

Were men dying of COVID with an average age of 79 and 2.7 comorbidities really going to live for 13 yearsⁱ? Answer: no

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OVID-19 – exploring the implications of long-term condition type and extent of multimorbidity on years of life lost (“YLL”). For men the average YLL was given as 13.1 (12.2-14.1) and 10.5 for women (9.7-11.3). Peter Hanlon et al.

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Were you surprised that men dying of COVID had 13 years of life left, given that the average age of a COVID related death was 79 with 2.7 pre-existing conditionsⁱⁱ. I know we were, below is why we believe that 13 (subsequently reduced to 11) is significantly overstated – possibly by a significant margin.

The initial paper was released with 13.1 years of life lost for the average man dying of COVID taking into account their age and pre-existing conditions. Even without any medical knowledge, we found that to be hard to believe. Below, we discuss the 2 key assumptions that were hardly reported at the time of the initial paper that underpin such a large number;

1. The use of GBD 2010 data to calculate the YLL instead of using relevant and available data from the Office of National Statistics (“ONS”) on projected expectations of life from the 2018 based life tables;
2. No account was taken of the severity of comorbidities of those unfortunately dying of COVID. All of the analysis is based on some form of average comorbidity.

The use of GBD 2010

The initial figure of 13 YLL was heavily dependent upon the use of GBD 2010 (a dataset produced by WHO) to work out the YLL figure. That seemed strange given that the ONS produces projected figures for life expectancy in the UK. We compared the two data sets below, if you read up from the x-axis you obtain the YLL, as you can see the GBD-2010 gives higher value at every single age other than 85. Importantly the divergence becomes significant beyond 85 which is the final data point for GBD 2010:



The authors explained in a separate document that their numbers were for “comparison....with an international framework” and therefore they used GBD 2010. But any reader would have naturally assumed that the numbers provided by UK researchers and published by UK and international mediaⁱⁱⁱ would be relevant to the UK. They subsequently produced a clarification in the form of an addendum (after the media had reported the figure of 13 YLL). The conclusion was that even using the UK relevant data, the YLL figure was still over 10 (11 actually for men). In our line of business an overstatement of between 17% and 24% is not trivial;

Comorbidity count	Original paper - using GBD 2010	Addendum on github using UK life table	% over-statement v ONS
	80+	80+	
0	11.02	9.35	17.9%
1	10.05	8.56	17.4%
2	8.15	6.81	19.7%
3	6.59	5.42	21.6%
4	4.95	4.02	23.1%
5	3.51	2.81	24.9%

Using the UK life table data that the authors have, together with 2.7 comorbidities and the age distribution of deaths “related to” COVID-19 from ONS data, we get a male YLL figure of below even 11.

The second major assumptions concern the number and severity of comorbidities

The ONS life expectations are based on the average person, how relevant that is to someone with 2.7 comorbidities is not entirely clear. The key issue though is the caveat in the paper concerning the severity of the comorbidities; “we did not have markers of underlying disease severity” and “severity has considerable impact on life expectancy”.

Even so the authors applied average impacts to determine the YLL figure. Since a very small percentage of people infected with the Coronavirus die, it is entirely reasonable to expect that the long term conditions that those people have are severe. The more severe the comorbidity the lower the life expectancy. The medical profession talks about COVID deaths, but we prefer to look at survival rates. Even taking Imperial College’s March 2020 paper which includes an IFR estimate around 4x higher than actual observations, you still have a 90.7% survival rate even in the oldest segment of 80+. This implies that COVID is likely to be fatal for those with the most serious long-term conditions and correspondingly low years on life expectancy. Again, a figure of 11 years of YLL seems unlikely.

Years of life left COVID-19

Although we have been accused of parroting stories of low YLL, it is important to remember that we are quoting a member of SAGE answering the parliamentary select committee. This was the exact wording used by Professor Ferguson on 25th March 2020 committee hearing; “We do not know what the level of excess deaths will be in this epidemic, and by “excess deaths” I mean by the end of the year what proportion of people who died from COVID-19 would have died anyhow? It might be as much as half to two thirds of the deaths we are seeing from COVID-19 because it affects particularly people who are either at the end of their life or with prior health conditions.”^{iv}

This statement contradicts the paper’s conclusion of 11 YLL for male fatalities from COVID-19. With two thirds (or even half) of COVID related deaths taking place by year end from other causes, it is impossible to imagine a YLL in excess of low single digits. For these reasons we believe that the paper’s main conclusion that the effect of long term conditions (“LTC”) is “unlikely to be substantial enough to reduce the YLL to the orders of magnitude suggested by some commentators” is not well founded.

Wider questions on reliability of “the science”

The wider question though remains what is the benefit of the lockdown irrespective of YLL for COVID-19. Our belief is that there is no incremental benefit to the lockdown, the ICU units are not flooded (the reason given for the lockdown) and therefore there is no net benefit. On the cost side there are now clear signs of excess cardiovascular and cancer deaths that have YLL associated with them. Added to that are the very significant health costs associated with a severe recession/depression these have been estimated by the Institute of Fiscal Studies as^v;

- 900,000 more people suffering from a chronic health condition (this is based on 2008 recession and it is clear that 2020 will be worse);
- An increase of 500,000 people of working age suffering from poor mental health.

An estimate from Panda (Pandemic – Data Analysis)^{vi} shows that for South Africa they estimate that the YLL from lockdown will exceed the YLL from COVID by 29 times. We found their analysis to be credible.

The wider conclusion for us is that a lot of analysis produced by medical organisations in the UK cannot be taken at face value. We first reached this conclusion in early April when looking at Imperial College's model where the key assumptions were not well supported by actual data available on the 16th March 2020. Finally, studies like the above are heavily dependent upon assumptions and inputs which appear to be counter-intuitive and shunted into appendices despite their importance.

This implies that it is unfortunately difficult to "leave it to the experts" and "trust and be led by the Science" when much of this seems to be based on opaque assumptions. This is why we continue to question professional conclusions even without the necessary training.

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ⁱ <https://wellcomeopenresearch.org/articles/5-75>

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<https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/datasets/deaths-involving-covid-19-england-and-wales-march-2020>

ⁱⁱⁱ <https://www.wsj.com/articles/coronavirus-kills-people-an-average-of-a-decade-before-their-time-11588424401>

^{iv} <https://committees.parliament.uk/event/708/formal-meeting-oral-evidence-session/>

^v <https://www.ifs.org.uk/uploads/BN281-Recessions-and-health-The-long-term-health-consequences-of-responses-to-COVID-19-FINAL.pdf>

^{vi} <https://www.scribd.com/document/459959942/Pandemic-Data-and-Analytics-Quantifying-Years-of-Lost-Life#download>