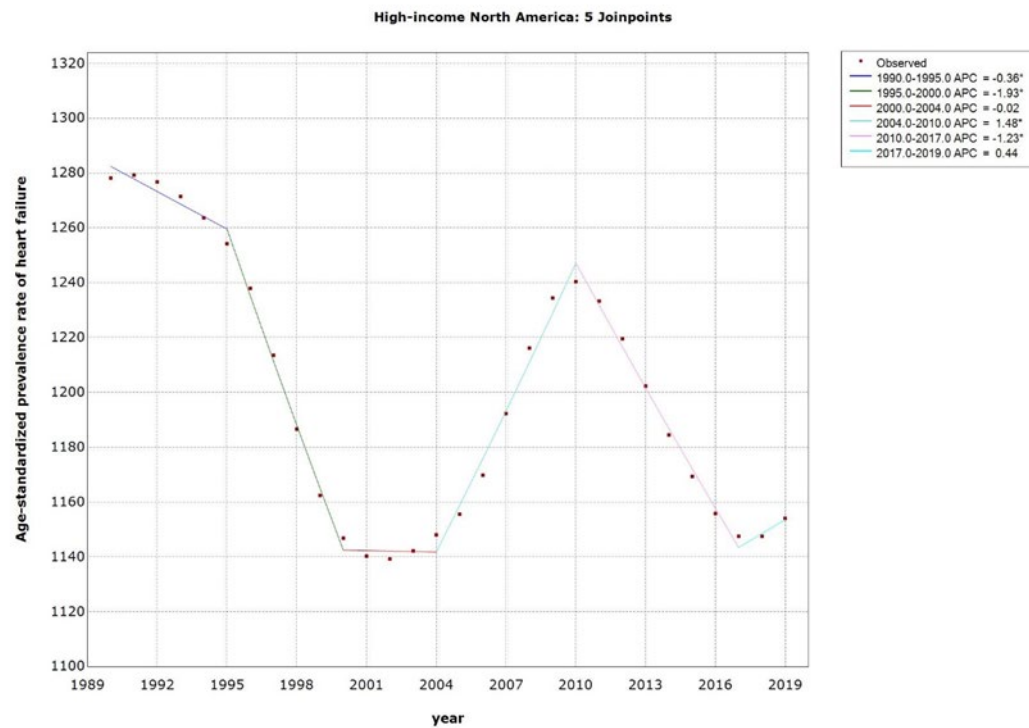
* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 5 Joinpoints.

Figure S24. The Joinpoint regression analysis showing annual percentage (APC) change for age-standardized prevalence rate of heart failure in High-income Asia Pacific from 1990 to 2019.



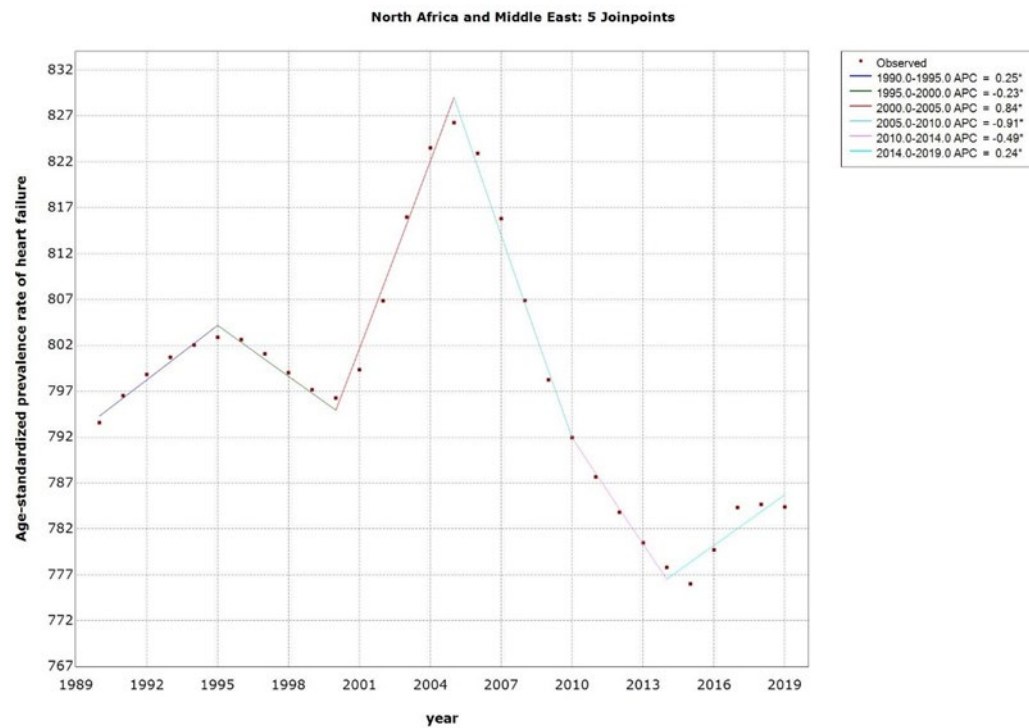
* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 3 Joinpoints.

Figure S25. The Joinpoint regression analysis showing annual percentage (APC) change for age-standardized prevalence rate of heart failure in High-income North America from 1990 to 2019.



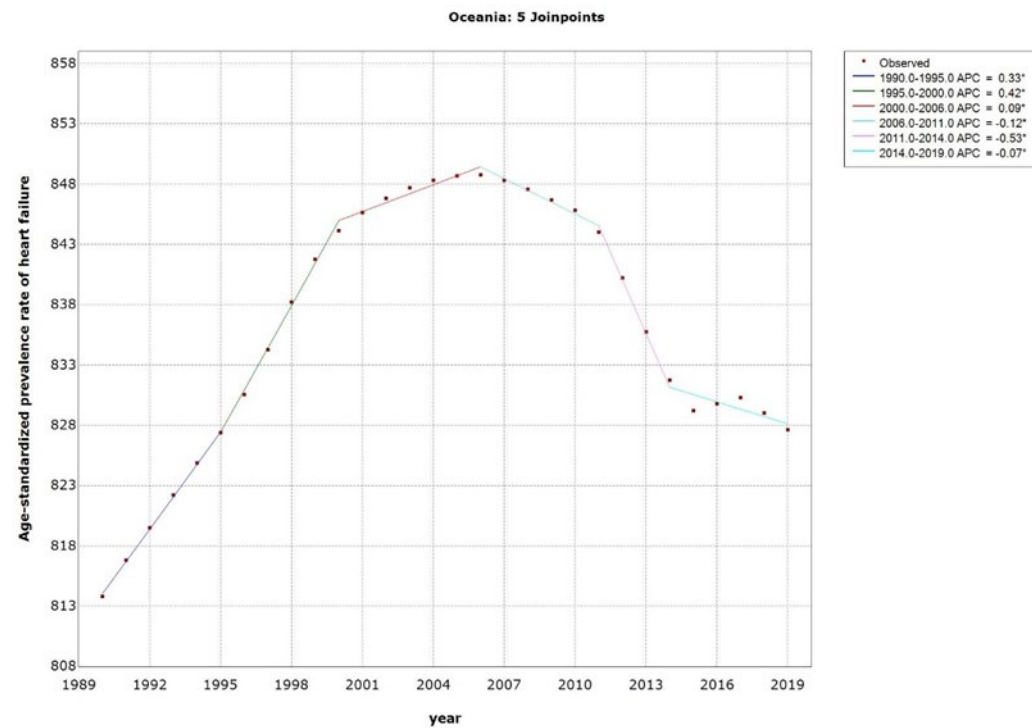
* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 5 Joinpoints.

Figure S26. The Joinpoint regression analysis showing annual percentage (APC) change for age-standardized prevalence rate of heart failure in North Africa and Middle East from 1990 to 2019.



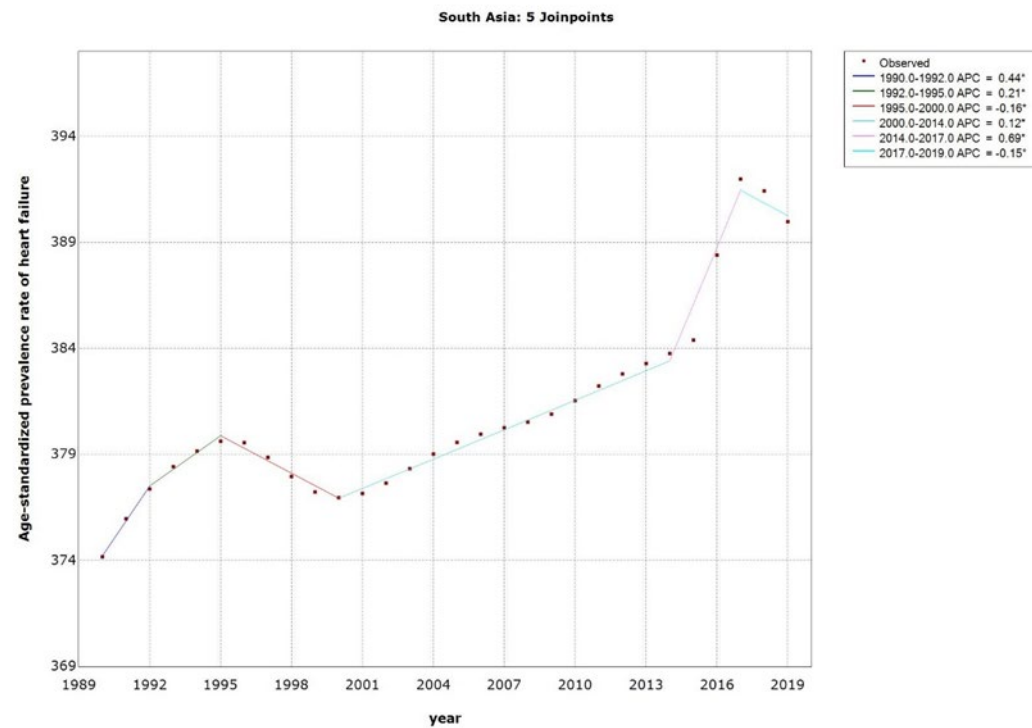
* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 5 Joinpoints.

Figure S27. The Joinpoint regression analysis showing annual percentage (APC) change for age-standardized prevalence rate of heart failure in Oceania from 1990 to 2019.



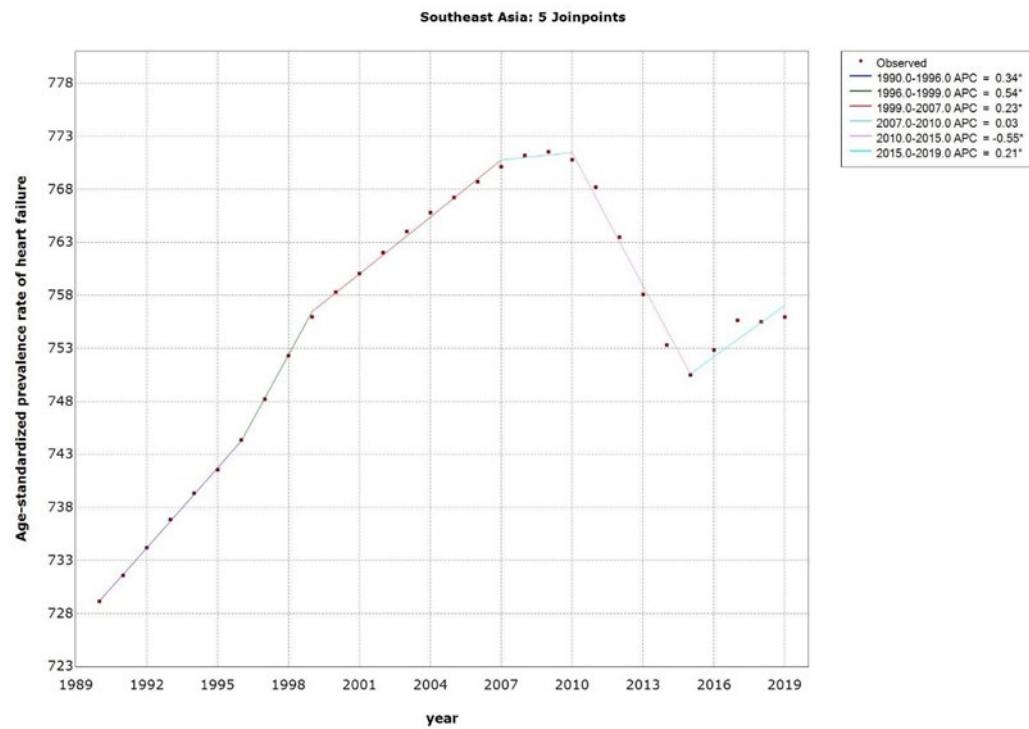
* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 5 Joinpoints.

Figure S28. The Joinpoint regression analysis showing annual percentage (APC) change for age-standardized prevalence rate of heart failure in South Asia from 1990 to 2019.



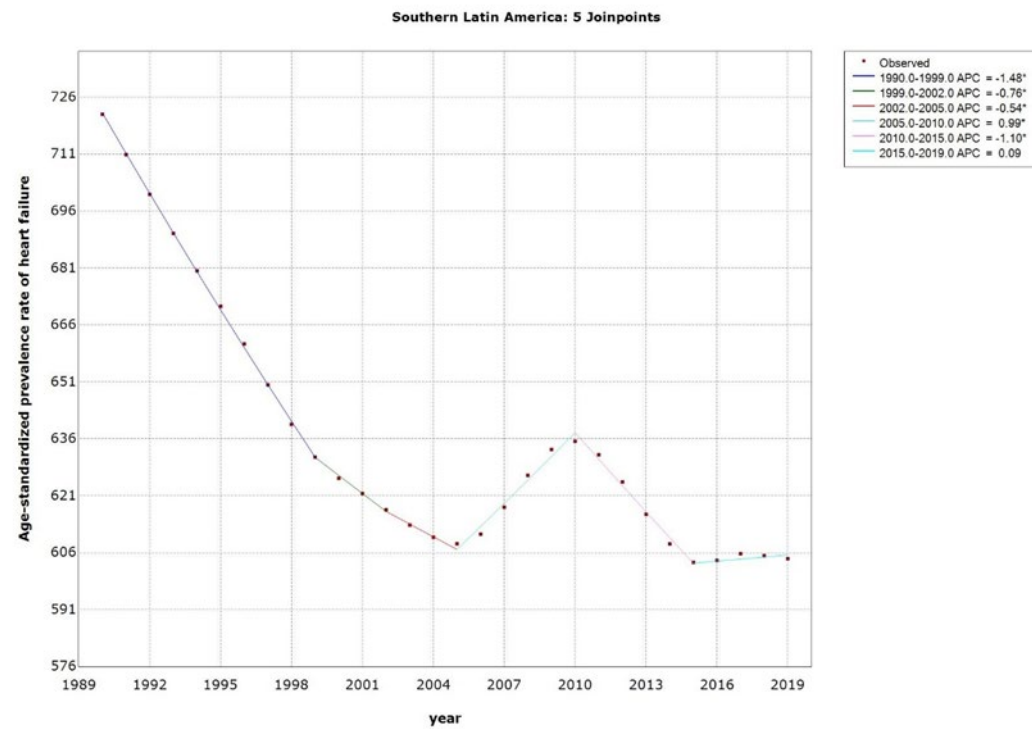
* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 4 Joinpoints.

Figure S29. The Joinpoint regression analysis showing annual percentage (APC) change for age-standardized prevalence rate of heart failure in Southeast Asia from 1990 to 2019.



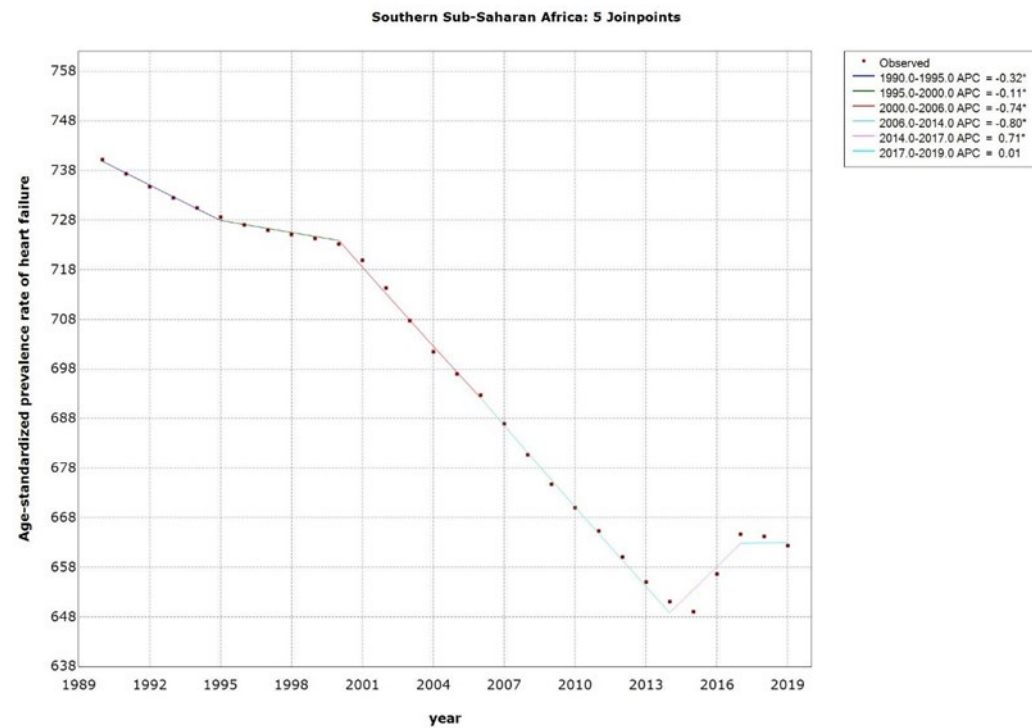
* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 5 Joinpoints.

Figure S30. The Joinpoint regression analysis showing annual percentage (APC) change for age-standardized prevalence rate of heart failure in Southern Latin America from 1990 to 2019.



* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 4 Joinpoints.

Figure S31. The Joinpoint regression analysis showing annual percentage (APC) change for age-standardized prevalence rate of heart failure in Southern Sub-Saharan Africa from 1990 to 2019.



* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 2 Joinpoints.

Figure S32. The Joinpoint regression analysis showing annual percentage (APC) change for age-standardized prevalence rate of heart failure in Tropical Latin America from 1990 to 2019.

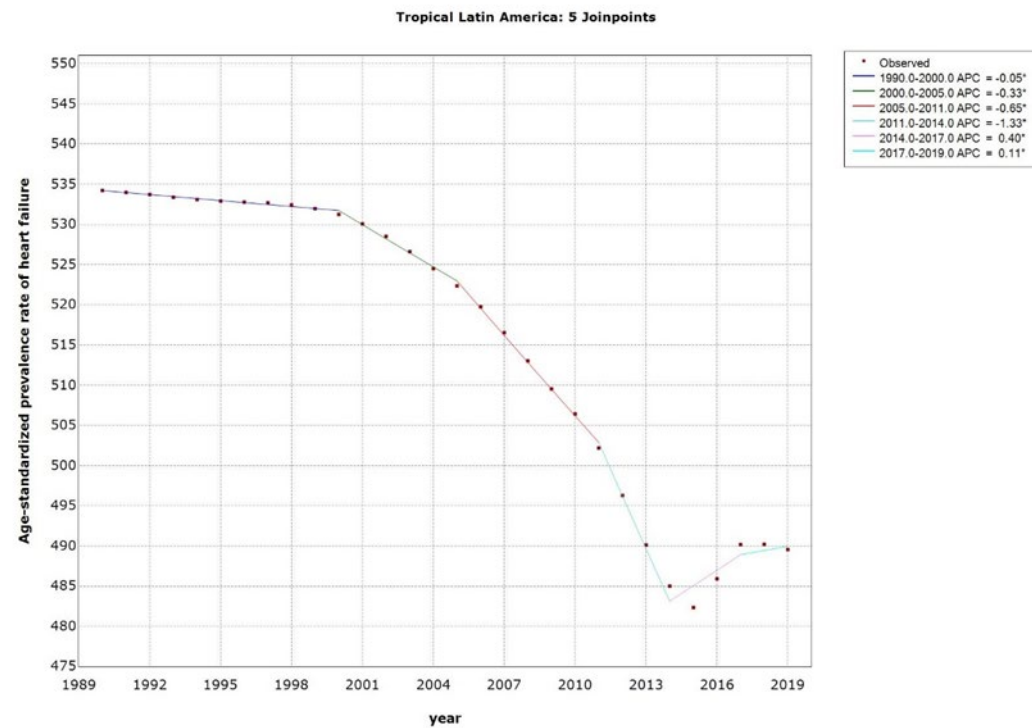
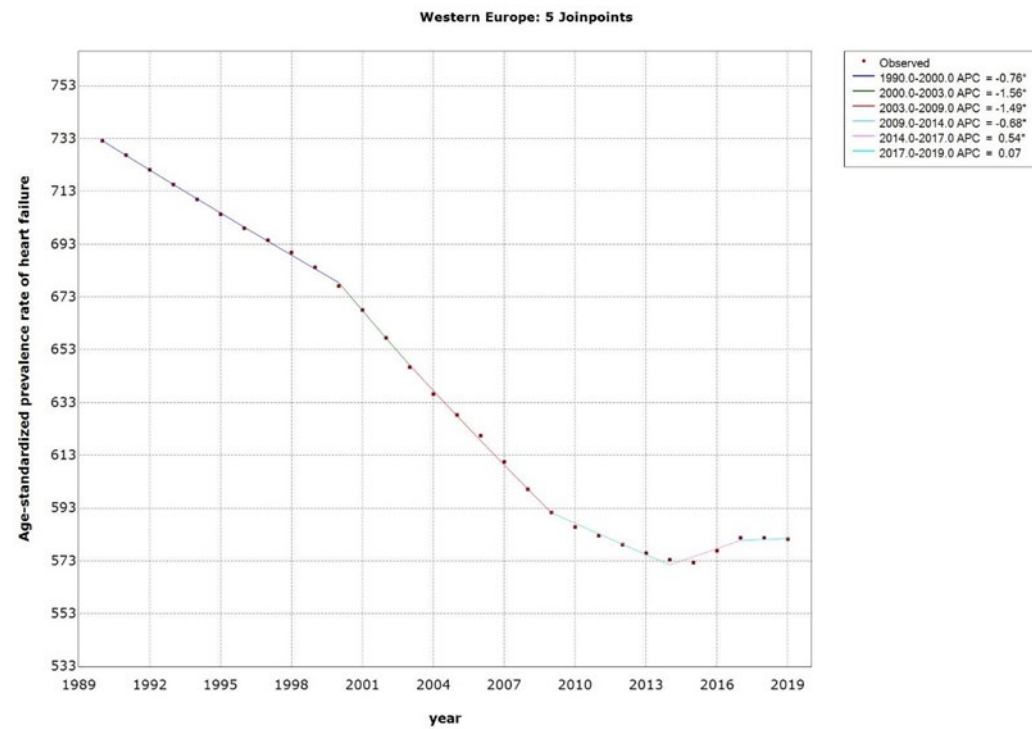
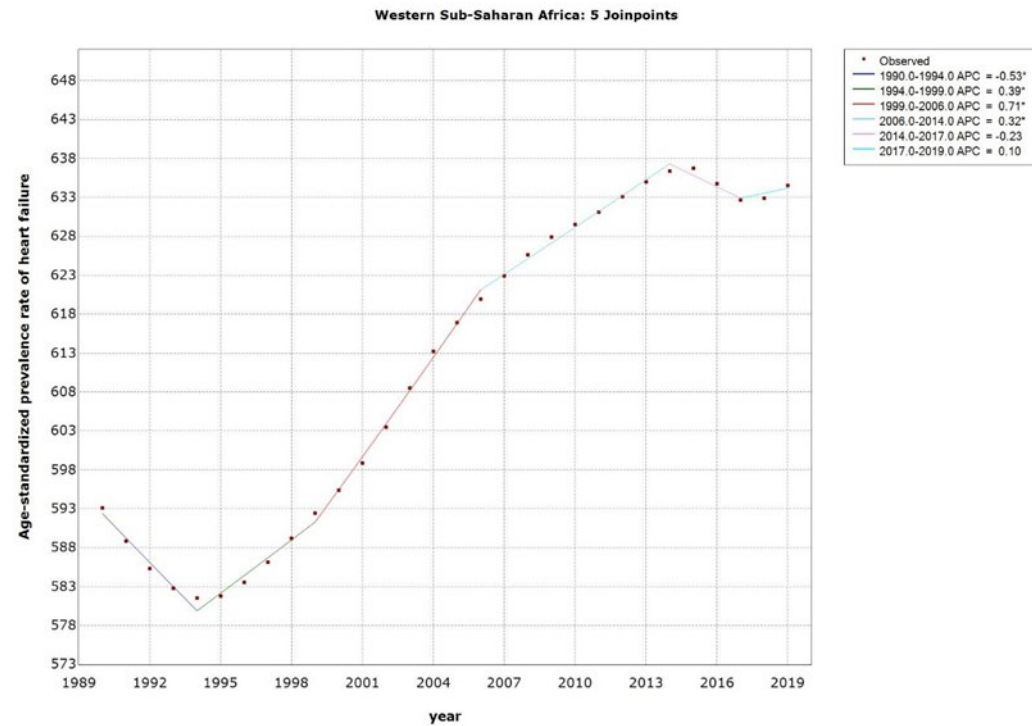


Figure S33. The Joinpoint regression analysis showing annual percentage (APC) change for age-standardized prevalence rate of heart failure in Western Europe from 1990 to 2019.



* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 3 Joinpoints.

Figure S34. The Joinpoint regression analysis showing annual percentage (APC) change for age-standardized prevalence rate of heart failure in Western Sub-Saharan Africa from 1990 to 2019.



* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 5 Joinpoints.

Figure S35. The top three nations or territories with the most or least age-standardized prevalence rate of heart failure per 100,000 population in 2019. Visualization using the Global Burden of Diseases (GBD) Compare Tool (<https://www.healthdata.org/data-visualization/gbd-compare>).

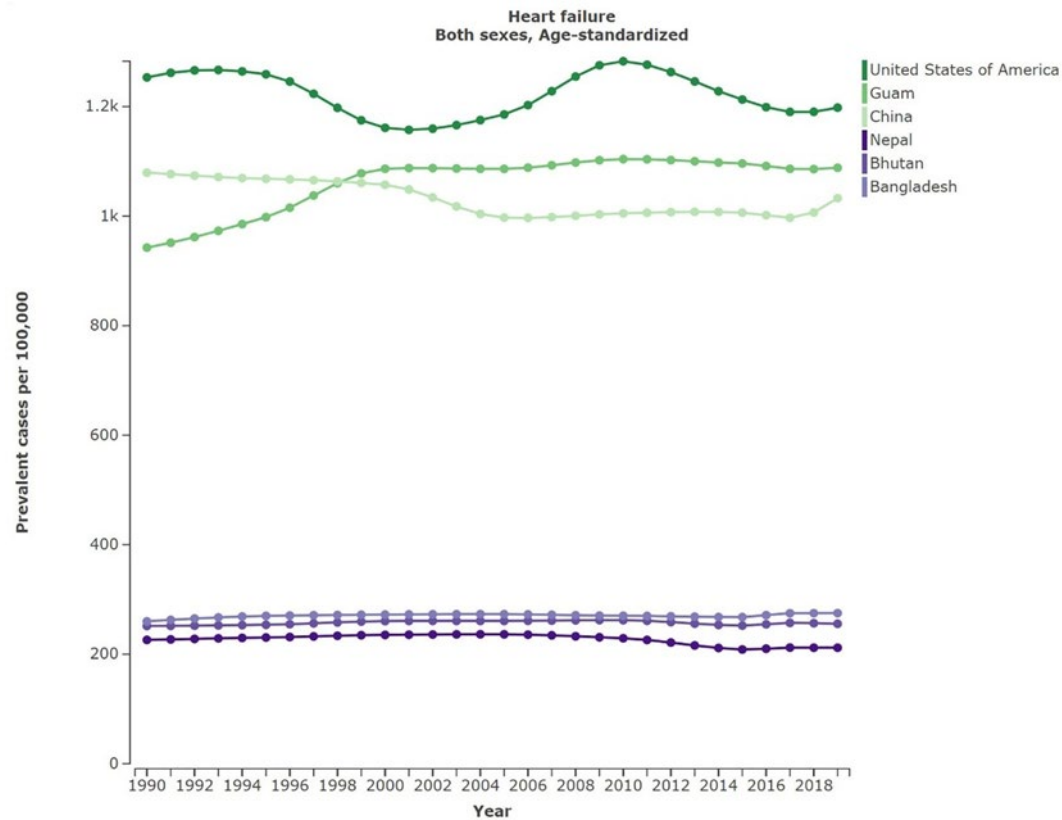


Figure S36. The top three nations or territories with increased or decreased trends of age-standardized prevalence rate of heart failure per 100,000 population in 2019. Visualization using the Global Burden of Diseases (GBD) Compare Tool (<https://www.healthdata.org/data-visualization/gbd-compare>).

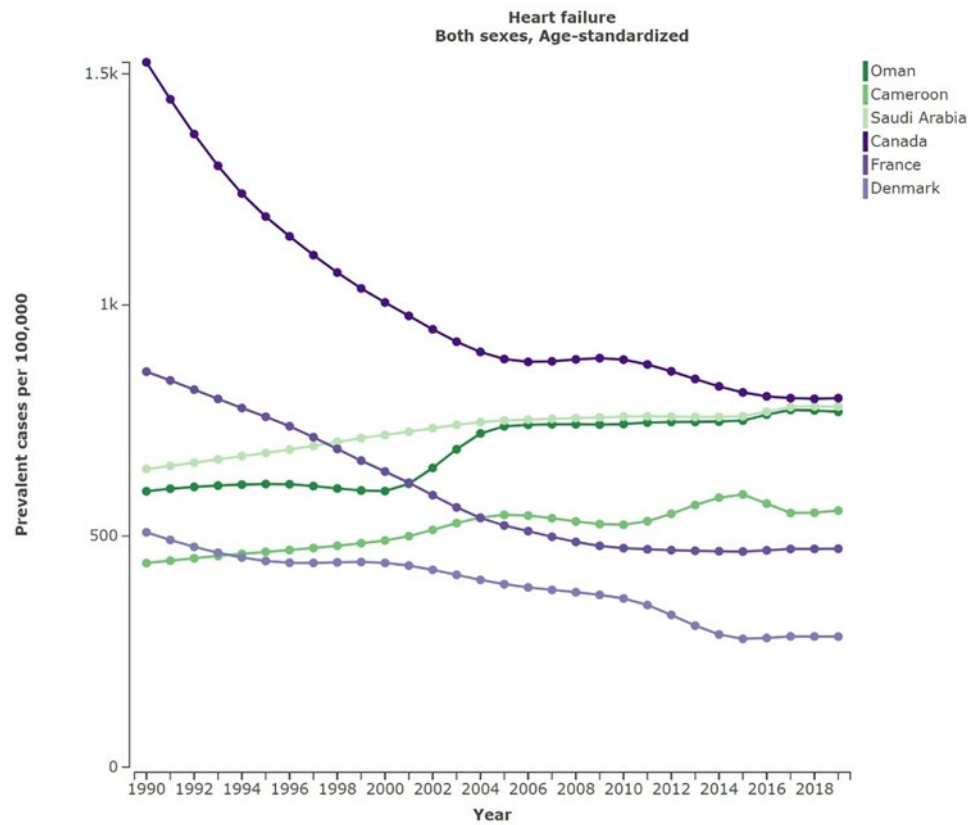
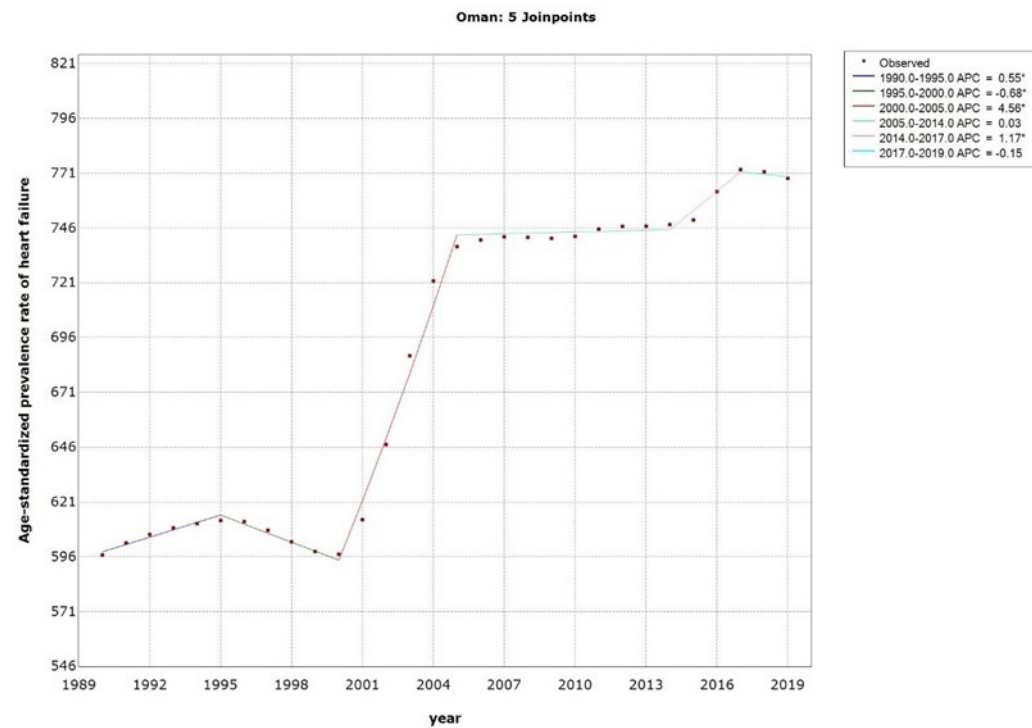
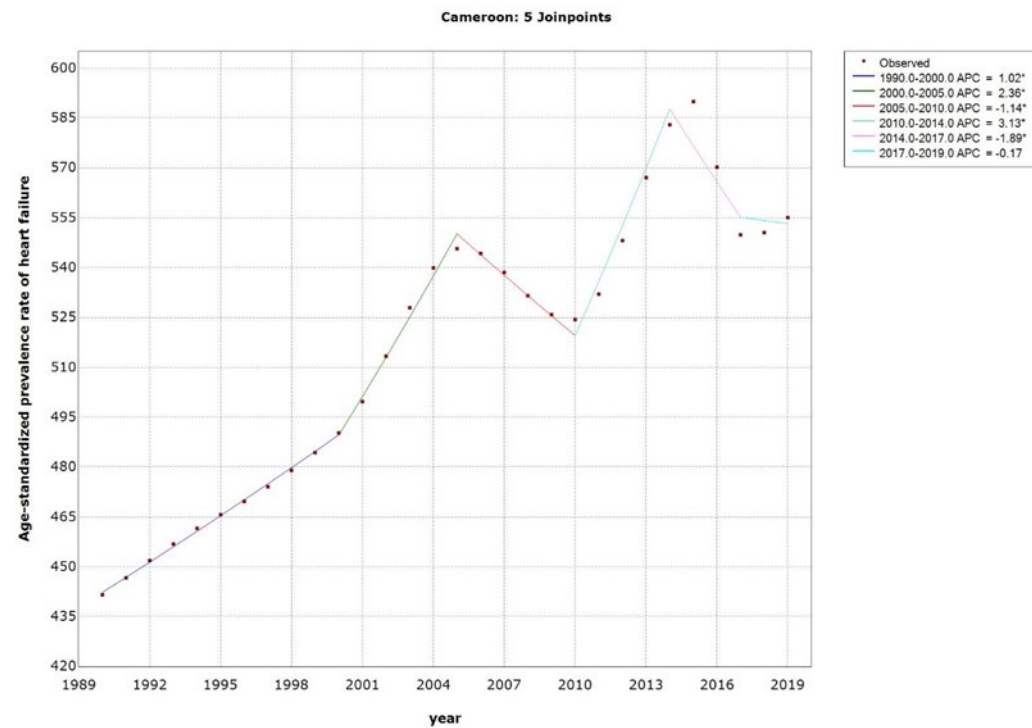


Figure S37. The Joinpoint regression analysis showing annual percentage (APC) change for age-standardized prevalence rate of heart failure in Oman from 1990 to 2019.



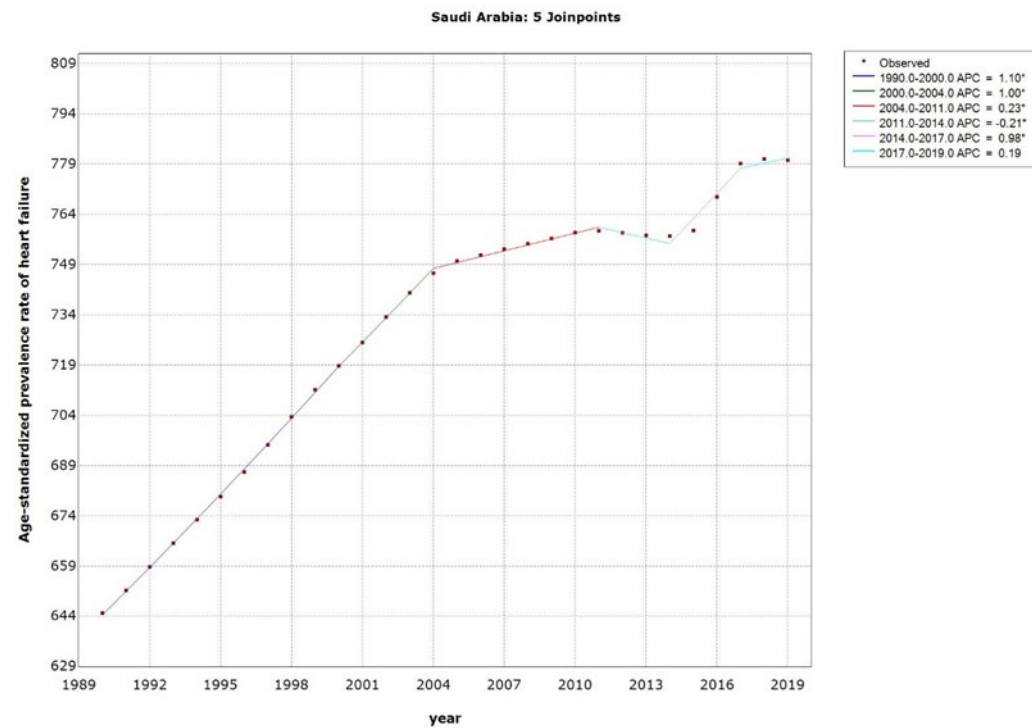
* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 4 Joinpoints.

Figure S38. The Joinpoint regression analysis showing annual percentage (APC) change for age-standardized prevalence rate of heart failure in Cameroon from 1990 to 2019.



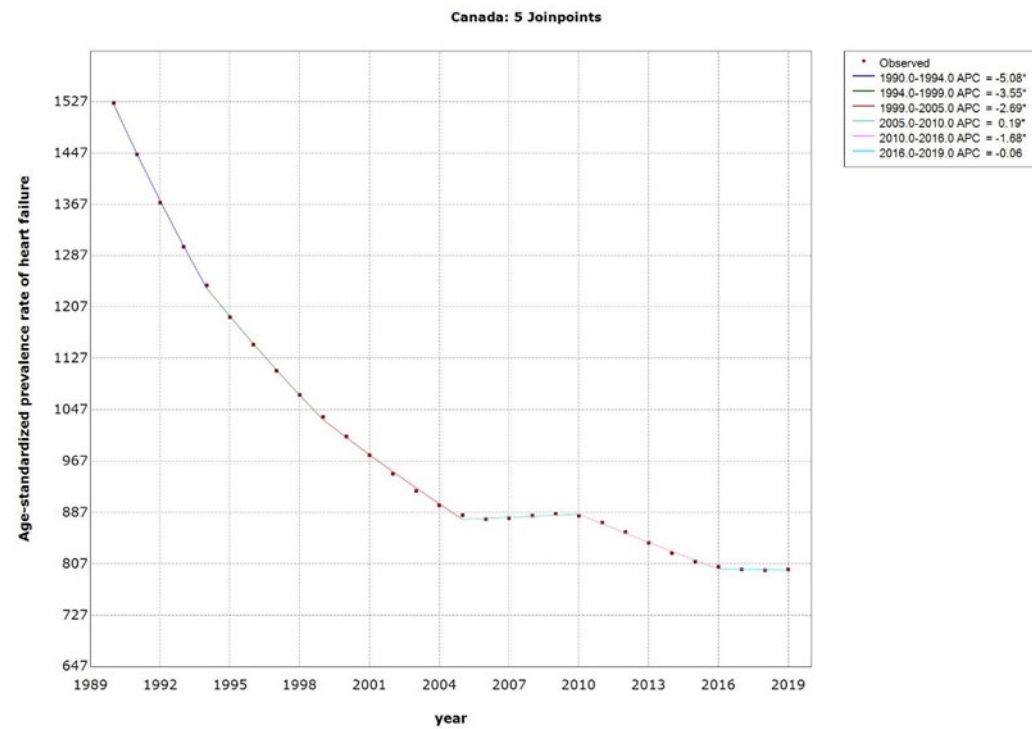
* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 4 Joinpoints.

Figure S39. The Joinpoint regression analysis showing annual percentage (APC) change for age-standardized prevalence rate of heart failure in Saudi Arabia from 1990 to 2019.



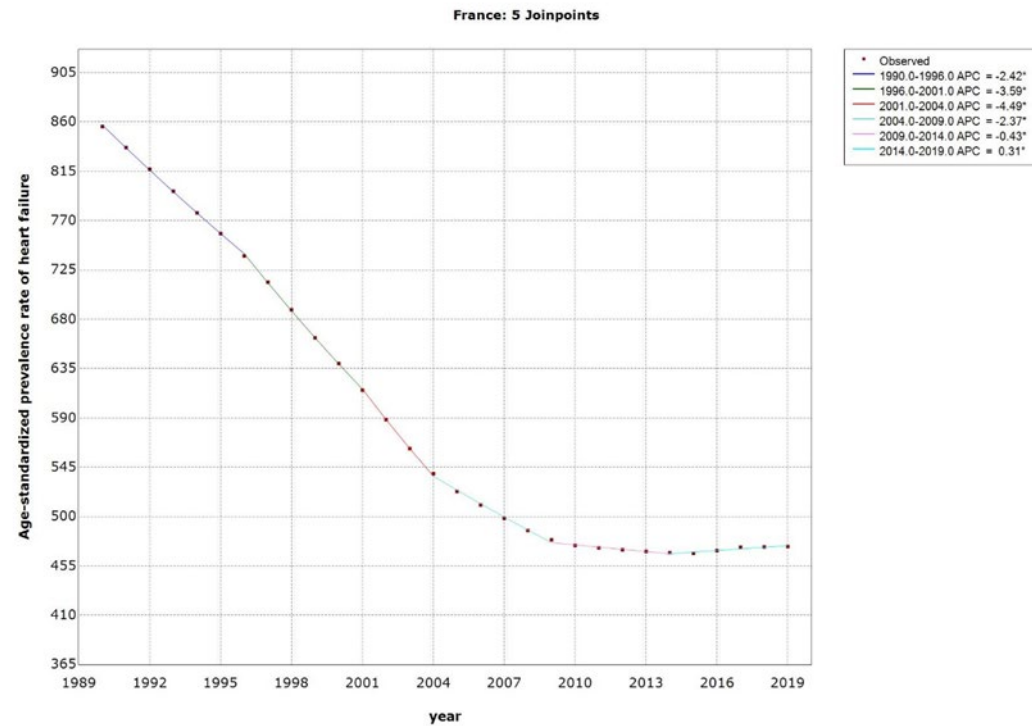
* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 4 Joinpoints.

Figure S40. The Joinpoint regression analysis showing annual percentage (APC) change for age-standardized prevalence rate of heart failure in Canada from 1990 to 2019.



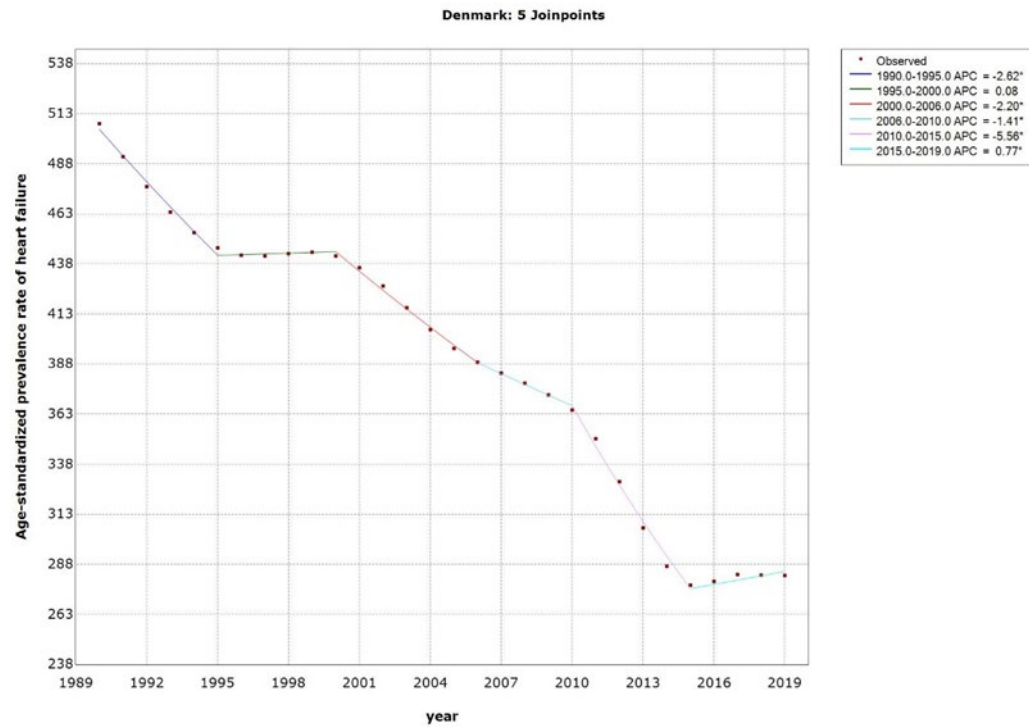
* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 5 Joinpoints.

Figure S41. The Joinpoint regression analysis showing annual percentage (APC) change for age-standardized prevalence rate of heart failure in France from 1990 to 2019.



* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 5 Joinpoints.

Figure S42. The Joinpoint regression analysis showing annual percentage (APC) change for age-standardized prevalence rate of heart failure in Denmark from 1990 to 2019.



* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 4 Joinpoints.

Figure S43. Global age-standardized point prevalence rate of heart failure per 100,000 population in 2019 by different age groups. Visualization using the Global Burden of Diseases (GBD) Compare Tool (<https://www.healthdata.org/data-visualization/gbd-compare>).

