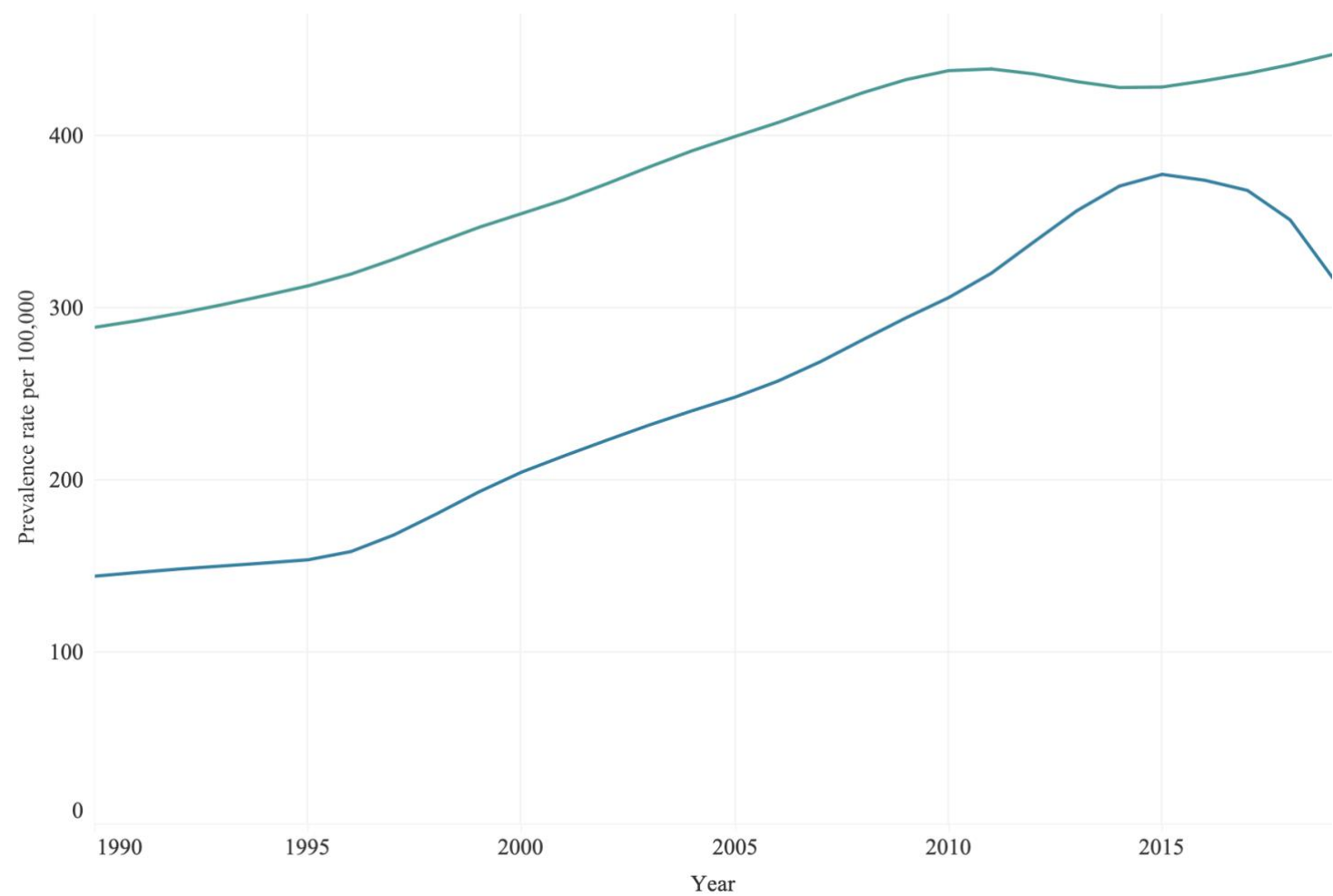


# **The burden of type 1 and type 2 diabetes among adolescents in 24 Western European countries, 1990-2019: results from the Global Burden of Disease Study 2019**

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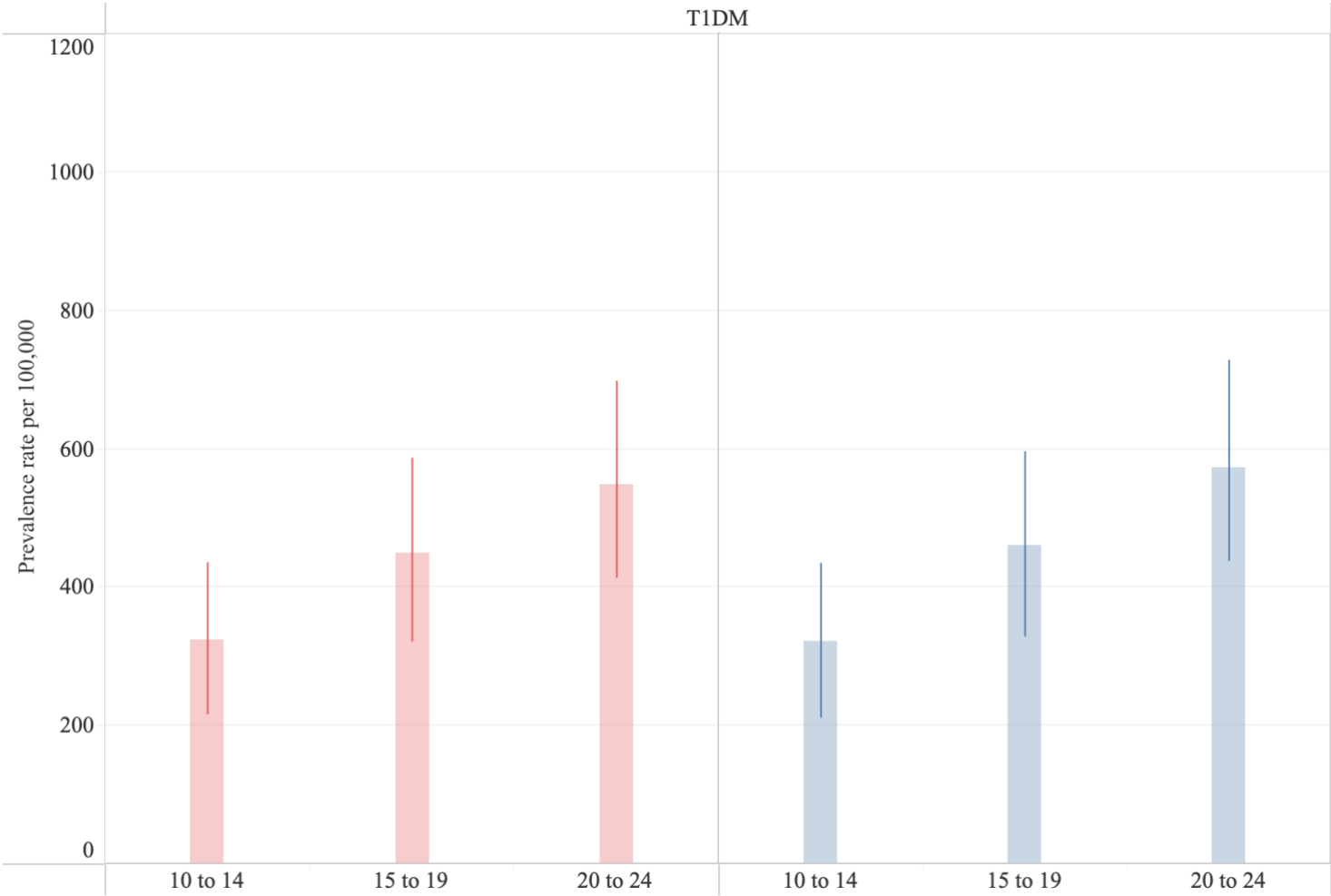
Supplementary Figure 1. Prevalence rate per 100,000 population for DM among 10-24-year-olds, from 1990-2019, in 24 Western European countries

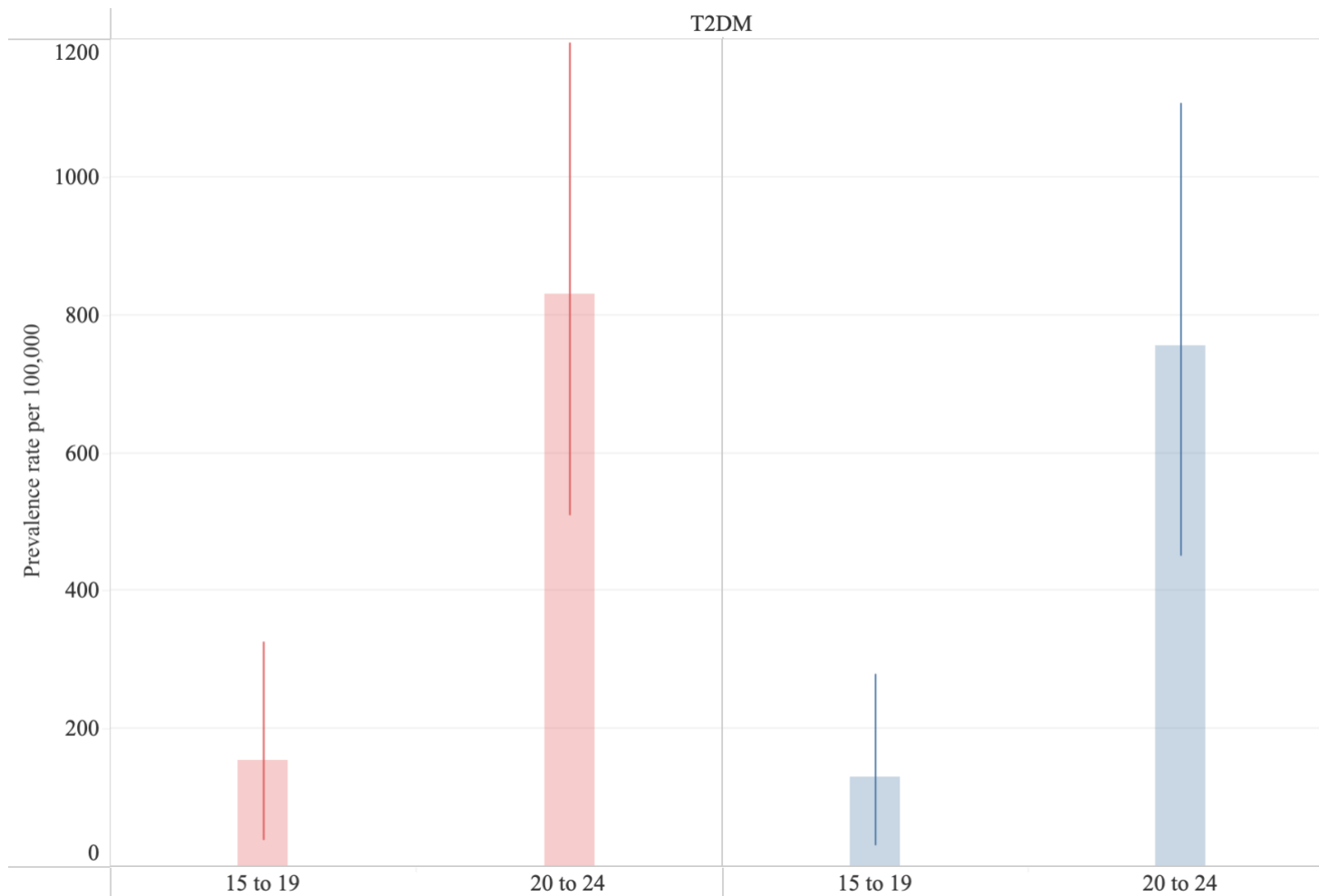


Abbreviation: DM=Diabetes mellitus; T1DM=Type 1 diabetes mellitus; T2DM=Type 2 diabetes mellitus

**DM**  
T1DM  
T2DM

Supplementary Figure 2. Prevalence rate per 100,000 (with 95% UI) of T1DM and T2DM, in 24 Western European countries, in 2019, by sex and age



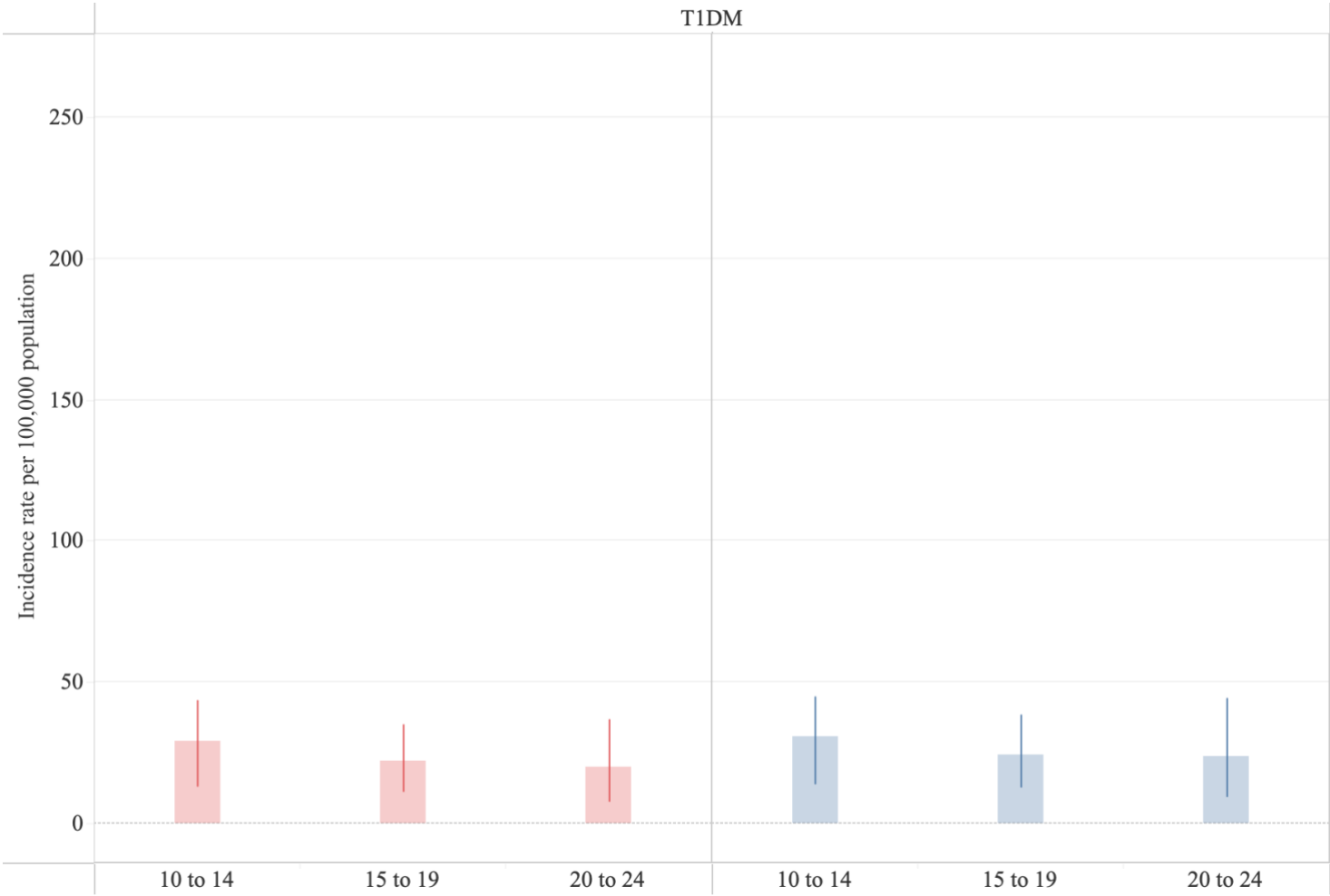


Abbreviation: T1DM=Type 1 diabetes mellitus; T2DM=Type 2 diabetes mellitus; 95% UI=95% uncertainty interval

\*Note: GBD study 2019 assumes that under 15 years all DM is T1DM

**Sex**  
 Female ■  
 Male ■

Supplementary Figure 3. Incidence rate per 100,000 of T1DM and T2DM, in 24 Western European countries, in 2019, by sex and age





Abbreviations: T1DM=Type 1 diabetes mellitus; T2DM=Type 2 diabetes mellitus

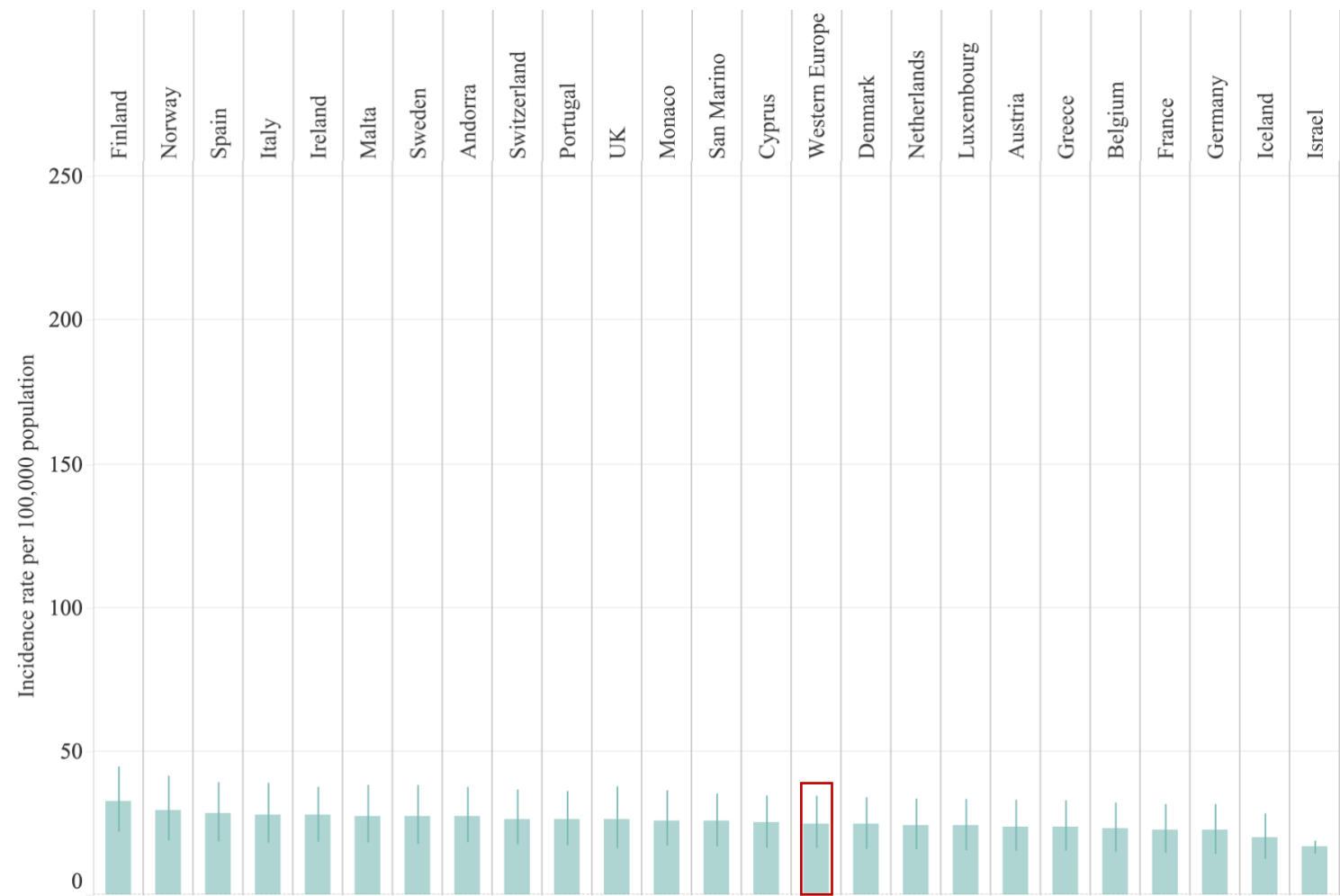
\*Note: GBD study 2019 assumes that under 15 years all DM is T1DM

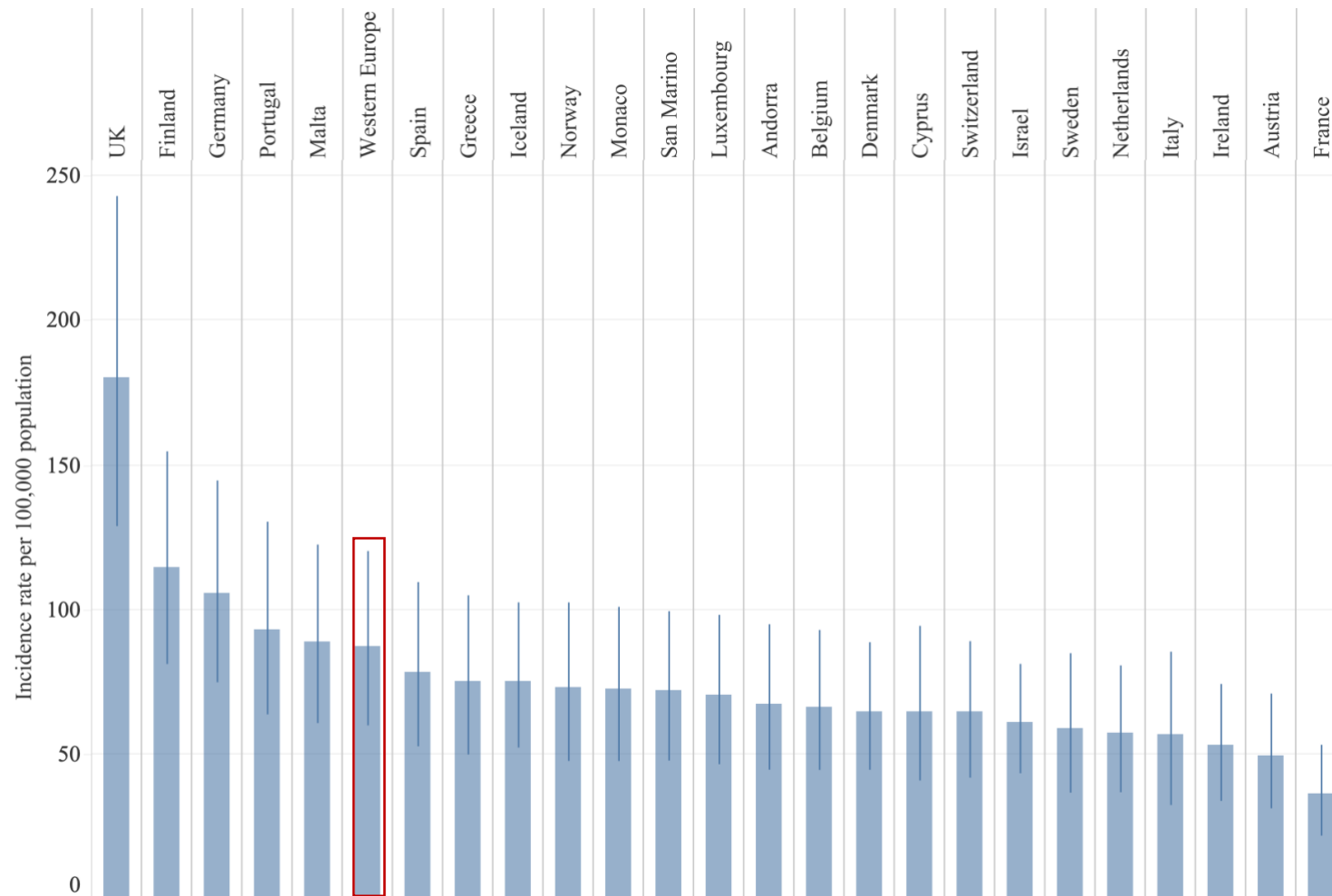
**Sex**

Female

Male

Supplementary Figure 4. Incidence rate per 100,000 population (with 95% UI) of T1DM and T2DM, in 10-24-year-olds of both sexes, in 2019, by country



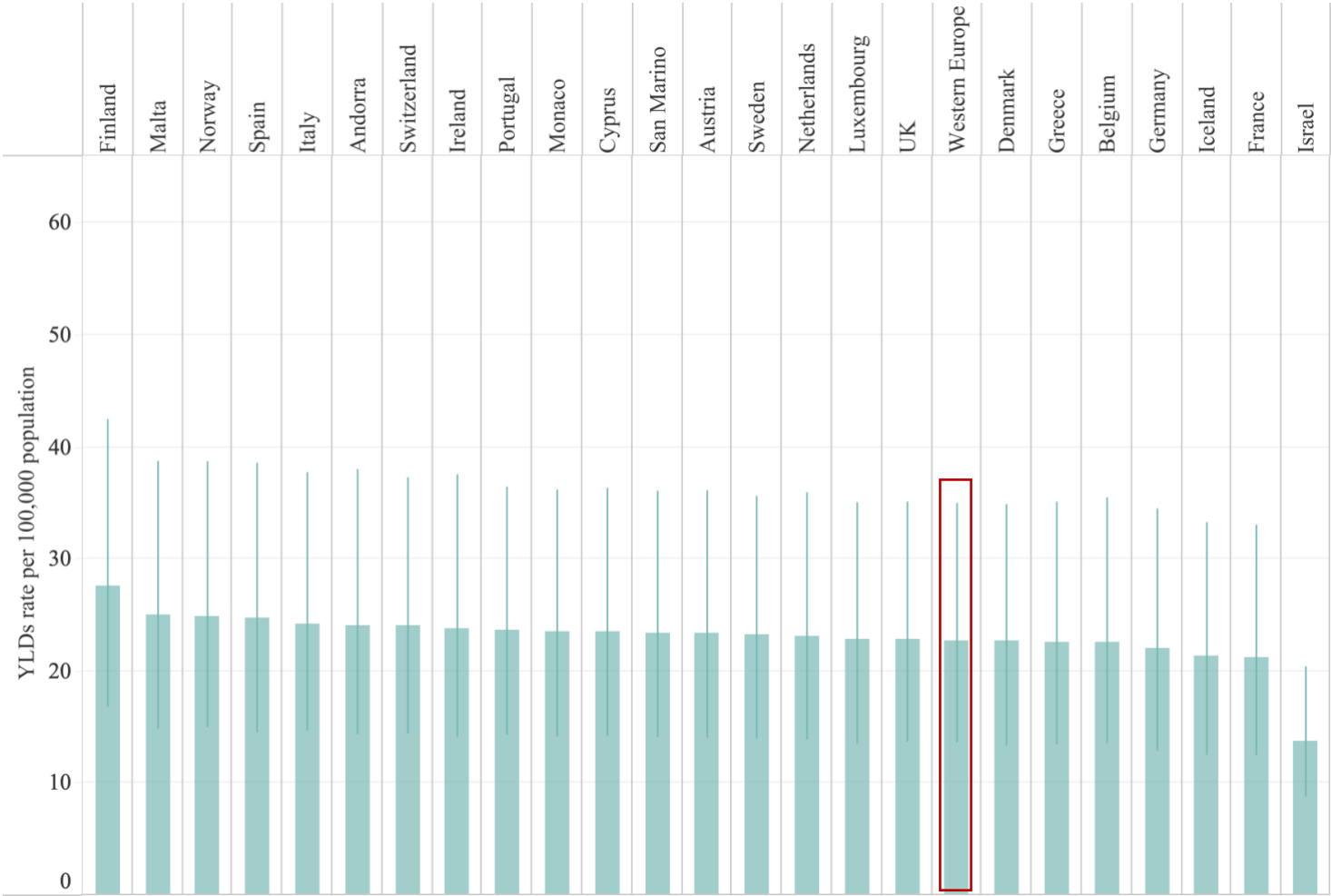


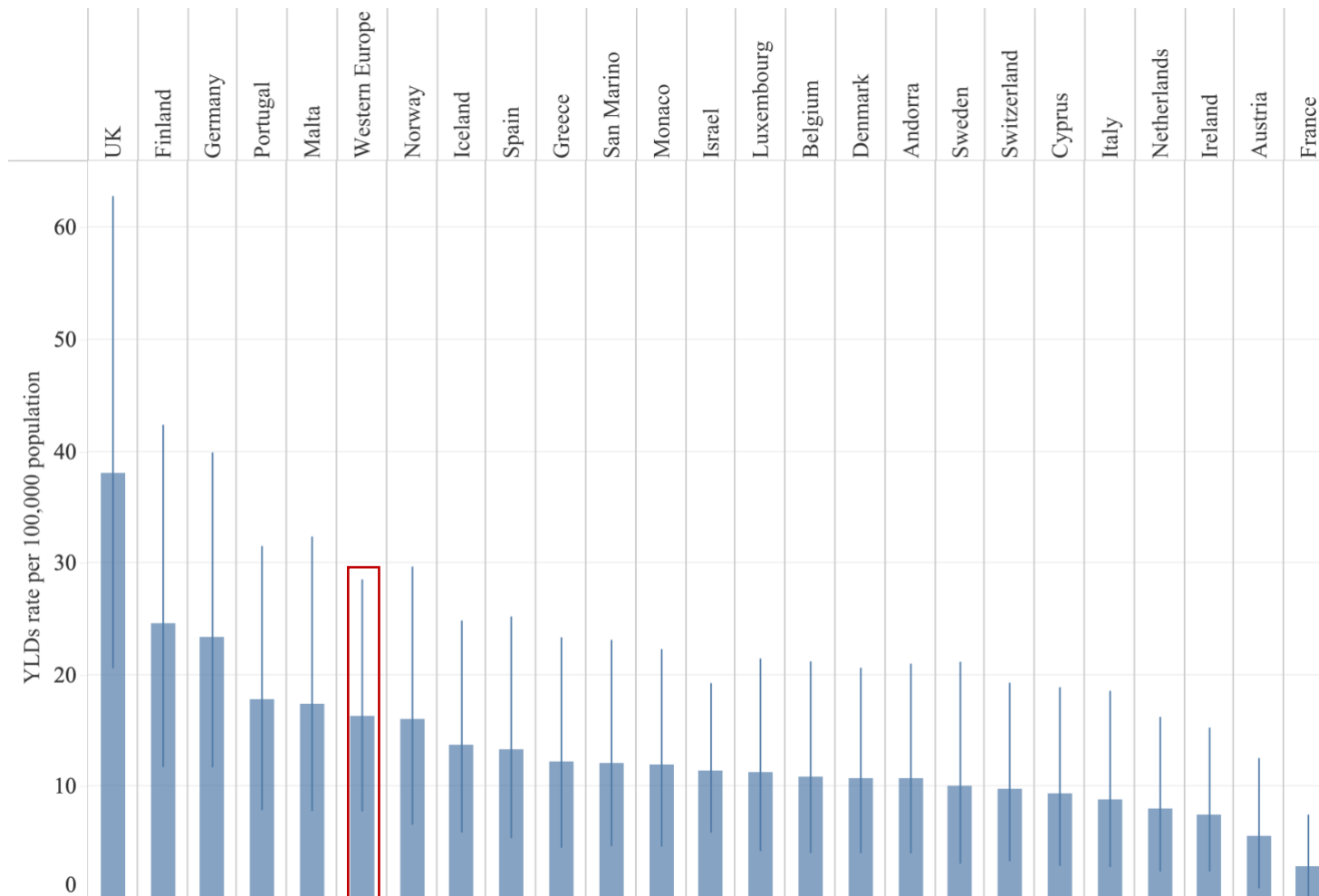
Abbreviation: T1DM=Type 1 diabetes mellitus; T2DM=Type 2 diabetes mellitus; 95% UI=95% uncertainty interval

**DM**  
T1DM ■  
T2DM ■



Supplementary Figure 5. YLDs rate per 100,000 population (with 95% UI), in 10-24-year-olds of both sexes, in 2019, by country

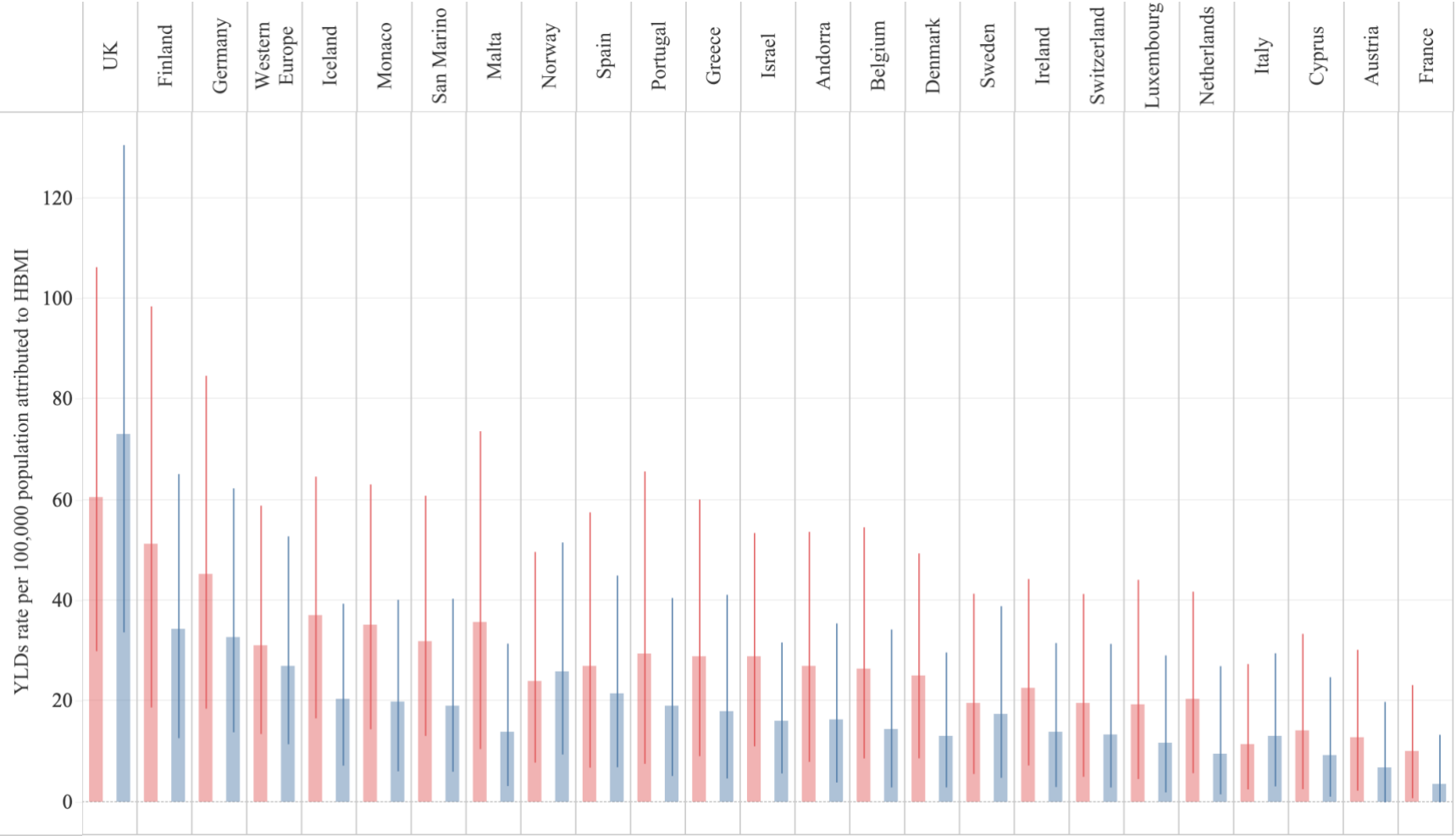




Abbreviation: T1DM=Type 1 diabetes mellitus; T2DM=Type 2 diabetes mellitus; 95% UI=95% uncertainty interval

**DM**  
T1DM  
T2DM

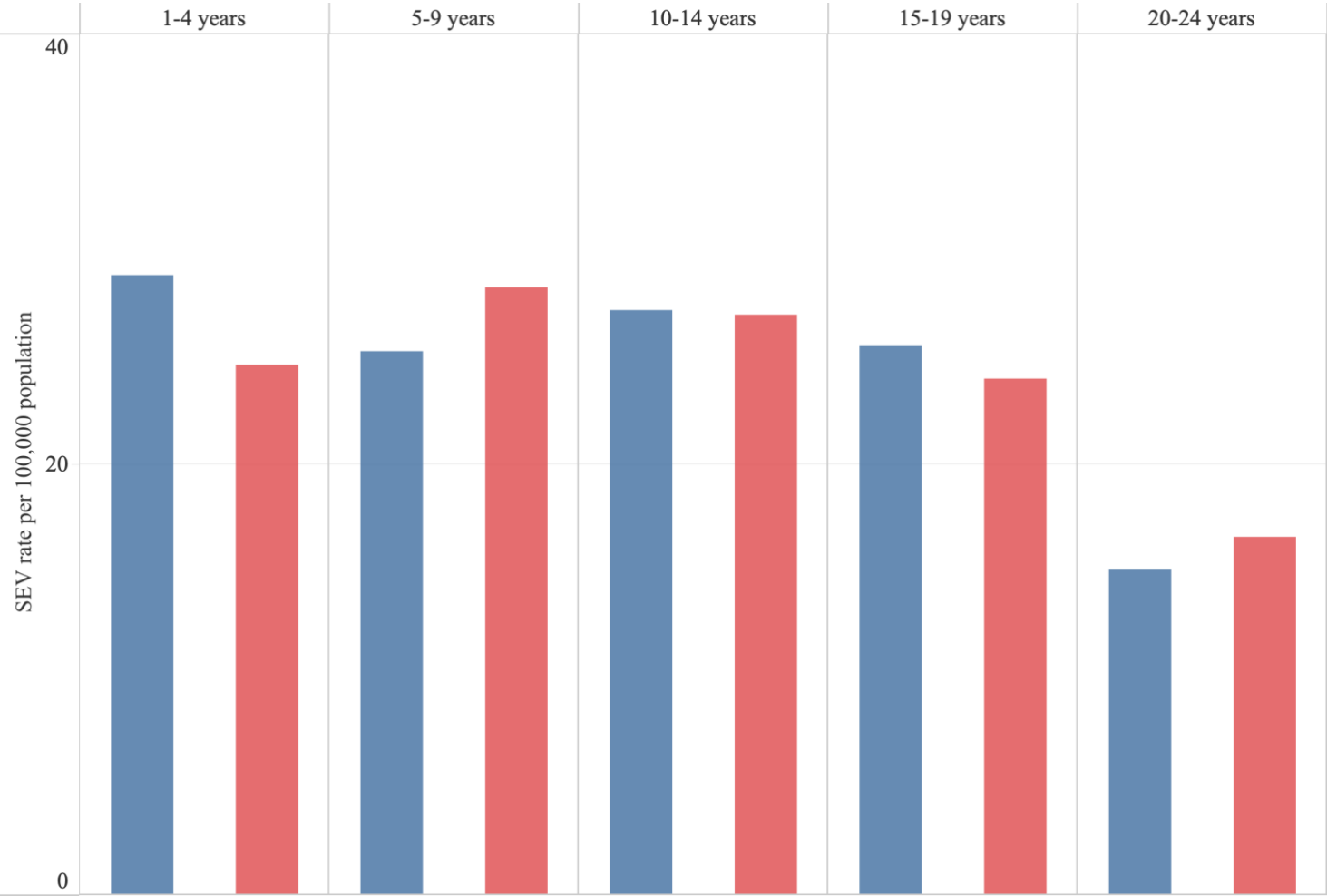
Supplementary Figure 6. YLDs rate per 100,000 population (with 95% UI) for T2DM attributed to HBMI, in 20-24-year-olds, in 2019, by country and sex



Abbreviations: T2DM=Type 2 diabetes mellitus; HBMI=High body mass index; UK=United Kingdom; 95% UI=95% uncertainty interval

**Sex**  
Female  
Male

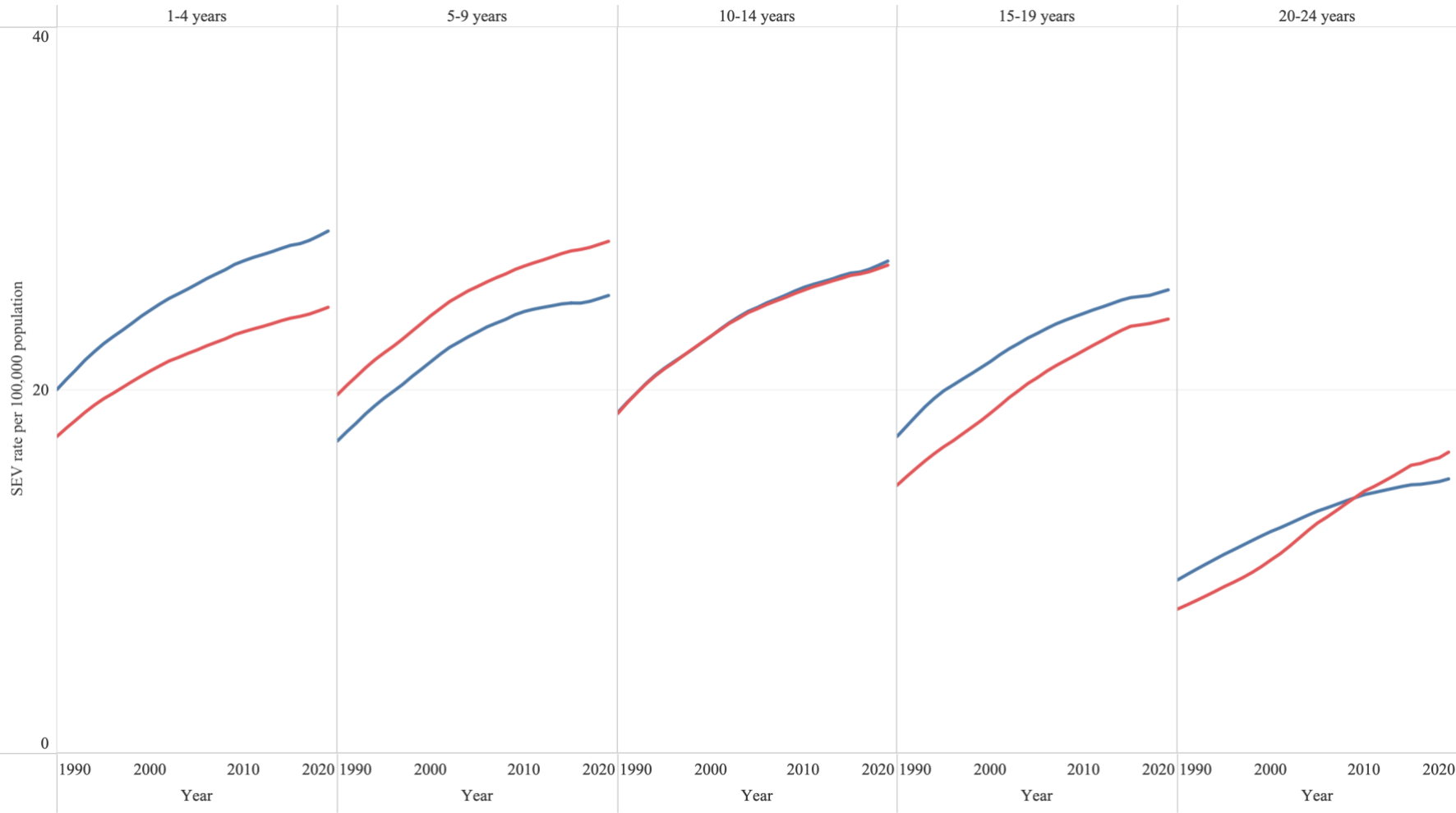
Supplementary Figure 7. Summary exposure value rate per 100,000 attributed to HBMI in Western Europe, in 2019, by age groups (<24 years) and sex



Abbreviations: HBMI=High body mass index; SEV=Summary exposure value

**Sex**  
Female  
Male

**Supplementary Figure 8. Summary exposure value rate per 100,000 attributed to HBMI in Western Europe, by age groups (<24 years), sex and trend over time (1990-2019)**



Abbreviations: HBMI=High body mass index; SEV=Summary exposure value

**Sex**  
Female ■  
Male ■

**Supplementary Table 1. T1DM and T2DM prevalence, incidence and YLDs case numbers (with 95%UI), in 2019, in 24 Western European countries, by sex and age**

Measure	Age (years)	Sex	Type 1 diabetes mellitus			Type 2 diabetes mellitus		
			Number	95%UI		Number	95%UI	
Prevalence	10-24	Male	167099	122432	212455	111128	63258	169598
		Female	153138	112031	195419	116171	66266	175536
		Both	320237	234473	408257	227299	130968	345987
	10-14	Male	39010	25794	52639	-	-	-
		Female	37110	25019	50081	-	-	-
		Both	76120	50886	102597	-	-	-
	15-19	Male	55481	39876	72004	15605	3920	33713
		Female	50980	36619	66562	17606	4553	36971
		Both	106461	76469	138376	33211	8397	70985
	20-24	Male	72607	55619	92170	95524	57260	140122
		Female	65048	49262	82846	98564	60656	141788
		Both	137655	104392	174656	194088	117970	280611
Incidence	10-24	Male	9646	6498	13300	33106	22762	46095
		Female	8155	5388	11334	29341	20371	40020
		Both	17800	11950	24643	62447	43141	86011
	10-14	Male	3682	1708	5426	-	-	-
		Female	3338	1524	4998	-	-	-
		Both	7020	3218	10414	-	-	-
	15-19	Male	2951	1566	4634	9528	5157	14468
		Female	2472	1297	3961	11278	6874	16146
		Both	5423	2872	8572	20806	12166	30537
	20-24	Male	3012	1217	5598	23578	15099	33619
		Female	2345	941	4358	18063	12324	25017
		Both	5358	2158	9977	41641	27484	58066
YLDs	10-24	Male	8435	5092	13086	5685	2728	10137
		Female	7786	4705	12036	6022	2925	10279
		Both	16222	9819	25029	11707	5642	20411
	10-14	Male	1912	1045	3062	-	-	-
		Female	1821	1004	2864	-	-	-
		Both	3733	2093	5896	-	-	-
	15-19	Male	2788	1695	4388	781	186	1891
		Female	2577	1539	4054	884	202	2032
		Both	5364	3253	8424	1664	402	3920
	20-24	Male	3736	2323	5695	4905	2391	8722
		Female	3388	2078	5119	5139	2615	8607
		Both	7124	4440	10823	10043	5095	17368

Abbreviation: YLDs=Years lived with disability; T1DM=Type 1 diabetes mellitus; T2DM=Type 2 diabetes mellitus; 95% UI=95% uncertainty interval

\*Note: GBD study 2019 assumes that under 15 years all DM is T1DM

**Supplementary Table 2. T1DM and T2DM prevalence, incidence and YLDs rate per 100,000 population (with 95%UI) in 2019, in 24 Western European countries, by sex and age**

Measure			T1DM			T2DM		
	Age (years)	Sex	Rate	95%UI		Rate	95%UI	
Prevalence	10-24	Male	453.3	332.1	576.4	301.5	171.6	460.1
		Female	441.1	322.7	562.8	334.6	190.9	505.6
		Both	447.4	327.6	570.3	317.5	183.0	483.3
	10-14	Male	321.9	212.8	434.3	-	-	-
		Female	322.7	217.6	435.5	-	-	-
		Both	322.3	215.4	434.4	-	-	-
	15-19	Male	459.2	330.1	596.0	129.2	32.4	279.0
		Female	449.2	322.7	586.5	155.1	40.1	325.8
		Both	454.4	326.4	590.6	141.7	35.8	303.0
	20-24	Male	573.5	439.3	728.0	754.5	452.3	1106.7
		Female	547.9	415.0	697.8	830.2	510.9	1194.3
		Both	561.1	425.5	711.9	791.1	480.9	1143.8
Incidence	10-24	Male	26.2	17.6	36.1	89.8	61.8	125.0
		Female	23.5	15.5	32.6	84.5	58.7	115.3
		Both	24.9	16.7	34.4	87.2	60.3	120.2
	10-14	Male	30.4	14.1	44.8	-	-	-
		Female	29.0	13.3	43.5	-	-	-
		Both	29.7	13.6	44.1	-	-	-
	15-19	Male	24.4	13.0	38.4	78.9	42.7	119.8
		Female	21.8	11.4	34.9	99.4	60.6	142.3
		Both	23.1	12.3	36.6	88.8	51.9	130.3
	20-24	Male	23.8	9.6	44.2	186.2	119.3	265.5
		Female	19.8	7.9	36.7	152.1	103.8	210.7
		Both	21.8	8.8	40.7	169.7	112.0	236.7
YLDs	10-24	Male	22.9	13.8	35.5	15.4	7.4	27.5
		Female	22.4	13.6	34.7	17.3	8.4	29.6
		Both	22.7	13.7	35.0	16.4	7.9	28.5
	10-14	Male	15.8	8.6	25.3	-	-	-
		Female	15.8	8.7	24.9	-	-	-
		Both	15.8	8.9	25.0	-	-	-
	15-19	Male	23.1	14.0	36.3	6.5	1.5	15.7
		Female	22.7	13.6	35.7	7.8	1.8	17.9
		Both	22.9	13.9	36.0	7.1	1.7	16.7
	20-24	Male	29.5	18.3	45.0	38.7	18.9	68.9
		Female	28.5	17.5	43.1	43.3	22.0	72.5
		Both	29.0	18.1	44.1	40.9	20.8	70.8

Abbreviation: YLDs=Years lived with disability; T1DM=Type 1 diabetes mellitus; T2DM=Type 2 diabetes mellitus; 95% UI=95% uncertainty interval

\*Note: GBD study 2019 assumes that under 15 all DM is T1DM

**Supplementary Table 3. T1DM and T2DM incidence rate per 100,000 population (with 95%UI), in Western Europe and by 24 countries, in 1990 and 2019, with percentage change by time (with 95%UI)**

Location	T1DM						Percentage change (1990-2019)			T2DM						Percentage change (1990-2019)		
	1990			2019						1990			2019					
	Rate	95%UI		Rate	95%UI		%	95%UI		Rate	95%UI		Rate	95%UI		%	95%UI	
Western Europe	14.3	11.1	17.8	24.9	16.7	34.4	75.5%	47.3%	100.5%	34.1	22.0	48.6	87.2	60.3	120.2	158.3%	134.6%	191.0%
Andorra	16.1	10.8	22.2	27.1	18.7	37.5	69.0%	46.1%	87.6%	27.6	16.0	40.4	67.5	44.9	94.8	146.6%	109.8%	197.9%
Austria	9.5	7.5	11.7	23.7	15.8	33.1	154.6%	88.5%	246.7%	23.4	15.4	33.2	49.3	31.6	70.8	115.0%	74.0%	159.2%
Belgium	11.9	8.5	15.5	23.0	15.3	32.1	94.9%	57.7%	133.9%	30.0	19.6	42.6	66.2	44.8	92.8	123.6%	90.0%	163.7%
Cyprus	10.9	8.1	13.8	25.0	16.7	34.5	131.4%	72.9%	216.9%	27.3	18.1	38.0	64.6	41.2	94.3	138.6%	97.6%	182.4%
Denmark	14.7	10.9	18.7	24.6	16.4	33.9	69.9%	36.2%	106.5%	29.5	19.0	42.4	64.9	44.9	88.6	122.2%	87.8%	169.3%
Finland	35.6	34.2	37.0	32.6	22.4	44.6	-7.5%	-35.8%	25.3%	47.0	28.8	70.1	114.7	81.5	154.6	146.2%	100.2%	223.6%
France	8.8	7.7	10.0	22.5	14.9	31.6	156.8%	79.4%	254.9%	15.6	10.3	21.9	36.0	22.1	53.1	131.2%	75.8%	188.5%
Germany	9.8	7.8	11.8	22.4	14.7	31.5	133.7%	63.1%	228.1%	49.2	34.5	67.2	105.6	75.2	144.6	118.2%	88.1%	151.6%
Greece	9.0	6.0	11.8	23.6	15.8	32.9	160.1%	94.4%	265.6%	28.5	19.1	39.6	75.0	50.2	104.8	161.8%	123.1%	207.9%
Iceland	13.3	8.7	19.5	20.0	12.9	28.3	51.6%	29.1%	72.0%	27.3	16.9	39.5	75.0	52.6	102.4	177.3%	141.0%	237.9%
Ireland	16.3	11.8	21.8	27.7	18.9	37.6	70.5%	37.6%	95.1%	18.9	10.4	28.1	53.1	34.1	74.1	182.1%	137.1%	264.5%
Israel	11.5	7.2	15.5	16.6	14.7	18.8	44.4%	9.4%	122.0%	24.8	16.7	34.8	61.1	43.7	81.1	147.1%	105.1%	209.7%
Italy	21.2	14.2	29.5	27.9	18.6	39.0	33.9%	19.4%	42.9%	35.1	18.4	54.8	56.7	32.7	85.3	64.0%	50.8%	90.6%
Luxembourg	12.7	8.9	16.5	23.9	15.9	33.3	92.6%	59.9%	126.3%	29.5	19.5	41.6	70.5	46.8	98.1	143.7%	113.1%	185.3%
Malta	17.6	11.8	24.4	27.5	18.6	38.2	56.6%	31.3%	77.2%	40.4	26.2	58.2	89.0	61.1	122.4	120.3%	88.2%	166.6%
Monaco	16.0	10.7	22.1	26.0	17.6	36.3	64.3%	44.3%	87.2%	29.8	17.2	44.3	72.3	47.9	100.8	145.0%	108.4%	203.2%
Netherlands	12.9	10.0	15.9	24.2	16.2	33.5	89.4%	48.2%	133.1%	26.6	16.9	38.3	57.2	37.1	80.6	116.5%	83.3%	163.6%
Norway	24.5	16.7	33.7	29.5	19.3	41.4	21.0%	11.6%	30.2%	51.7	31.8	74.4	73.0	48.0	102.4	42.2%	34.9%	54.8%
Portugal	13.0	9.2	17.0	26.2	17.7	36.1	106.5%	66.2%	162.6%	40.8	28.0	56.4	93.2	64.1	130.3	134.5%	101.6%	178.5%
San Marino	15.9	10.7	21.8	25.6	17.3	35.2	62.3%	42.0%	78.5%	28.6	17.1	42.6	72.3	48.1	99.3	153.8%	118.1%	211.6%
Spain	14.2	12.2	16.5	28.2	19.0	39.2	98.4%	41.7%	165.6%	29.2	19.3	41.6	78.5	53.0	109.4	168.5%	126.8%	222.5%
Sweden	24.8	16.7	34.1	27.3	18.1	38.2	9.8%	1.5%	18.1%	33.2	17.3	51.7	58.8	37.0	84.8	76.8%	49.1%	129.2%
Switzerland	16.1	10.8	22.3	26.5	18.0	36.6	68.0%	46.9%	85.9%	27.9	16.1	42.7	64.6	42.2	89.0	136.4%	103.4%	196.0%
UK	17.5	12.3	23.4	26.1	16.6	37.7	52.0%	29.5%	74.1%	43.1	25.7	63.3	180.2	129.2	243.0	326.2%	261.3%	449.3%

Abbreviation: T1DM=Type 1 diabetes mellitus; T2DM=Type 2 diabetes mellitus; 95% UI=95% uncertainty interval



**Supplementary Table 4. YLDs rate per 100,000 for T2DM (with 95%UI), attributed to HBMI, in Western Europe and by 24 countries, in 1990 and 2019, with percentage change by time (with 95%UI)**

Location	T2DM						Percentage of change		
	1990			2019					
	Rate	95%UI		Rate	95%UI			95%UI	
Western Europe	7.8	2.4	20.6	28.8	12.6	49.0	271.9%	180.6%	660.9%
Andorra	8.6	2.0	19.4	21.3	7.2	43.8	147.4%	56.9%	446.3%
Austria	3.1	0.4	5.5	9.7	1.4	17.3	211.3%	10.0%	578.3%
Belgium	6.4	1.4	7.7	20.3	6.6	23.1	216.4%	83.8%	1382.6%
Cyprus	4.2	0.8	10.2	11.6	2.3	28.1	178.8%	42.2%	617.2%
Denmark	5.6	1.1	26.6	18.9	6.5	72.6	240.3%	97.3%	207.4%
Finland	7.9	1.7	15.2	42.5	17.7	42.4	435.6%	218.3%	445.7%
France	2.1	0.4	17.0	6.6	0.4	54.9	211.6%	-55.3%	462.7%
Germany	12.5	3.7	14.1	38.5	17.8	39.1	207.1%	100.7%	560.2%
Greece	7.2	2.0	20.0	23.3	7.8	79.4	224.2%	103.6%	535.3%
Iceland	8.7	2.3	19.2	28.3	12.4	52.1	226.5%	114.9%	810.2%
Ireland	6.2	1.5	15.8	18.0	5.5	49.5	188.8%	62.8%	393.3%
Israel	5.3	1.0	13.7	22.2	9.4	36.7	315.9%	126.1%	730.3%
Italy	4.4	0.5	13.0	12.2	3.1	41.5	174.4%	92.0%	760.1%
Luxembourg	6.5	1.4	13.1	15.3	3.7	27.9	137.3%	34.1%	638.9%
Malta	10.8	2.6	10.9	24.4	7.7	32.6	127.1%	35.6%	1178.5%
Monaco	10.8	3.3	22.1	27.2	10.9	52.6	151.4%	70.8%	815.7%
Netherlands	4.2	0.8	17.4	14.8	4.1	39.3	254.1%	96.2%	589.2%
Norway	13.2	3.7	14.4	24.8	8.8	50.5	87.5%	47.8%	695.6%
Portugal	9.6	2.2	15.9	24.1	7.3	34.9	150.2%	59.7%	536.8%
San Marino	9.6	2.5	28.9	25.4	10.0	50.0	163.6%	72.4%	827.5%
Spain	6.3	1.6	26.1	24.2	8.0	51.1	285.2%	129.6%	356.4%
Sweden	6.6	1.0	14.1	18.5	5.4	35.5	180.4%	71.0%	467.5%
Switzerland	5.7	1.0	27.5	16.3	4.5	117.5	186.2%	73.0%	692.3%
UK	13.2	4.5	22.9	66.8	32.4	50.9	407.1%	276.6%	854.7%

Abbreviation: T2DM=Type 2 diabetes mellitus; 95% UI=95% uncertainty interval; HBMI=High body mass index