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Population perspective comparing COVID-19 to all and common causes of death in seven European countries

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Abstract

Background: Mortality statistics on the COVID-19 pandemic have led to widespread concern and fear. To contextualise these data, we compared mortality related to COVID-19 with all and common causes of death, stratifying by age and sex. We also calculated deaths as a proportion of the population by age and sex.

Methods: COVID-19 related mortality and population statistics from seven European countries were extracted: England and Wales, Italy, Germany, Spain, France, Portugal and Netherlands. Available data spanned 14-16 weeks since the first recorded deaths in each country, except Spain, where only comparable stratified data over an 8-week time period was available. The Global Burden of Disease database provided data on all deaths and those from pneumonia, cardiovascular disease combining ischaemic heart disease and stroke, chronic obstructive pulmonary disease, cancer, road traffic accidents and dementia.

Findings: Deaths related to COVID-19, while modest overall, varied considerably by age.

0.2% females; Portugal 0.2% males, 0.15% females; and Netherlands 0.6% males, 0.4% females.

Interpretation: Mortality rates from COVID-19 remains low including when compared to other common causes of death and will likely decline further while control measures are maintained. These data may help people contextualise their risk and policy makers in decision-making.

Background

The COVID-19 pandemic, calamitous though it is, needs to be placed in perspective. It has been eight months since the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) outbreak was first identified¹, and deaths globally continue to rise. As of 28 July 2020, there have been 16,523,029 cases and 654,860 directly attributable deaths worldwide². These statistics have caused widespread concern and fear^{3,4}. Some of this concern is clearly justified, but some – as we have demonstrated in children – is disproportionate, given that COVID-19 caused a small fraction of deaths, even fewer than influenza⁵.

Contextualising the impact of COVID-19 in relation to other causes of death, and to mortality rates in the population, helps to gain perspective. Total mortality related to COVID-19 is the most commonly reported statistic, which has been invaluable in galvanising public health interventions⁶; however, given important differentials by age and sex, stratification of mortality data is essential⁷.

We report age- and sex-stratified mortality data related to COVID-19 and compare these with all-cause and common causes of mortality using data from the Global Burden of Disease (GBD) study⁸. We examined two perspectives: firstly, mortality from COVID-19 and other common causes of death as a fraction of all deaths, and secondly, as a fraction of the population.

capacity to collect data. Available data spanned 14-16 weeks since the first recorded deaths in each country, except Spain, where only comparable stratified data over an 8-week time period was available. Furthermore, these countries have had high death rates given their average age of the population is high compared with low- and middle-income countries. These countries are therefore likely to exemplify the impact of the pandemic at the higher end of the mortality scale. Most other countries, especially with younger populations, can anticipate lower mortality.

We extracted annual age- and sex-specific death counts from the most recent Global Burden of Disease study⁸ for all causes and pneumonia, cardiovascular disease combining ischaemic heart disease and stroke (CVD), chronic obstructive pulmonary disease (COPD), cancer, road traffic accidents (RTA) and dementia; these six causes were selected as they represent common causes of death¹⁰.

To compare mortality estimates from the GBD with those from COVID-19, mortality rates for non-COVID-19 causes for each country were adjusted based on the number of weeks COVID-19 data were available for (Supplementary Table 1).

Data were analysed by country, age and sex with deaths related to COVID-19 and to other specific causes as a fraction of both all causes of death and population size. Data extraction and analysis was carried out by BO and checked independently by JB. Butterfly charts with stacked bars display these data graphically.

Results

Table 1 shows mortality by cause, age and sex in the seven countries from 09/03/2020 until 09/07/2020 (for specific dates see Supplementary Table 1) and the percentage of COVID-19 deaths and other causes of death with respect to all-cause mortality. Figure 1 summarises these data.

age of 70, COVID-19 was never the commonest cause of death although it was an important contributor.

Figure 2 shows the percentage of the population who died from COVID-19 and the six other causes (Supplementary Figure 1 provides continuous x-axes to 100%). These figures show that, cumulatively, mortality from the six common causes of death was less than 1% in every age group, except in those aged over 80 years, where this percentage ranged from 1-4%. The percentage of the population dying from COVID-19 was less than 0.2% in every age group under the age of 80 across all countries, less than or equal to 0.1% under the age of 70 and less than 0.04% under the age of 60. In each country, over the age of 80, these proportions were: England and Wales 1.27% males, 0.87% females; Italy 0.6% males, 0.38% females; Germany 0.13% males, 0.09% females; France 0.39% males, 0.2% females; Portugal 0.2% males, 0.15% females; and Netherlands 0.6% males, 0.4% females.

Graphical representation of the data from Spain are shown in Supplementary Figure 2, as these represent an 8-week time period, compared to other countries, which represent data over 14-16 weeks.

Discussion

The COVID-19 pandemic is an international emergency warranting a comprehensive, medical, public health and economic response¹¹. Our methods and analyses provide a population perspective on the pandemic in, arguably, to date some of the worst affected countries in the world. These data show that the high level of mortality is primarily seen in older adults, particularly men. However, even in the most affected groups, other causes of death were mostly commoner than COVID-19, and in all groups under the age of 70, COVID-19 did not represent the commonest cause of death. Our non-COVID-19 data are not current. Given lockdowns, with important limitations on healthcare especially for chronic conditions, it may be that mortality from these other causes will be higher in this pandemic

pandemic will bring (hopefully both the incidence and mortality rates will continue to diminish) but we can see the population impact in relation to mortality so far has been modest except in those over 80 years of age. In the immediate future, the relative proportions of deaths from COVID-19 compared to other causes in these European countries are likely to decline as control measures, while being relaxed, are likely to be applied partially and intermittently for some years.

Mortality related to COVID-19 is known to be higher in males than in females and higher in older age groups and the mechanisms for these differential effects have been postulated^{12,13}. Other important factors have also been recognised to lead to poorer outcomes following COVID-19 infection, including co-morbidity¹⁴ and ethnicity, with data suggesting that ethnic minority groups are at increased risk of death from COVID-19¹⁵. Though these have not been analysed in this study, ensuring a holistic approach when determining and addressing risk is important.

We acknowledge limitations of this study. We found variations between countries in proportions of deaths but have not emphasised them as data collection factors may contribute to this. For example, the COVID-19 mortality data from France represented only in-hospital deaths, whereas England and Wales also counted community deaths, including hospices and patients' homes⁹. A further limitation is that data from Spain only represented an 8-week time span during the initial outbreak, when mortality rates were higher, as their data reporting methods changed beyond May⁹, hindering access to comparable data since then. Defining COVID-19 mortality rates is also contentious, as data pertains to clinically apparent PCR-positive infections, underestimating true mortality¹⁶. Furthermore, there may be several reasons why the mortality totals exceed 100 in England and Wales, Italy and Spain. The cause of death reporting may include more than one of the listed causes of death in this study, therefore leading to an overestimation of the cumulative totals. Without access to real-time mortality data on all causes, we are also unable to assess the ongoing effect of the pandemic

increasing burden of adverse mental health during the pandemic and even contributing to suicide risk^{18,19}.

By presenting and interpreting population perspectives on mortality related to COVID-19 compared with other common causes of death, stratified by age and sex, we have provided perspectives to allow policymakers, professionals and the media to tailor both communications and interventions to manage the pandemic, including the level of anxiety and fear provoked by previously published mortality statistics, primarily daily and cumulative totals. Similar analyses are required globally. New work is required to incorporate morbidity to produce a broader perspective on the true health impact of COVID-19.

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Legends

Figure 1: Stacked bar charts showing mortality from seven causes of death as a percentage of all-cause deaths by age and sex in six European countries.

Figure 2: Stacked bar charts showing mortality data from seven causes of death in six countries as a percentage of the population in each demographic group. Discontinuous x-axes are used.

Supplementary Figure 1: Stacked bar charts showing mortality data from seven causes of death in six countries as a percentage of the population in each demographic group. Continuous x-axes are used.

Supplementary Figure 2: Stacked bar charts showing mortality data from Spain (a) as a percentage of all cause deaths, and (b) and (c) as a percentage of the population.

Table 1: Mortality data from seven causes of death in six countries as a percentage of the population in each demographic group.

Contributions

RB conceived the study. SB and JB developed the methodology, which was expanded by BO. BO carried out data extraction, which was checked independently by JB. BO carried out the data analysis. All authors contributed to the interpretation of the data. BO wrote the first draft of the manuscript, which was substantially edited by all authors. All authors approved the final version. All authors had access to the data and are responsible for data integrity and completeness.

Declaration of Interests

None reported.

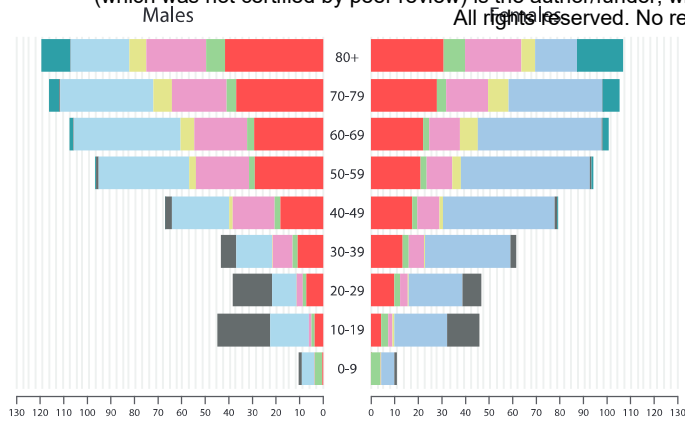
Funding

None.

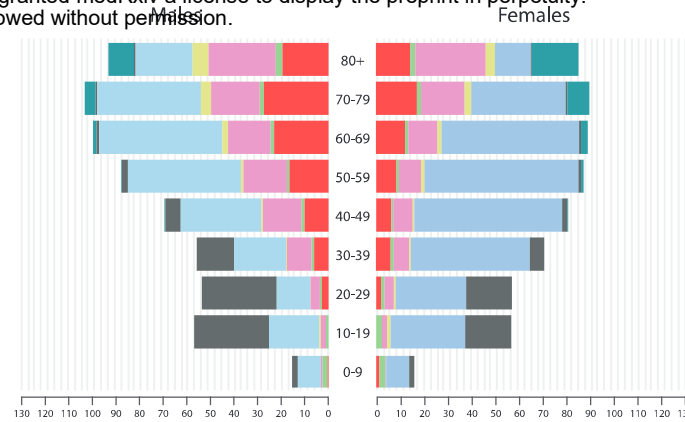
Figure 1

(a) England and Wales

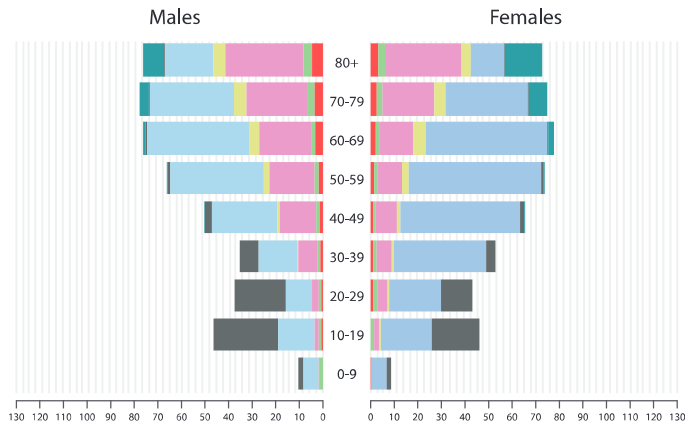
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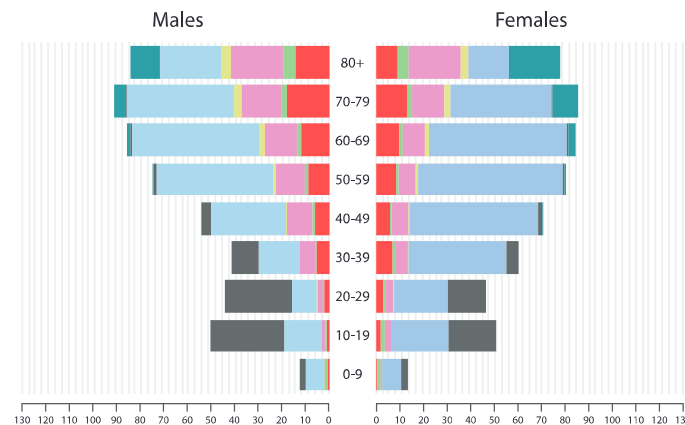
(b) Italy



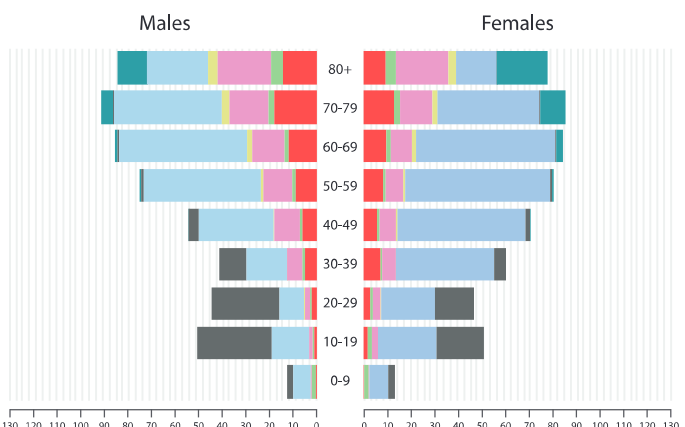
(c) Germany



(d) France



(e) Portugal



(f) Netherlands

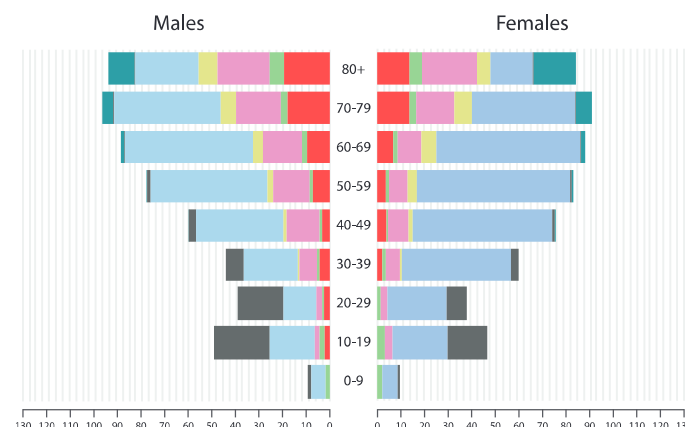
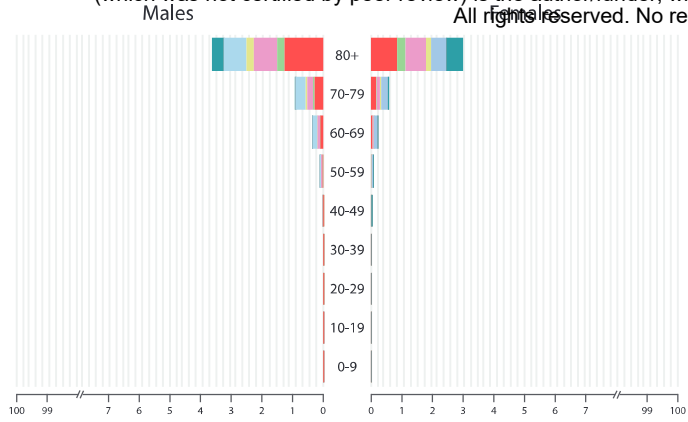


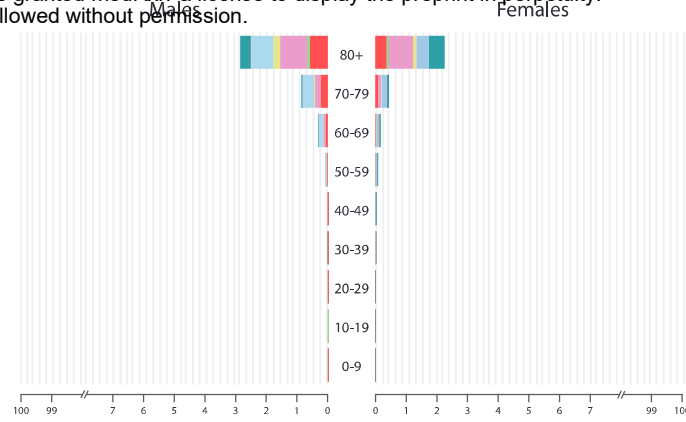
Figure 2

(a) England and Wales

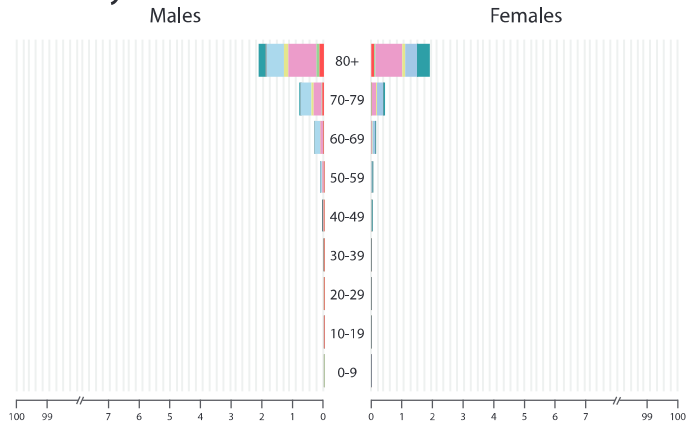
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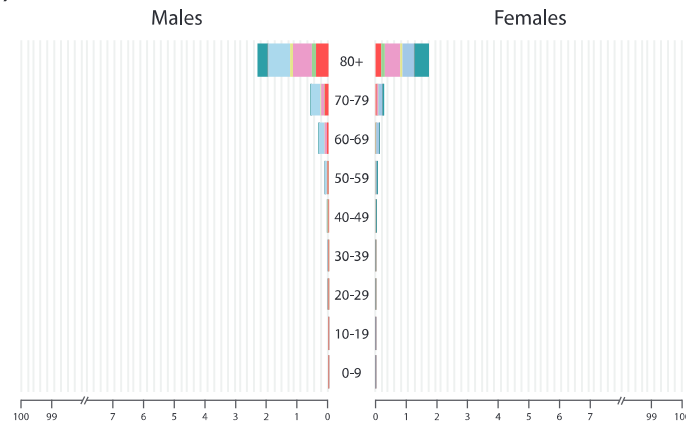
(b) Italy



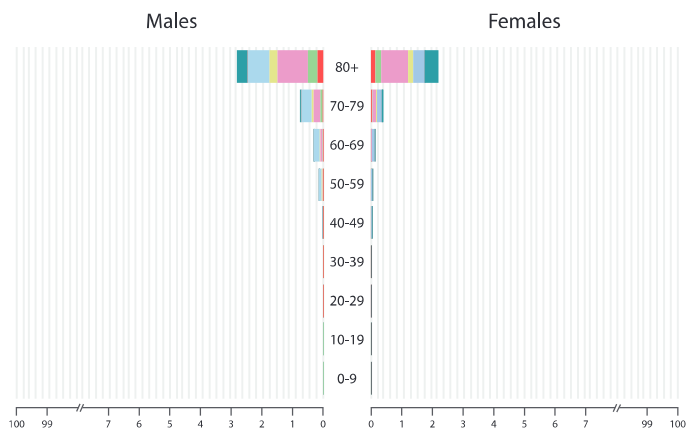
(c) Germany



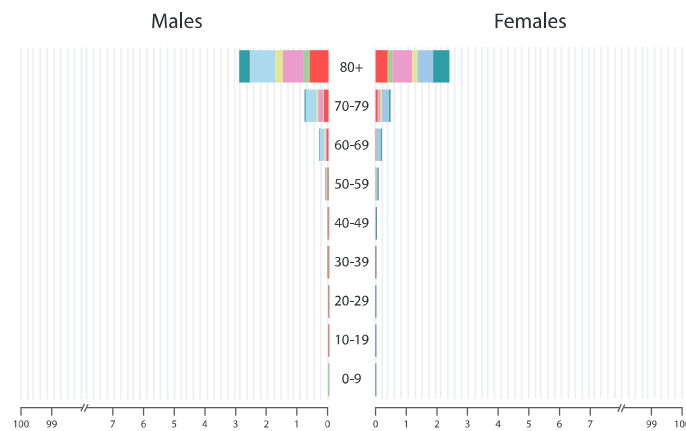
(d) France



(e) Portugal



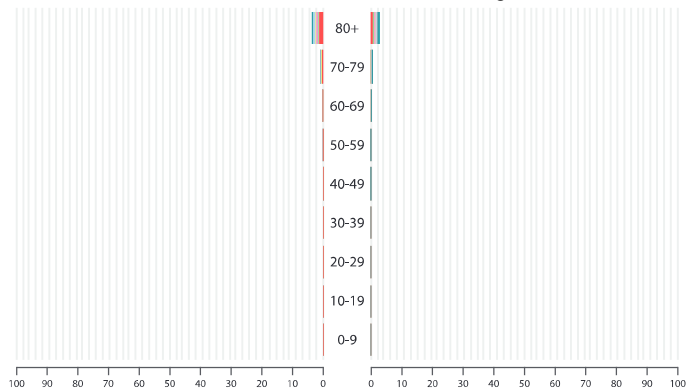
(f) Netherlands



Supplementary figure 1

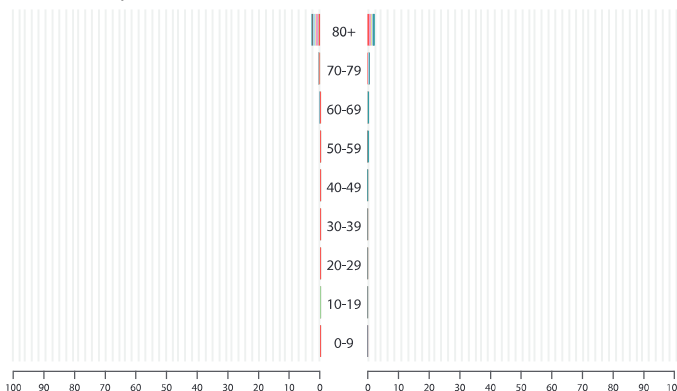
(a) England and Wales

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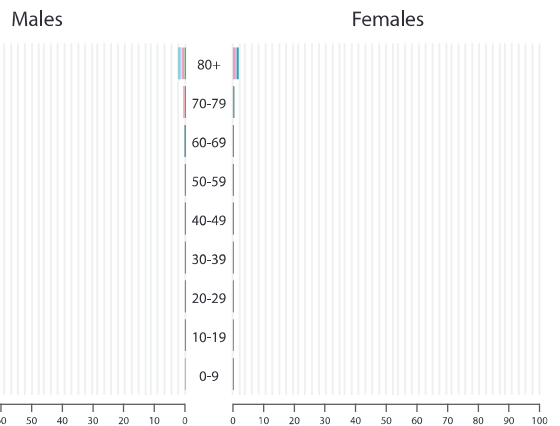


(b) Italy

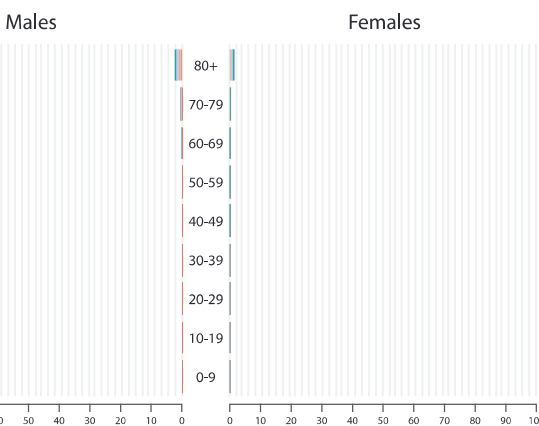
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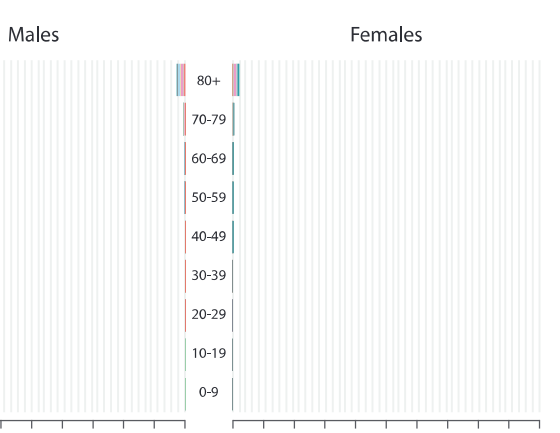
(c) Germany



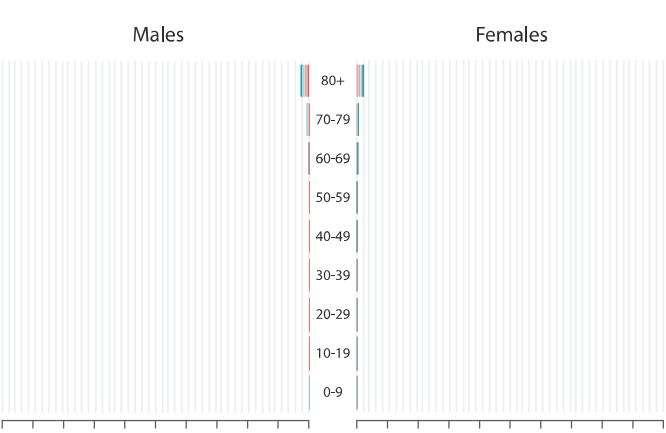
(d) France



(e) Portugal



(f) Netherlands

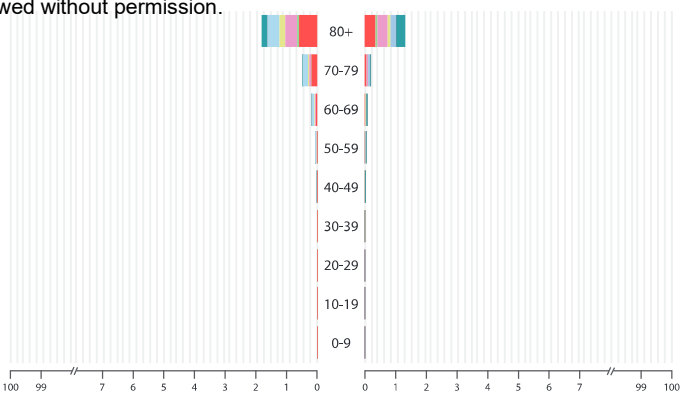
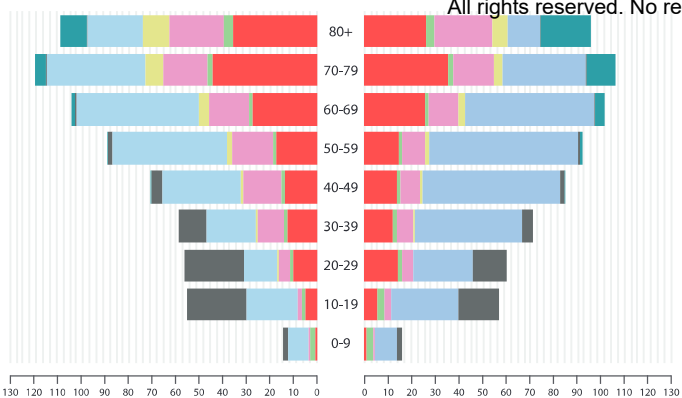


Supplementary figure 2: Spain

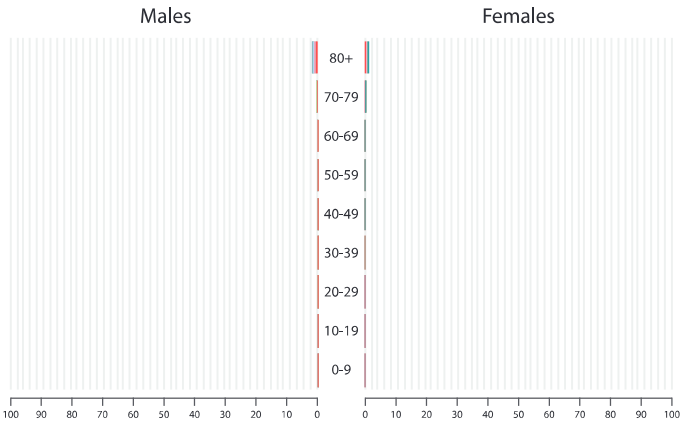
(a) Deaths as a percentage of all cause deaths

(b) Deaths as a percentage of the population

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(c) Deaths as a percentage of the population



Legend: COVID-19 (red), Pneumonia (green), CVD (pink), COPD (yellow), Cancer (light blue), RTA (dark grey), Dementia (teal)

Country	Demographic group	Population (n)	All cause deaths (n)	COVID-19 deaths			Pneumonia deaths			
				n	% of all cause deaths	% died in this group	n	% of all cause deaths	% died in this group	
England and Wales	0 – 9	M	3701011	555	2	0.36	0	20	3.6	0
		F	3522739	429	1	0.23	0	16	3.73	0
	10-19	M	3448335	189	7	3.7	0	3	1.59	0
		F	3273242	111	5	4.5	0	3	2.7	0
	20-29	M	3954548	633	46	7.27	0	9	1.42	0
		F	3785684	277	27	9.75	0	7	2.53	0
	30-30	M	3920605	1085	121	11.15	0	23	2.12	0
		F	3956326	627	85	13.56	0	15	2.39	0
	40-49	M	3749942	2349	427	18.18	0.01	59	2.51	0
		F	3815410	1519	263	17.31	0.01	37	2.44	0
	50-59	M	3906270	5142	1491	29	0.04	130	2.53	0
		F	4016425	3667	777	21.19	0.02	90	2.45	0
	60-69	M	3041563	10620	3149	29.65	0.1	287	2.7	0.01
		F	3199239	7442	1647	22.13	0.05	200	2.69	0.01
	70-79	M	2308296	18924	7027	37.13	0.3	719	3.8	0.03
		F	2576981	14771	4137	28.01	0.16	600	4.06	0.02
	80+	M	1184681	36116	15044	41.65	1.27	2959	8.19	0.25
		F	1754512	49714	15351	30.88	0.87	4376	8.8	0.25
Italy	0 – 9	M	2617094	297	1	0.34	0	7	2.36	0
		F	2473388	230	3	1.3	0	6	2.61	0
	10-19	M	2980600	177	0	0	0	2	1.13	0
		F	2788274	82	0	0	0	2	2.44	0
	20-29	M	3212204	413	12	2.91	0	4	0.97	0
		F	2989066	170	4	2.35	0	2	1.18	0
	30-30	M	3559151	692	43	6.21	0	8	1.16	0
		F	3515067	372	23	6.18	0	5	1.34	0
	40-49	M	4593789	2062	213	10.33	0	24	1.16	0
		F	4648865	1308	83	6.35	0	11	0.84	0
	50-59	M	4578610	5339	893	16.73	0.02	62	1.16	0
		F	4773621	3242	281	8.67	0.01	35	1.08	0
	60-69	M	3511037	11244	2600	23.12	0.07	150	1.33	0
		F	3826173	6537	811	12.41	0.02	84	1.28	0
	70-79	M	2727000	22667	6201	27.36	0.23	406	1.79	0.01
		F	3235533	15600	2708	17.36	0.08	249	1.6	0.01
	80+	M	1605281	48987	9581	19.56	0.6	1358	2.77	0.08
		F	2724793	72006	10279	14.28	0.38	1637	2.27	0.06
	0 – 9	M	3896272	469	0	0	0	8	1.71	0
		F	3692363	377	1	0.27	0	7	1.86	0
	M	3987129	245	2	0.82	0	3	1.22	0	

			3364099	3518339	2357	2.64	0.07			
Spain	0 – 9	M	2251517	137	1	0.73	0	3	2.19	0
		F	2119341	107	1	0.93	0	3	2.8	0
	10-19	M	2520800	60	3	5	0	1	1.67	0
		F	2362647	35	2	5.71	0	1	2.86	0
	20-29	M	2464472	148	15	10.14	0	2	1.35	0
		F	2383466	63	9	14.29	0	1	1.59	0
	30-30	M	3076176	333	42	12.61	0	5	1.5	0
		F	3091412	173	21	12.14	0	3	1.73	0
	40-49	M	3943490	1028	140	13.62	0	17	1.65	0
		F	3869686	550	77	14	0	7	1.27	0
	50-59	M	3457353	2685	465	17.32	0.01	42	1.56	0
		F	3516656	1295	191	14.75	0.01	18	1.39	0
	60-69	M	2543236	4709	1282	27.22	0.05	78	1.66	0
		F	2738641	2102	540	25.69	0.02	34	1.62	0
	70-79	M	1771960	7506	3321	44.24	0.19	179	2.38	0.01
		F	2128590	4388	1565	35.67	0.07	93	2.12	0
	80+	M	1060385	17826	6339	35.56	0.6	751	4.21	0.07
		F	1800567	24941	6522	26.15	0.36	878	3.52	0.05
France	0 – 9	M	3957228	516	2	0.39	0	8	1.55	0
		F	3798527	401	1	0.25	0	7	1.75	0
	10-19	M	4266196	222	2	0.9	0	2	0.9	0
		F	4062792	114	2	1.75	0	2	1.75	0
	20-29	M	3737191	662	14	2.11	0	4	0.6	0
		F	3733717	251	7	2.79	0	3	1.2	0
	30-30	M	4025803	1081	55	5.09	0	11	1.02	0
		F	4262454	504	35	6.94	0	5	0.99	0
	40-49	M	4233782	2698	158	5.86	0	31	1.15	0
		F	4350667	1445	82	5.67	0	14	0.97	0
	50-59	M	4294564	6914	617	8.92	0.01	100	1.45	0
		F	4490542	3563	291	8.17	0.01	44	1.23	0
	60-69	M	3792182	13799	1630	11.81	0.04	245	1.78	0.01
		F	4207424	6925	677	9.78	0.02	107	1.55	0
	70-79	M	2598072	16729	2989	17.87	0.12	430	2.57	0.02
		F	3095588	10423	1354	12.99	0.04	228	2.19	0.01
	80+	M	1492161	40808	5864	14.37	0.39	2049	5.02	0.14
		F	2664813	60011	5456	9.09	0.2	2691	4.48	0.1
	0 – 9	M	458227	56	0	0	0	2	3.57	0
		F	438988	40	0	0	0	2	5	0
	10-19	M	543042	34	0	0	0	1	2.94	0
		F	520053	19	0	0	0	1	5.26	0
	20-29	M	545347	93	1	1.08	0	2	2.15	0

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Netherlands	0-9	F	86619	117	0	0	0	2	2.15	0
	10-19	M	1027835	47	1	2.13	0	1	2.13	0
		F	980499	30	0	0	0	1	3.33	0
	20-29	M	1117353	126	3	2.38	0	1	0.79	0
		F	1084435	68	0	0	0	1	1.47	0
	30-30	M	1060110	184	8	4.35	0	2	1.09	0
		F	1048089	132	3	2.27	0	2	1.52	0
	40-49	M	1127000	501	16	3.19	0	6	1.2	0
		F	1134107	387	15	3.88	0	4	1.03	0
	50-59	M	1258588	1466	102	6.96	0.01	24	1.64	0
		F	1249800	1208	44	3.64	0	17	1.41	0
	60-69	M	1038005	3418	334	9.77	0.03	70	2.05	0.01
		F	1051908	2419	167	6.9	0.02	45	1.86	0
	70-79	M	730336	5852	1047	17.89	0.14	177	3.02	0.02
		F	791774	4254	588	13.82	0.07	120	2.82	0.02
	80+	M	307968	9555	1861	19.48	0.6	566	5.92	0.18
		F	490852	14006	1943	13.87	0.4	743	5.3	0.15

Abbreviations: COVID-19, coronavirus disease 2019; COPD, chronic obstructive pulmonary disease; CVD, cardiovas

COVID-19 deaths			CHF deaths			HSC deaths			STI deaths		
n	% of all cause deaths	% died in this group	n	% of all cause deaths	% died in this group	n	% of all cause deaths	% died in this group	n	% of all cause deaths	% died in this group
1	0.18	0	0	0	0	29	5.23	0	7	1.26	0
1	0.23	0	1	0.23	0	23	5.36	0	5	1.17	0
2	1.06	0	0	0	0	31	16.4	0	42	22.22	0
2	1.8	0	1	0.9	0	25	22.52	0	15	13.51	0
17	2.69	0	1	0.16	0	66	10.43	0	104	16.43	0
9	3.25	0	1	0.36	0	63	22.74	0	22	7.94	0
91	8.39	0	4	0.37	0	163	15.02	0	69	6.36	0
40	6.38	0	3	0.48	0	228	36.36	0.01	15	2.39	0
422	17.97	0.01	29	1.23	0	574	24.44	0.02	63	2.68	0
141	9.28	0	21	1.38	0	720	47.4	0.02	16	1.05	0
1167	22.7	0.03	149	2.9	0	1963	38.18	0.05	56	1.09	0
395	10.77	0.01	134	3.65	0	2006	54.7	0.05	18	0.49	0
2372	22.34	0.08	644	6.06	0.02	4794	45.14	0.16	45	0.42	0
954	12.82	0.03	559	7.51	0.02	3921	52.69	0.12	20	0.27	0
4380	23.15	0.19	1514	8	0.07	7474	39.49	0.32	45	0.24	0
2594	17.56	0.1	1296	8.77	0.05	5840	39.54	0.23	31	0.21	0
9066	25.1	0.77	2697	7.47	0.23	8939	24.75	0.75	55	0.15	0
11892	23.92	0.68	2962	5.96	0.17	8753	17.61	0.5	50	0.1	0
2	0.67	0	0	0	0	29	9.76	0	7	2.36	0
1	0.43	0	0	0	0	22	9.57	0	5	2.17	0
4	2.26	0	1	0.56	0	38	21.47	0	56	31.64	0
2	2.44	0	1	1.22	0	26	31.71	0	16	19.51	0
15	3.63	0	1	0.24	0	59	14.29	0	131	31.72	0
7	4.12	0	1	0.59	0	51	30	0	33	19.41	0
71	10.26	0	3	0.43	0	152	21.97	0	110	15.9	0
25	6.72	0	2	0.54	0	188	50.54	0.01	22	5.91	0
335	16.25	0.01	15	0.73	0	709	34.38	0.02	135	6.55	0
110	8.41	0	9	0.69	0	818	62.54	0.02	28	2.14	0
974	18.24	0.02	63	1.18	0	2555	47.86	0.06	132	2.47	0
307	9.47	0.01	38	1.17	0	2119	65.36	0.04	37	1.14	0
2052	18.25	0.06	262	2.33	0.01	5898	52.45	0.17	113	1	0
797	12.19	0.02	132	2.02	0	3804	58.19	0.1	47	0.72	0
4701	20.74	0.17	940	4.15	0.03	9940	43.85	0.36	171	0.75	0.01
2908	18.64	0.09	457	2.93	0.01	6217	39.85	0.19	86	0.55	0
14039	28.66	0.87	3230	6.59	0.2	11900	24.29	0.74	313	0.64	0.02
21594	29.99	0.79	2737	3.8	0.1	11038	15.33	0.41	313	0.43	0.01
1	0.21	0	1	0.21	0	30	6.4	0	9	1.92	0
1	0.27	0	0	0	0	24	6.37	0	6	1.59	0
4	1.63	0	0	0	0	38	15.51	0	67	27.35	0

28968	32.49	0.86	3579	4.91	0.1	11774	0.77	0.13	102	0.11	0
1	0.73	0	0	0	0	12	8.76	0	3	2.19	0
1	0.93	0	0	0	0	10	9.35	0	2	1.87	0
1	1.67	0	0	0	0	13	21.67	0	15	25	0
1	2.86	0	0	0	0	10	28.57	0	6	17.14	0
7	4.73	0	1	0.68	0	21	14.19	0	37	25	0
3	4.76	0	0	0	0	16	25.4	0	9	14.29	0
37	11.11	0	3	0.9	0	69	20.72	0	40	12.01	0
12	6.94	0	1	0.58	0	79	45.66	0	8	4.62	0
167	16.25	0	11	1.07	0	341	33.17	0.01	48	4.67	0
46	8.36	0	5	0.91	0	322	58.55	0.01	10	1.82	0
463	17.24	0.01	55	2.05	0	1310	48.79	0.04	42	1.56	0
125	9.65	0	22	1.7	0	817	63.09	0.02	13	1	0
798	16.95	0.03	206	4.37	0.01	2448	51.99	0.1	34	0.72	0
263	12.51	0.01	58	2.76	0	1152	54.8	0.04	14	0.67	0
1386	18.47	0.08	576	7.67	0.03	3133	41.74	0.18	34	0.45	0
757	17.25	0.04	163	3.71	0.01	1547	35.26	0.07	17	0.39	0
4075	22.86	0.38	1983	11.12	0.19	4200	23.56	0.4	40	0.22	0
6178	24.77	0.34	1620	6.5	0.09	3407	13.66	0.19	29	0.12	0
2	0.39	0	0	0	0	39	7.56	0	14	2.71	0
2	0.5	0	0	0	0	32	7.98	0	11	2.74	0
3	1.35	0	0	0	0	35	15.77	0	70	31.53	0
3	2.63	0	0	0	0	28	24.56	0	23	20.18	0
15	2.27	0	1	0.15	0	69	10.42	0	191	28.85	0.01
8	3.19	0	1	0.4	0	57	22.71	0	41	16.33	0
68	6.29	0	2	0.19	0	186	17.21	0	125	11.56	0
28	5.56	0	1	0.2	0	210	41.67	0	25	4.96	0
291	10.79	0.01	13	0.48	0	858	31.8	0.02	108	4	0
102	7.06	0	7	0.48	0	786	54.39	0.02	26	1.8	0
835	12.08	0.02	73	1.06	0	3439	49.74	0.08	90	1.3	0
257	7.21	0.01	36	1.01	0	2184	61.3	0.05	30	0.84	0
1896	13.74	0.05	295	2.14	0.01	7487	54.26	0.2	77	0.56	0
640	9.24	0.02	122	1.76	0	4067	58.73	0.1	39	0.56	0
2782	16.63	0.11	506	3.02	0.02	7641	45.68	0.29	64	0.38	0
1437	13.79	0.05	246	2.36	0.01	4499	43.16	0.15	39	0.37	0
9166	22.46	0.61	1630	3.99	0.11	10548	25.85	0.71	96	0.24	0.01
13366	22.27	0.5	1900	3.17	0.07	10404	17.34	0.39	99	0.16	0
0	0	0	0	0	0	4	7.14	0	2	3.57	0
0	0	0	0	0	0	3	7.5	0	1	2.5	0
0	0	0	0	0	0	7	20.59	0	10	29.41	0
0	0	0	0	0	0	5	26.32	0	3	15.79	0
2	2.15	0	0	0	0	12	12.9	0	27	29.03	0

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0	0	0	0	0	0	9	19.15	0	11	23.4	0
1	2.13	0	0	0	0	7	23.33	0	5	16.67	0
1	3.33	0	0	0	0	18	14.29	0	24	19.05	0
3	2.38	0	0	0	0	17	25	0	6	8.82	0
2	2.94	0	0	0	0	42	22.83	0	14	7.61	0
14	7.61	0	1	0.54	0	61	46.21	0.01	4	3.03	0
8	6.06	0	1	0.76	0	186	37.13	0.02	15	2.99	0
70	13.97	0.01	6	1.2	0	228	58.91	0.02	5	1.29	0
33	8.53	0	7	1.81	0	726	49.52	0.06	18	1.23	0
228	15.55	0.02	34	2.32	0	783	64.82	0.06	8	0.66	0
95	7.86	0.01	50	4.14	0	1845	53.98	0.18	19	0.56	0
563	16.47	0.05	149	4.36	0.01	1469	60.73	0.14	10	0.41	0
244	10.09	0.02	156	6.45	0.01	2637	45.06	0.36	27	0.46	0
1099	18.78	0.15	391	6.68	0.05	1851	43.51	0.23	16	0.38	0
690	16.22	0.09	321	7.55	0.04	2548	26.67	0.83	36	0.38	0.01
2131	22.3	0.69	754	7.89	0.24	2518	17.98	0.51	26	0.19	0.01
3242	23.15	0.66	819	5.85	0.17						

cular disease; RTA, road traffic accident.

n	% of all cause deaths	% died in this group
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
4	0.17	0
5	0.33	0
27	0.53	0
32	0.87	0
153	1.44	0.01
175	2.35	0.01
839	4.43	0.04
1054	7.14	0.04
4461	12.35	0.38
9657	19.43	0.55
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
3	0.15	0
4	0.31	0
26	0.49	0
30	0.93	0
166	1.48	0
196	3	0.01
1124	4.96	0.04
1488	9.54	0.05
5409	11.04	0.34
14119	19.61	0.52
0	0	0
0	0	0
0	0	0

14124	15.84	0.42
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
2	0.19	0
2	0.36	0
11	0.41	0
13	1	0
69	1.47	0
80	3.81	0
359	4.78	0.02
527	12.01	0.02
2046	11.48	0.19
5352	21.46	0.3
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
4	0.15	0
4	0.28	0
25	0.36	0
29	0.81	0
182	1.32	0
206	2.97	0
835	4.99	0.03
1109	10.64	0.04
5037	12.34	0.34
12925	21.54	0.49
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0

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0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
1	0.2	0
1	0.26	0
7	0.48	0
8	0.66	0
49	1.43	0
46	1.9	0
268	4.58	0.04
290	6.82	0.04
1074	11.24	0.35
2535	18.1	0.52

Supplementary Table 1

Country	Start date	End date	Number of weeks
England and Wales	13/03/2020	26/06/2020	15.0
Italy	09/03/2020	30/06/2020	16.0
Germany	29/03/2020	09/07/2020	14.5
Spain	22/03/2020	21/05/2020	8.5
France	21/03/2020	05/07/2020	15.0
Portugal	23/03/2020	09/07/2020	15.5
Netherlands	23/03/2020	07/07/2020	15.0