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COVID-19, the Swedish 'Experiment', and Me

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Abstract. In this personal vision paper the Swedish approach to COVID-19 prompts an exploration of how and why assuming individual rationality coupled with minimal social restriction may be as good a solution as any and better than most. A COVID sub-model is developed and populated with probabilities for four outcomes of infecting another person (asymptomatic, sick, hospitalized, dead), conditional on three observable characteristics (sex, age, and BMI), and (dis)utilities for three categories of person (nearest/dearest, friends/colleagues and unknown others) experiencing those outcomes. The implications for a liberal democracy are drawn, based on the assumptions that individual citizens will and should maximise their informed expected utility, exhibiting 'commons sense' as well as common sense.

Keywords. COVID-19, coronavirus, Sweden, expected utility, individual rationality, social restriction, common sense, commons sense

Introduction

Along with all aspects of health and healthcare, pHealth will be massively affected by the COVID-19 pandemic. Most of the research undertaken within it will be empirical and technical and much will be of high methodological quality. However, as with all scientific empirical studies, they will necessarily be based on data produced in the past and present and reflect the specific cultural, political and ideological conditions and assumptions under which they are produced- sometimes in full awareness of these, sometimes not. This personal vision paper is prompted by the divergent path taken by Sweden in the face of COVID-19 as a result of its different conditions and assumptions.

My prime motivation is to ensure that concern with what may be interpreted narrowly as short-term policy failures does not obscure the deeper origins of the crisis - and of those policy failures - in terms of long-term failures to develop and operate a mature liberal democracy. These failures currently manifest themselves in most public healthcare systems, which increasingly require 'bailing out' in order to avoid collapse. All these systems take for granted a future in which an individual's health, heavily influenced by socioeconomic factors, will be largely *co-created with healthcare providers*, rather than achieved through *self-production* on the basis of decision support from *independent health analysts* [1]. The fundamental question to be asked routinely, and especially in the current situation, is *cui bono*?

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The Swedish people - and we should stop reifying countries – have not been engaged in any 'experiment' in relation to COVID-19, except as grotesquely mislabelled by outsiders. My perception is that they have simply carried on their own democratic way, whereas (to make this author's position quite clear), others have fallen prey to an international 'groupthink' which justifies authoritarian responses.

What I perceive the Swedes to have done is to continue to implement the necessary condition for a genuine liberal democracy. This condition is that most of population can be trusted to act rationally as individuals most of the time and can, in return, trust their government to complement this with the *minimal* amount of socially justified and necessary restraint. While social restraints can be put in place and will be accepted - such as driving on the same side of the roads, wearing seatbelts and setting speed limits - any laws and constraints not ultimately grounded in consent *and compatible with maximum individual rationality* will be unsustainable, absent a move away from liberal democracy towards authoritarian democracy and, ultimately, totalitarianism.

"One reason why the [Imperial-based] models failed in Sweden is that they – just like most countries' politicians – underestimated how millions of people spontaneously adapt to new circumstances. They only thought in terms of lockdowns vs business as usual, but failed to consider a third option: that people engage in social distancing voluntarily when they realize lives are at stake and when authorities recommend them to do so. In Britain, it's argued that if the number of deaths is far lower than the models predicted, well, this is the result of lockdown. Some even argue that the difference between the predicted and the actual is the lockdown effect. But you can't say that for Sweden. We banned gatherings of more than 50 people, but that was about it. All other behavioral change was voluntary: something the models did not properly understand… As countries plan how to leave lockdown, they can look at Sweden and ask: what happens if you don't involve the police, if you don't issue edicts about how many of your relatives or neighbors you can visit, and just ask people to be careful? Might that work? The Swedish experiment casts huge doubts on the models, and makes the case for trusting the public" [2].

Unfortunately this trust, and the resulting combination of maximum individual responsibility and minimal social restriction can be relied on only in a mature-enough community, one whose members have not been systemically infantilized, 'patientised' and otherwise disempowered from early childhood and throughout adult life. To the extent that they have experienced 'symbolic violence' - false consciously within a national hegemony - individuals will not possess the 'common sense' and *commons sense* that enables the community to cope *proportionately* with a crisis affecting the whole population, but in a highly selective way epidemiologically.

My hypothesis, advanced abductively, is that this is the reason why, when balanced evaluation can eventually be attempted, the Swedish approach will emerge as dominant – best or equal best on all the possible multiple criteria. Except, of course, on the patriotic criterion 'we did it our way'.

However, despite their relative lack of maturity - correctly assumed by their governments, it follows from the above - other populations might still have done relatively much better if they had adopted the Swedish approach.

What I want to do here is to explore the basis of 'common sense' and 'commons sense' in a simple model of a rational individual confronted with a new and serious infectious disease, but also any similar challenge.

How will this person be 'individually rational'? They will be thinking, deciding and acting in a way that maximizes their 'expected utility' (EU). This involves combining,

intuitively, their relevant probabilities of, and (dis)utilities for, various outcomes, in an expected value calculation. Very familiar with purported refutations of EU maximization as a *descriptive* theory of human behavior, I am with Socrates in believing that it is impossible to prove an individual is not maximizing their expected utility - and that it would indeed be a sign of mental illness to deny that one both is, and should be, doing this. I am accordingly doing so in writing this paper, which involves constructing a COVID-19 sub-model for inclusion in an individual's (my) overall EU model. It will almost certainly seem an absurd project to many, but starting from the absurd and working back to the pragmatic can often be the best way to overcome anchoring in taken-for-granted assumptions of many kinds.

1. The COVID-19 Sub-Model

For convenience, I will talk personally about the present situation with COVID-19, though I am proposing it as a general model of all individuals in any similar context.

I will assume (true July 2020) that I am asymptomatic but don't know whether (a) I have the virus but am genuinely asymptomatic, (b) have had it but don't know that, or (c) do know that I have had it as a result of an anti-body test, but don't know whether it is possible to continue to infect and/or be re-infected. 'Asymptomatic' is used as short-hand for all these possibilities and I assume I have probability p of being infectious.

Individuals in my 'small world' will have one of four outcomes *if* I infect them:

Asymptomatic (as above); Sick (but will recover); Hospitalised (but will be discharged alive); Dying/Dead.

Based on the limited information available to me, each individual has three key relevant *observable* characteristics. My 3-dimensional, 18-category coding scheme is:

Sex : 1 = Female; 2 = Male

Age : 1 = <50; 2 = 50-70; 3 = >70

Health status (proxy = BMI) 1 =<20; 2= 20-25; 3 = >25

An obese 60 yo male is therefore coded 223, a slim 40yo female 111. Personal knowledge may permit better coding of Health status. (The temptation to add other characteristics should be tempered by asking whether they will add sufficient predictive power to offset the increased processing burden for me.)

So p223H is my probability of infecting an obese male aged 60 with the consequence that he is Hospitalized (but will be discharged alive). The four probabilities for any individual in a code add to 100%, since the four outcomes are mutually exclusive and collectively exhaustive. After careful thought and reading - and in the absence of any useful support from official sources – my four probabilities for a 223 (at 1-2 meters) are Asymptomatic: 0.9 [90%], Sick: 0.0976 [nearly 10%], Hospitalized: 0.0018 [nearly 2 in 1,000], Dead: 0.0006 [6 in 10,000]. (Better numbers are most welcome, but not comments on them without alternatives.) Of course, these are central point estimates, for each of which there is a credible interval (CI) representing their uncertainty. But retaining these CIs after arriving at the central point estimate will cause me only confusion and worry without benefit.

On the utility side of my Expected Utility calculation, I partition people into :

ND=Nearest/Dearest; FC=Friends/Colleagues; UO=Unknown Others

and assign the following *dis*utilities (the higher the worse)

UO: A = 0; S = 1; H = 10; D = 100

FC: A = 0; S = 100; H = 1,000; D = 10,000

ND: A = 0; S = 1,000; H = 10,000; D = 100,000

The assignment of disutilities 1000 times lower to a UO than to an ND may be initially worrying, even distasteful. Remember first, however, that we are all culturally duty-bound to 'put family first'. Remember, secondly, that everyone else is assumed to be acting this way and most UOs (and FCs) will be NDs to some others, apart from being 'me' to him or herself. But, thirdly and most important, remember that this is the fundamental justification for the (minimal) social restriction on my behavior, *to which I consent as part of my commons sense*.

What about the probabilities associated with myself being infected or re-infected? Since I am only interacting with As, and since I assign to them the same probability as myself of being currently infectious (irrespective of their code), this can be a single set of four probabilities. As a 231 I can see no reason not to use the same set as my own ones for infecting any other 231. The rational individual will treat themselves as one of the crowd, probabilities-wise, though definitely not utility-wise.

2. The data

In online Table 1 [at https://bit.ly/covid19] I set out my data for this model, with probabilities for the 18 codes and the expected *disutilities* for two physical distances. One set is for distances below a 1 meter threshold and the other for 1-2 meters. Why the former? Because in a mature liberal democracy we are entitled to know the basis for being prevented, or discouraged, from engaging in such a fundamental human behavior - and right - as hugging. (Note that only the extreme probabilities for each sex = 111/133 and 211/233 - are my actual estimates; all other (dimmed) probabilities are simple interpolations. The file is left unlocked as a downloadable template.)

I have placed the disutilities on an arbitrary (but linear) 0-100,000 scale for easy comprehension and computation. This implies that placing this sub-model within my overall Expected Utility model involves determining the threshold expected disutility that will lead to a net overall benefit for me. This will reflect, among many other things, the positive utility of a hug.

One thing is very clear: wherever this sub-model threshold is put, there will be less engaging with NDs than with FCs and much much less than with UOs. For example, if it is put at 100 it would rule out engaging with a 233ND even 1.5 meters away because the expected disutility in Table 1 is 176. On the other hand, I would happily hug any FC (or UO) - but expect most of them to resist the invitation.

The model will not only determine whether and to what extent I take actions *voluntarily* to avoiding infecting particular others (e.g. by physical/social distancing), given my beliefs about the probabilities and my value-judgment based disutilities. It will also affect my views on the behavior of others. I *understand* why some groups of 111 and 211 UOs will mingle and hug, disrespecting physical/social distancing and failing to conform socially, because of disbelief in its biological significance.

The hypothesis is, that as a result of most individuals implementing this personal model (with maximal uncensored information and minimal restrictions) any national R (reproduction rate for the virus) will be below 1 and probably well below 1. It will be low voluntarily, not because of legal and public pressure to conform to an imposed top-down policy, which in any case will be unsustainable for more than weeks. In a formal sense everyone has a personally-adjusted R (PAR) with every other person in their small world. The person's overall small world PAR is the aggregation of these dyadic PARs

and the national R is an aggregation of these small world Rs. A *national* macro R is an interesting aggregate consequence of micro behavior, not a sensible policy target. Swedes are constructing their own small world Rs within minimal governmental restraints, these building from 'bottom-up' into their macro national R.

3. The Future Vision

It is vital that the best available information relevant to my probabilities - and to any pragmatic personal model of this sort - is communicated to me (i.e. to the public) in a clear and transparent way, so as to support informed participation in addressing the threat to the health commons. Statisticians need to become personal as well as public health epidemiologists, helping individuals to act on the best possible probabilities and hence arrive at an informed expected utility. Not implicitly saying 'it's all too difficult, don't bother your tiny head with this, nanny will look after you', because that message will be rightly rejected as insufferably patronizing, paternalistic - and ineffective.

Also will be rejected is the suggestion that we don't have the 'evidence' or 'data' to suggest such probabilities. Like most people I have to get through life making decisions without having the 'evidence' or 'data' that would meet scientists' definitions. I do so, like everyone, including scientists and classical statisticians, by being an intuitive Bayesian [3] - from birth [4]. That does not involve toggling between intuition and analysis, or system 1 and system 2, or any other binary compartmentalization of cognition. It means moving from a predominantly intuitive mode to the more equal balancing of intuition and analysis visualisable in Ken Hammond's Cognitive Continuum as developed in [5]. Scientists and educators may opt out of enhancing the discrimination and calibration of our personal belief judgments if they wish. Sadly this opting out will be individually rational for them, because they are neither encouraged nor funded by society to undertake it. But this means we will all be using probabilities that could be improved.

Since utilities are *value* judgments, not belief judgments, there is no such thing as 'expertise' on the utility side of decision making. This is why the idea of 'scientific *advice*' is an oxymoron. We can all be *encouraged* to have a high uUO as a member of the commons. Stated preference (talk) studies will probably reflect this urging, but revealed preference (walk) studies suggest otherwise. Societies that stress the virtues of a high uUO, while simultaneously stressing that 'family must always come first', should expect that the result of such incoherence will be big talk ('our thoughts are with you'), but little or no walk. And while it is mandatory to argue that public health services like the NHS are there for all, support for them basically stems from the knowledge that 'me and mine' are highly likely to need them sooner or later [6].

Turning to the costing basis of justified social restrictions, no amount of meaningless mantras about 'saving lives' will stop me *as a rational citizen* (of the UK) arguing for a pandemic-adjusted maximum value of £100,000 for an additional LifeYear (LY), irrespective of age. (At 81 I am entitled to deny this involves being 'ageist'.) My £100,000, for a LY not a QALY, is far above the normal £40,000 NICE QALY maximum. It is, of course, vital to see these numbers not as amounts of *money*, but as proxy measures of the opportunity harms we are willing to impose on UOs in the form of mortality, morbidity, and other important sources of 'life' and 'living' [7].

Finally, there is limited place in this envisioned future for 'behavioral science' and 'nudging'. They 'diss' the individual, seek to exploit limitations in their rationality and

implicitly scoff at the idea of improving their ability to maximize expected utility and, in this way, enhance both their common sense and their commons sense. An Orwellian world is not as far away as they would like to think [8].

References

[1] Dowie J, Kaltoft MK. The future of health is self-production and co-creation based on apomediative decision support. Medical Sciences 2018; 6: 66.
[2] Norberg J. Can we trust Covid modelling? More evidence from Sweden. The Spectator (2020) May 12 [https://www.spectator.co.uk/article/can-we-trust-covid-modelling-more-evidence-from-sweden]
[3] Dowie J. The Bayesian approach to decision making. In: Killoran A, Swann C, Kelly M, editors. Public Health Evidence: Tackling Health Inequalities. Oxford: Oxford University Press; 2006, 309–21.
[4] Jara-Ettinger J, Gweon H, Schulz LE, Tenenbaum JB. The Naïve Utility Calculus: Computational principles underlying commonsense psychology. Trends in Cognitive Sciences 2016; 20: 589–604.
[5] Dowie J. Mapping the translation challenge. Stud Health Technol Inform. 2013; 192: 996. [Poster is available at https://bit.ly/judemakiaposter]
[6] Dowie J. The political economy of the NHS: individualist justifications of collective action. Social Science and Medicine, 1985; 20: 1041–8.
[7] Dowie J, Rajput VK, Kaltoft MK. A Generic Rapid Evaluation Support Tool (GREST) for Clinical and Commissioning Decisions. Stud Health Technol Inform. 2019; 266: 576–80.
[8] Sætra HS. When nudge comes to shove : liberty and nudging in the era of Big Data. Technology in Society 2019; 59: 101130.