

Excess mortality in Norway, and Sweden during 2020

Theory

We have all observed the different kind of statistics from different countries related to the COVID-19 pandemic. It makes no sense to compare the number of confirmed cases in each country because it depends too much on the testing strategy. If you test more people you find more cases.

Even the number of deaths contains some uncertainty. I am not sure that COVID-19 deaths are defined in the same ways in all countries. Assume that a man is stabbed by a knife, brought to a hospital, tests positive for Corona virus but shows no symptom of COVID-19 and then dies a few days later. Should that be reported as a COVID-19 death? Assume that a woman shows all the typical symptoms of COVID-19 but dies before she got tested for Corona virus. Should that be reported as a COVID-19 death? Some people die from COVID-19 while other dies with COVID-19.

Another method is to study excess mortality. As an example, to calculate the number of excess deaths in a given population in May: we could look at the total number of deaths observed in May this year, and subtract the average number of deaths in May in the previous 5 years¹.

$$\text{Excess deaths}_{\text{May2020}} = \text{Observed deaths}_{\text{May2020}} - \text{Average number of deaths}_{\text{May2015-2019}}$$

Data from Norway

We do this calculation with Norwegian data from January to August².

	Deaths per month 2015	Deaths per month 2016	Deaths per month 2017	Deaths per month 2018	Deaths per month 2019	Average 2015-2019	Deaths per month 2020	Excess deaths per month 2020
January	4 118	3 982	4 228	3 991	3 699	4 004	3 847	-157
February	3 610	3 444	3 530	3 655	3 470	3 542	3 429	-113
March	3 781	3 549	3 548	3 924	3 602	3 681	3 620	-61
April	3 268	3 310	3 361	3 425	3 326	3 338	3 458	120
May	3 207	3 262	3 197	3 235	3 315	3 243	3 162	-81
June	3 169	2 964	3 130	3 037	3 139	3 088	3 006	-82
July	3 086	3 198	3 261	3 314	3 238	3 219	3 173	-46
August	3 135	3 166	3 178	3 134	3 215	3 166	3 178	12
Sum	27 374	26 875	27 433	27 715	27 004	27 280	26 873	-407

It is obvious that the number of deaths in Norway in 2020 is within normal variations or maybe even lower than normal.

¹ This paragraph was a quote copied in the beginning of September-2020 from <https://ourworldindata.org/excess-mortality-covid> but they have updated the text since then.

² Data downloaded from [Statistics Norway](https://www.ssb.no/) with help from Hans Michael Øvergaard.

Data from Sweden

The data from Sweden gives another result³.

	Deaths per month 2015	Deaths per month 2016	Deaths per month 2017	Deaths per month 2018	Deaths per month 2019	Average 2015-2019	Deaths per month 2020	Excess deaths per month 2020
January	9 597	10 511	11 331	11 091	10 790	10 664	9 953	-711
February	8 067	7 672	7 875	8 151	7 294	8 006	7 364	-642
March	8 619	8 009	8 076	9 210	7 570	8 297	8 369	72
April	7 694	7 406	7 566	7 615	7 186	7 493	10 372	2 879
May	7 311	6 991	7 332	6 778	6 972	7 077	8 703	1 626
June	6 767	6 542	6 655	6 499	6 452	6 583	7 233	650
July	7 036	7 084	6 778	7 259	6 723	6 976	6 838	-138
August	6 712	7 005	6 824	6 791	6 829	6 832	6 758	-74
Sum	61 803	61 220	62 437	63 394	59 816	61 928	65 590	3 662

We can see that something went very wrong in April, May, and June.

The excess deaths per month can be compared to the official number of COVID-19 deaths per month in 2020⁴.

	Average 2015-2019	Deaths per month 2020	Excess deaths per month	Official COVID-19 deaths per month 2020
January	10 664	9 953	-711	0
February	8 006	7 364	-642	0
March	8 297	8 369	72	332
April	7 493	10 372	2 879	2 544
May	7 077	8 703	1 626	1 757
June	6 583	7 233	650	865
July	6 976	6 838	-138	260
August	6 832	6 758	-74	78
Sum	61 928	65 590	3 662	5 836

The excess deaths and COVID-19 deaths seems to correspond rather well in April, May, and June.

³ Data downloaded from [Statistics Sweden](#) (Preliminary statistics on deaths)

⁴ Downloaded from [Public Health Agency of Sweden](#).

Reflections

The idea is to use a simple method to observe the development in mortality in a country without taking the cause of death into consideration. It is difficult to determine if someone dies from one disease or if someone dies with a disease.

Question to Mortality Working Group

Can this be done for other countries and do the excess mortality match the official number of COVID-19 deaths in the country?

Written by Rikard Bergström, Sweden for IAA Mortality Working Group meeting October 13, 2020.