

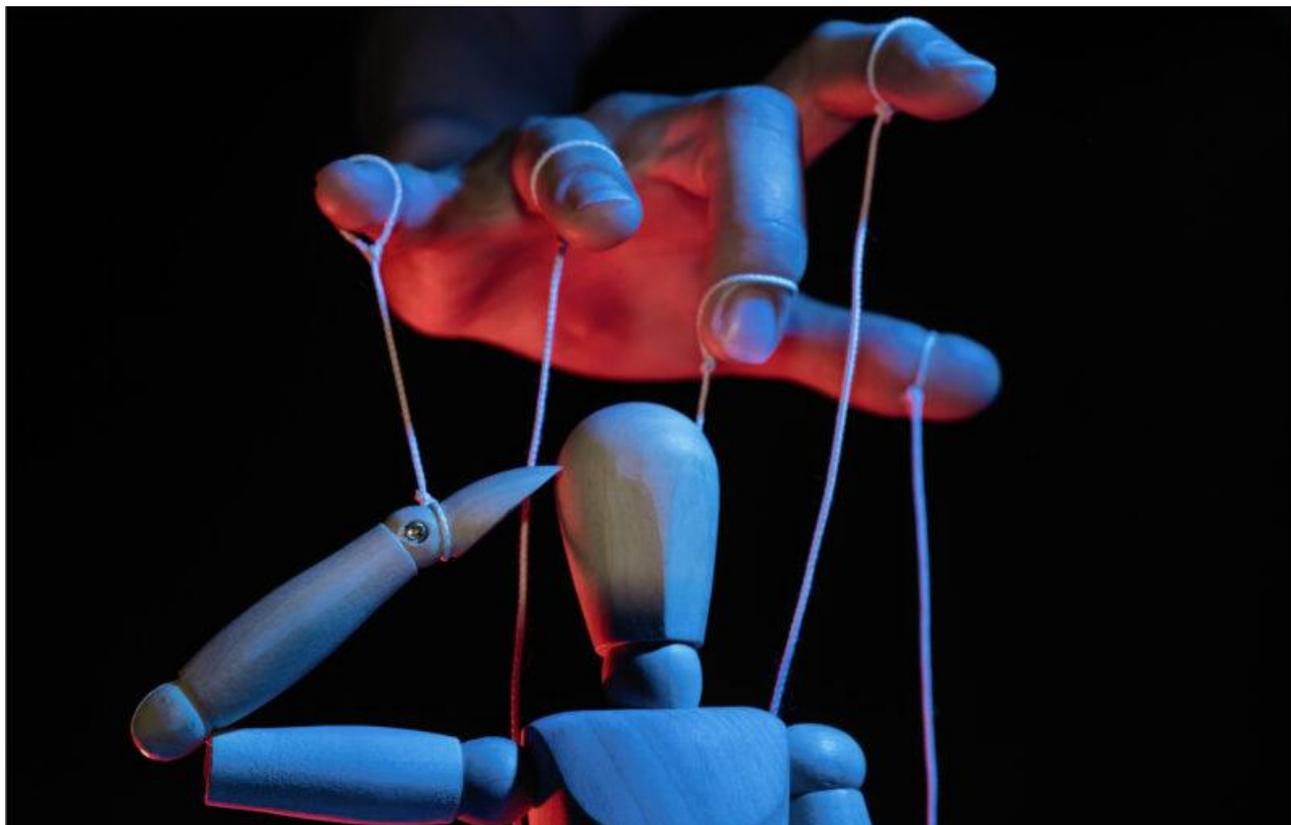
# Lockdowns Do Not Control the Coronavirus: The Evidence

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**AIER** AIER Staff

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The use of universal lockdowns in the event of the appearance of a new pathogen has no precedent. It has been a science experiment in real time, with most of the human population used as lab rats. The costs are legion.

The question is whether lockdowns worked to control the virus in a way that is scientifically verifiable. Based on the following studies, the answer is no and for a variety of reasons: bad data, no correlations, no causal demonstration, anomalous exceptions, and so on. There is no relationship between lockdowns (or whatever else people want to call them to mask their true nature) and virus control.

Perhaps this is a shocking revelation, given that universal social and economic controls are becoming the new orthodoxy. In a saner world, the burden of proof really should belong to the lockdowners, since it is they who overthrew 100 years of public-health wisdom and replaced it with an untested, top-down imposition on freedom and human rights. They never accepted that burden. They took it as axiomatic that a virus could be intimidated and frightened by credentials, edicts, speeches, and masked gendarmes.

The pro-lockdown evidence is shockingly thin, and based largely on comparing real-world outcomes against dire computer-generated forecasts derived from empirically untested models, and then merely positing that stringencies and “nonpharmaceutical interventions” account for the difference between the fictionalized vs. the real outcome. The anti-lockdown studies, on the other hand, are evidence-based, robust, and thorough, grappling with the data we have (with all its flaws) and looking at the results in light of controls on the population.

Much of the following list has been put together by data engineer [Ivor Cummins](#), who has waged a year-long educational effort to upend intellectual support for lockdowns. AIER has added its own and the summaries. The upshot is that the virus is going to do as viruses do, same as always in the history of infectious disease. We have extremely limited control over them, and that which we do have is bound up with time and place. Fear, panic, and coercion are not ideal strategies for managing viruses. Intelligence and medical therapeutics fare much better.

(These studies are focused only on lockdown and their relationship to virus control. They do not get into the myriad associated issues that have vexed the world such as mask mandates, PCR-testing issues, death misclassification problem, or any particular issues associated with travel restrictions, restaurant closures, and hundreds of other particulars about which whole libraries will be written in the future.)

1. [“A country level analysis measuring the impact of government actions, country preparedness and socioeconomic factors on COVID-19 mortality and related health outcomes”](#) by Rabail Chaudhry, George Dranitsaris, Talha Mubashir, Justyna Bartoszko, Sheila Riaz. *EClinicalMedicine* 25 (2020) 100464. “[F]ull lockdowns and wide-spread COVID-19 testing were not associated with reductions in the number of critical cases or overall mortality.”

2. [“Was Germany’s Corona Lockdown Necessary?”](#) by Christof Kuhbandner, Stefan Homburg, Harald Walach, Stefan Hockertz. *Advance: Sage Preprint*, June 23, 2020. “Official data from Germany’s RKI agency suggest strongly that the spread of the coronavirus in Germany receded autonomously, before any interventions became effective. Several reasons for such an autonomous decline have been suggested. One is that differences in host susceptibility and behavior can result in herd immunity at a relatively low prevalence level. Accounting for individual variation in susceptibility or exposure to the coronavirus yields a maximum of 17% to 20% of the population that needs to be infected to

reach herd immunity, an estimate that is empirically supported by the cohort of the Diamond Princess cruise ship. Another reason is that seasonality may also play an important role in dissipation.”

3. “Estimation of the current development of the SARS-CoV-2 epidemic in Germany” by Matthias an der Heiden, Osamah Hamouda. Robert Koch-Institut, April 22, 2020. “In general, however, not all infected people develop symptoms, not all those who develop symptoms go to a doctor’s office, not all who go to the doctor are tested and not all who test positive are also recorded in a data collection system. In addition, there is a certain amount of time between all these individual steps, so that no survey system, no matter how good, can make a statement about the current infection process without additional assumptions and calculations.”

4. Did COVID-19 infections decline before UK lockdown? by Simon N. Wood. Cornell University pre-print, August 8, 2020. “A Bayesian inverse problem approach applied to UK data on COVID-19 deaths and the disease duration distribution suggests that infections were in decline before full UK lockdown (24 March 2020), and that infections in Sweden started to decline only a day or two later. An analysis of UK data using the model of Flaxman et al. (2020, Nature 584) gives the same result under relaxation of its prior assumptions on R.”

5. “Comment on Flaxman et al. (2020): The illusory effects of non-pharmaceutical interventions on COVID-19 in Europe” by Stefan Homburg and Christof Kuhbandner. June 17, 2020. Advance, Sage Pre-Print. “In a recent article, Flaxman et al. allege that non-pharmaceutical interventions imposed by 11 European countries saved millions of lives. We show that their methods involve circular reasoning. The purported effects are pure artefacts, which contradict the data. Moreover, we demonstrate that the United Kingdom’s lockdown was both superfluous and ineffective.”

6. Professor Ben Israel’s Analysis of virus transmission. April 16, 2020. “Some may claim that the decline in the number of additional patients every day is a result of the tight lockdown imposed by the government and health authorities. Examining the data of different countries around the world casts a heavy question mark on the above statement. It turns out that a similar pattern – rapid increase in infections that reaches a peak in the sixth week and declines from the eighth week – is common to all countries in which the disease was discovered, regardless of their response policies: some imposed a severe and immediate lockdown that included not only ‘social distancing’ and banning crowding, but also shutout of economy (like Israel); some ‘ignored’ the infection and continued almost a normal life (such as Taiwan, Korea or Sweden), and some initially adopted a lenient policy but soon reversed to a complete lockdown (such as Italy or the State of New York). Nonetheless, the data shows similar time constants amongst all these countries in regard to the initial rapid growth and the decline of the disease.”

7. “Impact of non-pharmaceutical interventions against COVID-19 in Europe: a quasi-experimental study” by Paul Raymond Hunter, Felipe Colon-Gonzalez, Julii Suzanne Brainard, Steve Rushton. MedRxiv Pre-print May 1, 2020. “The current epidemic of COVID-19 is unparalleled in recent history as are the social distancing interventions that have led to a significant halt on the economic and social life of so many countries. However, there is very little empirical evidence about which social distancing measures have the most impact... From both sets of modelling, we found that closure of education facilities, prohibiting mass gatherings and closure of some non-essential businesses were associated with reduced incidence whereas stay at home orders and closure of all non-businesses was not associated with any independent additional impact.”

8. “Full lockdown policies in Western Europe countries have no evident impacts on the COVID-19 epidemic” by Thomas Meunier. MedRxiv Pre-print May 1, 2020. “This phenomenological study assesses the impacts of full lockdown strategies applied in Italy, France, Spain and United Kingdom, on the slowdown of the 2020 COVID-19 outbreak. Comparing the trajectory of the epidemic before and after the lockdown, we find no evidence of any discontinuity in the growth rate, doubling time, and reproduction number trends. Extrapolating pre-lockdown growth rate trends, we provide estimates of the death toll in the absence of any lockdown policies, and show that these strategies might not have saved any life in western Europe. We also show that neighboring countries applying less restrictive social distancing measures (as opposed to police-enforced home containment) experience a very similar time evolution of the epidemic.”

9. “Trajectory of COVID-19 epidemic in Europe” by Marco Colombo, Joseph Mellor, Helen M Colhoun, M. Gabriela M. Gomes, Paul M McKeigue. MedRxiv Pre-print. Posted September 28, 2020. “The classic Susceptible-Infected-Recovered model formulated by Kermack and McKendrick assumes that all individuals in the population are equally susceptible to infection. From fitting such a model to the trajectory of mortality from COVID-19 in 11 European countries up to 4 May 2020 Flaxman et al. concluded that ‘major non-pharmaceutical interventions — and lockdowns in particular — have had a large effect on reducing transmission’. We show that relaxing the assumption of homogeneity to allow for individual variation in susceptibility or connectivity gives a model that has better fit to the data and more accurate 14-day forward prediction of mortality. Allowing for heterogeneity reduces the estimate of ‘counterfactual’ deaths that would have occurred if there had been no interventions from 3.2 million to 262,000, implying that most of the slowing and reversal of COVID-19 mortality is explained by the build-up of herd immunity. The estimate of the herd immunity threshold depends on the value specified for the infection fatality ratio (IFR): a value of 0.3% for the IFR gives 15% for the average herd immunity threshold.”

10. “Effect of school closures on mortality from coronavirus disease 2019: old and new predictions” by Ken Rice, Ben Wynne, Victoria Martin, Graeme J Ackland. British Medical Journal, September 15, 2020. “The findings of this study suggest that prompt interventions were shown to be highly effective at reducing peak demand for intensive care unit (ICU)

beds but also prolong the epidemic, in some cases resulting in more deaths long term. This happens because covid-19 related mortality is highly skewed towards older age groups. In the absence of an effective vaccination programme, none of the proposed mitigation strategies in the UK would reduce the predicted total number of deaths below 200 000.”

11. “Modeling social distancing strategies to prevent SARS-CoV2 spread in Israel- A Cost-effectiveness analysis” by Amir Shlomai, Ari Leshno, Ella H Sklan, Moshe Leshno. MedRxiv Pre-Print. September 20, 2020. “A nationwide lockdown is expected to save on average 274 (median 124, interquartile range (IQR): 71-221) lives compared to the ‘testing, tracing, and isolation’ approach. However, the ICER will be on average \$45,104,156 (median \$ 49.6 million, IQR: 22.7-220.1) to prevent one case of death. Conclusions: A national lockdown has a moderate advantage in saving lives with tremendous costs and possible overwhelming economic effects. These findings should assist decision-makers in dealing with additional waves of this pandemic.”

12. Too Little of a Good Thing A Paradox of Moderate Infection Control, by Ted Cohen and Marc Lipsitch. *Epidemiology*. 2008 Jul; 19(4): 588–589. “The link between limiting pathogen exposure and improving public health is not always so straightforward. Reducing the risk that each member of a community will be exposed to a pathogen has the attendant effect of increasing the average age at which infections occur. For pathogens that inflict greater morbidity at older ages, interventions that reduce but do not eliminate exposure can paradoxically increase the number of cases of severe disease by shifting the burden of infection toward older individuals.”

13. “Smart Thinking, Lockdown and COVID-19: Implications for Public Policy.” by Morris Altman. *Journal of Behavioral Economics for Policy*, 2020. “The response to COVID-19 has been overwhelmingly to lockdown much of the world’s economies in order to minimize death rates as well as the immediate negative effects of COVID-19. I argue that such policy is too often de-contextualized as it ignores policy externalities, assumes death rate calculations are appropriately accurate and, and as well, assumes focusing on direct Covid-19 effects to maximize human welfare is appropriate. As a result of this approach current policy can be misdirected and with highly negative effects on human welfare. Moreover, such policies can inadvertently result in not minimizing death rates (incorporating externalities) at all, especially in the long run. Such misdirected and sub-optimal policy is a product of policy makers using inappropriate mental models which are lacking in a number of key areas; the failure to take a more comprehensive macro perspective to address the virus, using bad heuristics or decision-making tools, relatedly not recognizing the differential effects of the virus, and adopting herding strategy (follow-the-leader) when developing policy. Improving the decision-making environment, inclusive of providing more comprehensive governance and improving mental models could have lockdowns throughout the world thus yielding much higher levels of human welfare.”

14. ["SARS-CoV-2 waves in Europe: A 2-stratum SEIRS model solution"](#) by Levan Djaparidze and Federico Lois. MedRxiv pre-print, October 23, 2020. "We found that 180-day of mandatory isolations to healthy <60 (i.e. schools and workplaces closed) produces more final deaths if the vaccination date is later than (Madrid: Feb 23 2021; Catalonia: Dec 28 2020; Paris: Jan 14 2021; London: Jan 22 2021). We also modeled how average isolation levels change the probability of getting infected for a single individual that isolates differently than average. That led us to realize disease damages to third parties due to virus spreading can be calculated and to postulate that an individual has the right to avoid isolation during epidemics (SARS-CoV-2 or any other)."

15. ["Did Lockdown Work? An Economist's Cross-Country Comparison"](#) by Christian Bjørnskov. *CEifo Economic Studies* March 29, 2021. "The lockdowns in most Western countries have thrown the world into the most severe recession since World War II and the most rapidly developing recession ever seen in mature market economies. They have also caused an erosion of fundamental rights and the separation of powers in a large part of the world as both democratic and autocratic regimes have misused their emergency powers and ignored constitutional limits to policy-making (Bjørnskov and Voigt, 2020). It is therefore important to evaluate whether and to which extent the lockdowns have worked as officially intended: to suppress the spread of the SARS-CoV-2 virus and prevent deaths associated with it. Comparing weekly mortality in 24 European countries, the findings in this paper suggest that more severe lockdown policies have not been associated with lower mortality. In other words, the lockdowns have not worked as intended."

16. ["Four Stylized Facts about COVID-19"](#) ([alt-link](#)) by Andrew Atkeson, Karen Kopecky, and Tao Zha. NBER working paper 27719, August 2020. "One of the central policy questions regarding the COVID-19 pandemic is the question of which non-pharmaceutical interventions governments might use to influence the transmission of the disease. Our ability to identify empirically which NPI's have what impact on disease transmission depends on there being enough independent variation in both NPI's and disease transmission across locations as well as our having robust procedures for controlling for other observed and unobserved factors that might be influencing disease transmission. The facts that we document in this paper cast doubt on this premise.... The existing literature has concluded that NPI policy and social distancing have been essential to reducing the spread of COVID-19 and the number of deaths due to this deadly pandemic. The stylized facts established in this paper challenge this conclusion."

17. ["How does Belarus have one of the lowest death rates in Europe?"](#) by Kata Karáth. *British Medical Journal*, September 15, 2020. "Belarus's beleaguered government remains unfazed by covid-19. President Aleksander Lukashenko, who has been in power since 1994, has flatly denied the seriousness of the pandemic, refusing to impose a lockdown, close schools, or cancel mass events like the Belarusian football league or the Victory Day parade. Yet the country's death rate is among the lowest in Europe—just over 700 in a population of 9.5 million with over 73 000 confirmed cases."

18. “Association between living with children and outcomes from COVID-19: an OpenSAFELY cohort study of 12 million adults in England” by Harriet Forbes, Caroline E Morton, Seb Bacon et al., by MedRxiv, November 2, 2020. “Among 9,157,814 adults ≤65 years, living with children 0-11 years was not associated with increased risks of recorded SARS-CoV-2 infection, COVID-19 related hospital or ICU admission but was associated with reduced risk of COVID-19 death (HR 0.75, 95%CI 0.62-0.92). Living with children aged 12-18 years was associated with a small increased risk of recorded SARS-CoV-2 infection (HR 1.08, 95%CI 1.03-1.13), but not associated with other COVID-19 outcomes. Living with children of any age was also associated with lower risk of dying from non-COVID-19 causes. Among 2,567,671 adults >65 years there was no association between living with children and outcomes related to SARS-CoV-2. We observed no consistent changes in risk following school closure.”

19. “Exploring inter-country coronavirus mortality.” By Trevor Nell, Ian McGorian, Nick Hudson. Pandata, July 7, 2020. “For each country put forward as an example, usually in some pairwise comparison and with an attendant single cause explanation, there are a host of countries that fail the expectation. We set out to model the disease with every expectation of failure. In choosing variables it was obvious from the outset that there would be contradictory outcomes in the real world. But there were certain variables that appeared to be reliable markers as they had surfaced in much of the media and pre-print papers. These included age, co-morbidity prevalence and the seemingly light population mortality rates in poorer countries than that in richer countries. Even the worst among developing nations—a clutch of countries in equatorial Latin America—have seen lighter overall population mortality than the developed world. Our aim therefore was not to develop the final answer, rather to seek common cause variables that would go some way to providing an explanation and stimulating discussion. There are some very obvious outliers in this theory, not the least of these being Japan. We test and find wanting the popular notions that lockdowns with their attendant social distancing and various other NPIs confer protection.”

20. “Covid-19 Mortality: A Matter of Vulnerability Among Nations Facing Limited Margins of Adaptation” by Quentin De Larochelambert, Andy Marc, Juliana Antero, Eric Le Bourg, and Jean-François Toussaint. Frontiers in Public Health, 19 November 2020. “Higher Covid death rates are observed in the [25/65°] latitude and in the [-35/-125°] longitude ranges. The national criteria most associated with death rate are life expectancy and its slowdown, public health context (metabolic and non-communicable diseases (NCD) burden vs. infectious diseases prevalence), economy (growth national product, financial support), and environment (temperature, ultra-violet index). Stringency of the measures settled to fight pandemics, including lockdown, did not appear to be linked with death rate. Countries that already experienced a stagnation or regression of life expectancy, with high income and NCD rates, had the highest price to pay. This burden was not alleviated by more stringent public decisions. Inherent factors have predetermined the Covid-19 mortality: understanding them may improve prevention strategies by increasing population resilience through better physical fitness and immunity.”

21. “States with the Fewest Coronavirus Restrictions” by Adam McCann. WalletHub, Oct 6, 2020. This study assesses and ranks stringencies in the United States by states. The results are plotted against deaths per capita and unemployment. The graphics reveal no relationship in stringency level as it relates to the death rates, but finds a clear relationship between stringency and unemployment.

22. The Mystery of Taiwan: Commentary on the Lancet Study of Taiwan and New Zealand, by Amelia Janaskie. American Institute for Economic Research, November 2, 2020. “The Taiwanese case reveals something extraordinary about pandemic response. As much as public-health authorities imagine that the trajectory of a new virus can be influenced or even controlled by policies and responses, the current and past experiences of coronavirus illustrate a different point. The severity of a new virus might have far more to do with endogenous factors within a population rather than the political response. According to the lockdown narrative, Taiwan did almost everything ‘wrong’ but generated what might in fact be the best results in terms of public health of any country in the world.”

23. “Predicting the Trajectory of Any COVID19 Epidemic From the Best Straight Line” by Michael Levitt, Andrea Scaiewicz, Francesco Zonta. MedRxiv, Pre-print, June 30, 2020. “Comparison of locations with over 50 deaths shows all outbreaks have a common feature:  $H(t)$  defined as  $\log_e(X(t)/X(t-1))$  decreases linearly on a log scale, where  $X(t)$  is the total number of Cases or Deaths on day,  $t$  (we use  $\ln$  for  $\log_e$ ). The downward slopes vary by about a factor of three with time constants ( $1/\text{slope}$ ) of between 1 and 3 weeks; this suggests it may be possible to predict when an outbreak will end. Is it possible to go beyond this and perform early prediction of the outcome in terms of the eventual plateau number of total confirmed cases or deaths? We test this hypothesis by showing that the trajectory of cases or deaths in any outbreak can be converted into a straight line. Specifically  $Y(t) \equiv -\ln(\ln(N/X(t)))$ , is a straight line for the correct plateau value  $N$ , which is determined by a new method, Best-Line Fitting (BLF). BLF involves a straight-line facilitation extrapolation needed for prediction; it is blindingly fast and amenable to optimization. We find that in some locations that entire trajectory can be predicted early, whereas others take longer to follow this simple functional form.”

24. “Government mandated lockdowns do not reduce Covid-19 deaths: implications for evaluating the stringent New Zealand response” by John Gibson. New Zealand Economic Papers, August 25, 2020. “The New Zealand policy response to Coronavirus was the most stringent in the world during the Level 4 lockdown. Up to 10 billion dollars of output ( $\approx 3.3\%$  of GDP) was lost in moving to Level 4 rather than staying at Level 2, according to Treasury calculations. For lockdown to be optimal requires large health benefits to offset this output loss. Forecast deaths from epidemiological models are not valid counterfactuals, due to poor identification. Instead, I use empirical data, based on variation amongst United States counties, over one-fifth of which just had social distancing rather than lockdown. Political drivers of lockdown provide identification. Lockdowns do not reduce Covid-19 deaths. This

pattern is visible on each date that key lockdown decisions were made in New Zealand. The apparent ineffectiveness of lockdowns suggests that New Zealand suffered large economic costs for little benefit in terms of lives saved.”

25. “Lockdowns and Closures vs COVID – 19: COVID Wins” by Surjit S Bhalla, executive director for India of the International Monetary Fund. “For the first time in human history, lockdowns were used as a strategy to counter the virus. While conventional wisdom, to date, has been that lockdowns were successful (ranging from mild to spectacular) we find not one piece of evidence supporting this claim.”

26. “Effects of non-pharmaceutical interventions on COVID-19: A Tale of Three Models” by Vincent Chin, John P.A. Ioannidis, Martin A. Tanner, Sally Cripps, MedXriv, July 22, 2020. “Inferences on effects of NPIs are non-robust and highly sensitive to model specification. Claimed benefits of lockdown appear grossly exaggerated.”

27. “Assessing Mandatory Stay-at-Home and Business Closure Effects on the Spread of COVID-19” by Eran Bendavid, Christopher Oh, Jay Bhattacharya, John P.A. Ioannidis. European Journal of Clinical Investigation, January 5, 2021. “Implementing any NPIs was associated with significant reductions in case growth in 9 out of 10 study countries, including South Korea and Sweden that implemented only IrNPIs (Spain had a non-significant effect). After subtracting the epidemic and IrNPI effects, we find no clear, significant beneficial effect of mrNPIs on case growth in any country. In France, e.g., the effect of mrNPIs was +7% (95CI -5%-19%) when compared with Sweden, and +13% (-12%-38%) when compared with South Korea (positive means pro-contagion). The 95% confidence intervals excluded 30% declines in all 16 comparisons and 15% declines in 11/16 comparisons.”

28. “Lockdown Effects on Sars-CoV-2 Transmission – The evidence from Northern Jutland” by Kasper Planeta Kepp and Christian Bjørnskov. MedXriv, January 4, /2021.”The exact impact of lockdowns and other NPIs on Sars-CoV-2 transmission remain a matter of debate as early models assumed 100% susceptible homogenously transmitting populations, an assumption known to overestimate counterfactual transmission, and since most real epidemiological data are subject to massive confounding variables. Here, we analyse the unique case-controlled epidemiological dataset arising from the selective lockdown of parts of Northern Denmark, but not others, as a consequence of the spread of mink-related mutations in November 2020. Our analysis shows that while infection levels decreased, they did so before lockdown was effective, and infection numbers also decreased in neighbour municipalities without mandates. Direct spill-over to neighbour municipalities or the simultaneous mass testing do not explain this. Instead, control of infection pockets possibly together with voluntary social behaviour was apparently effective before the mandate, explaining why the infection decline occurred before and in both the mandated and non-mandated areas. The data suggest that efficient infection surveillance and voluntary compliance make full lockdowns unnecessary at least in some circumstances.”

29. "A First Literature Review: Lockdowns Only Had a Small Effect on COVID-19" by Jonas Herby, SSRN, January 6, 2021. "How important was the economic lockdowns in the spring of 2020 in curbing the COVID-19 pandemic and how important was the lockdown in comparison to voluntary changes in behavior? In the spring, the overall social response to the COVID-19 pandemic consisted of a mix of voluntary and government mandated behavior changes. Voluntary behavior changes occurred on the basis of information, such as the number of people infected, the number of COVID-19-deaths and on the basis of the signal value associated with the official lockdown combined with appeals to the population to change its behavior. Mandated behavior changes took place as a result of the banning of certain activities deemed non-essential. Studies which differentiate between the two types of behavioral change find that, on average, mandated behavior changes accounts for only 9% (median: 0%) of the total effect on the growth of the pandemic stemming from behavioral changes. The remaining 91% (median: 100%) of the effect was due to voluntary behavior changes. This is excluding the effect of curfew and facemasks, which was not employed in all countries."

30. "The effect of interventions on COVID-19" by Kristian Soltesz, Fredrik Gustafsson, Toomas Timpka, Joakim Jaldén, Carl Jidling, Albin Heimerson, Thomas B. Schön, Armin Spreco, Joakim Ekberg, Örjan Dahlström, Fredrik Bagge Carlson, Anna Jöud & Bo Bernhardsson . *Nature*, December 23, 2020. "Flaxman et al. took on the challenge of estimating the effectiveness of five categories of non-pharmaceutical intervention (NPI)—social distancing encouraged, self isolation, school closures, public events banned, and complete lockdown—on the spread of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). On the basis of mortality data collected between January and early May 2020, they concluded that only one of these, the lockdown, had been effective in 10 out of the 11 European countries that were studied. However, here we use simulations with the original model code to suggest that the conclusions of Flaxman et al. with regard to the effectiveness of individual NPIs are not justified. Although the NPIs that were considered have indisputably contributed to reducing the spread of the virus, our analysis indicates that the individual effectiveness of these NPIs cannot be reliably quantified."

31. "Stay-at-home policy is a case of exception fallacy: an internet-based ecological study," by R. F. Savaris, G. Pumi, J. Dalzochio & R. Kunst. *Nature*, March 5, 2021. "A recent mathematical model has suggested that staying at home did not play a dominant role in reducing COVID-19 transmission. The second wave of cases in Europe, in regions that were considered as COVID-19 controlled, may raise some concerns. Our objective was to assess the association between staying at home (%) and the reduction/increase in the number of deaths due to COVID-19 in several regions in the world.... After preprocessing the data, 87 regions around the world were included, yielding 3741 pairwise comparisons for linear regression analysis. Only 63 (1.6%) comparisons were significant. With our results, we were not able to explain if COVID-19 mortality is reduced by staying at home in ~ 98% of the comparisons after epidemiological weeks 9 to 34.... We were not able to explain the variation of deaths/million in different regions in the world by social isolation,

herein analyzed as differences in staying at home, compared to baseline. In the *restrictive* and *global* comparisons, only 3% and 1.6% of the comparisons were significantly different, respectively.”

32. “Evaluating the effects of shelter-in-place policies during the COVID-19 pandemic” by Christopher R. Berry, Anthony Fowler, Tamara Glazer, Samantha Handel-Meyer, and Alec MacMillen, Proceedings of the National Academy of Science of the USA, April 13, 2021. “We study the health, behavioral, and economic effects of one of the most politically controversial policies in recent memory, shelter-in-place orders during the COVID-19 pandemic. Previous studies have claimed that shelter-in-place orders saved thousands of lives, but we reassess these analyses and show that they are not reliable. We find that shelter-in-place orders had no detectable health benefits, only modest effects on behavior, and small but adverse effects on the economy. To be clear, our study should not be interpreted as evidence that social distancing behaviors are not effective. Many people had already changed their behaviors before the introduction of shelter-in-place orders, and shelter-in-place orders appear to have been ineffective precisely because they did not meaningfully alter social distancing behavior.”

33. “Inferring UK COVID-19 fatal infection trajectories from daily mortality data: Were infections already in decline before the UK lockdowns?” by Simon Wood. Biometric Practice, March 30, 2021. “What the results show is that, in the absence of strong assumptions, the currently most reliable openly available data strongly suggest that the decline in infections in the United Kingdom began before the first full lockdown, suggesting that the measures preceding lockdown may have been sufficient to bring the epidemic under control, and that community infections, unlike deaths, were probably at a low level well before the first lockdown was eased. Such a scenario would be consistent with the infection profile in Sweden, which began its decline in fatal infections shortly after the United Kingdom, but did so on the basis of measures well short of full lockdown.”

34. “COVID-19 Lockdown Policies: An Interdisciplinary Review” by Oliver Robinson, SSRN (in review) February 21, 2020. “Biomedical evidence from the early months of the pandemic suggests that lockdowns were associated with a reduced viral reproductive rate, but that less restrictive measures also had a similar effect. Lockdowns are associated with reduced mortality in epidemiological modelling studies but not in studies based on empirical data from the Covid-19 pandemic. Psychological research supports the proposition that lengthy lockdowns may exacerbate stressors such as social isolation and unemployment that have been shown to be strong predictors of falling ill if exposed to a respiratory virus. Studies at the economic level of analysis points to the possibility that deaths associated with economic harms or underfunding of other health issues may outweigh the deaths that lockdowns save, and that the extremely high financial cost of lockdowns may have negative implications for overall population health in terms of diminished resources for treating other conditions. Research on ethics in relation to lockdowns points to the inevitability of value judgements in balancing different kinds of harms and benefits than lockdowns cause.”

35. [“Covid Lockdown Cost/Benefits: A Critical Assessment of the Literature”](#) by Douglas W. Allen. Working paper, Simon Fraser University, April 2021. “An examination of over 80 Covid-19 studies reveals that many relied on assumptions that were false, and which tended to over-estimate the benefits and under-estimate the costs of lockdown. As a result, most of the early cost/benefit studies arrived at conclusions that were refuted later by data, and which rendered their cost/benefit findings incorrect. Research done over the past six months has shown that lockdowns have had, at best, a marginal effect on the number of Covid-19 deaths. Generally speaking, the ineffectiveness of lockdown stems from voluntary changes in behavior. Lockdown jurisdictions were not able to prevent non-compliance, and non-lockdown jurisdictions benefited from voluntary changes in behavior that mimicked lockdowns. The limited effectiveness of lockdowns explains why, after one year, the unconditional cumulative deaths per million, and the pattern of daily deaths per million, is not negatively correlated with the stringency of lockdown across countries. Using a cost/benefit method proposed by Professor Bryan Caplan, and using two extreme assumptions of lockdown effectiveness, the cost/benefit ratio of lockdowns in Canada, in terms of life-years saved, is between 3.6–282. That is, it is possible that lockdown will go down as one of the greatest peacetime policy failures in Canada’s history.”

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