Letter to the Editor

COVID-19 and the 'rediscovery' of health inequities

Ichiro Kawachi*

Harvard T.H. Chan School of Public Health, Boston, MA, USA

*Corresponding author. Department of Social & Behavioral Sciences, Harvard T.H. Chan School of Public Health, 677 Huntington Ave, Boston, MA 02115, USA. E-mail: ikawachi@hsph.harvard.edu

In the wake of the brutal police killing of George Floyd in Minneapolis on 25 May 2020, cities and counties across the USA came out to declare that racism is a 'public health emergency'. Needless to point out, systemic racism has existed for over 400 years in America. The crisis sparked by George Floyd's murder illustrates the point that it takes a shock to the system to bring about broader acknowledgment of the daily realities lived by a whole segment of the population. Indeed, ignorance of the existence of systemic racism (a.k.a. White privilege) is what enables stark inequalities to fester. Likewise, health inequalities have been evident since the beginning of public record keeping—q.v. Villermé's tabulations of mortality rates by income (1782–1863).[1] The Covid-19 pandemic just happens to be latest crisis that has brought renewed attention to the existence of health inequalities.

Throughout history, people's experiences of pandemics have differed according to their access to power, privilege and resources. In 14th century plague-stricken Florence, wealthy patricians fled the city to their secluded villas in the Tuscan hills, where they amused themselves in the evenings by drinking fine wine and recounting stories to each other.[2] Unfortunately, there are few surviving records of the suffering of those left behind in the city, as the majority of the population was illiterate. A future historian writing about the Covid-19 pandemic will note the dramatically different ways in which people experienced the pandemic according to their race, social class, gender and immigrant status. It is as if people inhabited alternate realities. The historian will note how high-speed internet and Zoom enabled the comfortably well off to escape crowded urban centres and wait out the pandemic in their second homes in the countryside, while Silicon Valley billionaires at the apex of the economic pyramid fled on their private jets to their bunker-equipped estates on Waiheke Island, New Zealand.[3] Meantime, for millions of others, the stark reality of life under COVID consisted of losing their jobs, falling behind on the rent and ending up either evicted or doubling up with other family members, thereby piling on their risk of infection. Pandemics disrupt everybody's lives, but not in the same way.

Pandemics Expose Fault Lines in Society

A basic tenet of social epidemiology is that the probabilities of exposure and outcomes (conditional on exposure) are not random, but socially patterned. Almost always the odds are stacked against the socio-economically disadvantaged. Consider the case of other major disasters. Media stories often portray these events (earthquakes, hurricanes or the sinking of the Titanic) as if they were random acts of God in which everyone, rich and poor alike, are vulnerable. This is seldom the case. The social epidemiology of disaster shows that socio-economically disadvantaged groups are both more likely to be exposed to disaster (because they live in disaster-prone areas or live in structurally unsound houses) and more likely to suffer the consequences of exposure (because they suffer disproportionately from preexisting morbidity, making them vulnerable to

problems such as the interruption of services that follow inevitably in the wake of disaster).

By the time Covid-19 has run its course in 2–3 years, we should not be surprised if the toll of infection and mortality turn out to be the highest in the most unequal societies in the world—the USA, Brazil, India, Russia, and among African countries, South Africa.

The USA is a textbook case of longstanding inequalities in income, working conditions and access to healthcare, leaving large swaths of the population vulnerable to the effects of crises. Persistent segregation of the workforce by race/ethnicity all but ensured that coronavirus infection would be concentrated in communities of colour. Black Americans are over-represented in jobs involving close contact with people, including in the health care support sector (nursing and home aides), personal care and service (e.g. barbers, hair salons) and food preparation/serving occupations.[4] In turn, higher risk of exposure in the workplace is compounded by the persistent residential segregation of neighbourhoods, where unequal exposure to air pollution[5] (see also the analysis of the UK Biobank data by Chadeau-Hyam *et al*. featured in this issue) and overcrowded housing conditions amplify the spread of infection. Besides residential neighborhoods and workplaces, some of the biggest outbreaks have been recorded in prisons, where some 2.3 million Americans are incarcerated, half of whom are Black or Hispanic.

In short, it was predictable that the devastating toll of Covid-19 would be starkly patterned by race, social class and geography. Landing like a hurricane, the coronavirus tore the cover off decades of disinvestment and neglect of communities of colour. Wearing masks can only go so far in protecting vulnerable members of society.

Pandemic Response Exacerbates Inequalities

Compounding the misery of Covid-19 morbidity and mortality, the public health response to the pandemic has come at the cost of a sharp global economic contraction. An unfortunate (but all too predictable) consequence of 'bending the infectious curve' is that business and school closures, as well as directives to shelter in place, disproportionately afflict the already disadvantaged. Small business closures in the USA have hit Black-owned businesses the hardest, because a higher share of them are in the restaurant, personal services and retail sector. Many of these businesses may never come back.

During economic contractions that accompany pandemics, workers with the least skills and lowest pay are usually the first to be let go. But we have always known

this. Writing about the Great Plague of London in 1665, Daniel Defoe remarked:[6]

> 'All families retrenched their living as much as possible, as well those that fled as those that stayed; so that an innumerable multitude of footmen, serving-men, shopkeepers, journeymen, merchants' bookkeepers, and such sort of people, and especially poor maid-servants, were turned off, and left friendless and helpless, without employment and without habitation, and this was really a dismal article.' (p. 112)

Some Londoners might have considered themselves even lucky to have escaped with just being out of work. Others who were less fortunate were pressed into compulsory service as watchmen to guard over 'infected houses' to make sure that people in them did not break quarantine rules, or forcibly put to work by parishes as 'searchers'—generally 'women of honest reputation, and of the best sort as can be got'—whose job it was to search for dead bodies.

Pandemic Response Reveals Weaknesses in the Social Basis of Solidarity

When the haves and have nots inhabit separate worlds and experience divergent realities, it hamstrings society's ability to mount a coherent response to a common threat. It is characteristic of a divided society that people question the need for universal public health measures. They ask: 'Why am I being asked to shelter in place, when I don't see a problem in my community?' A society lacking the social basis of solidarity means that slogans such as 'Together we can beat the virus' fail to mobilize unified action.

The problem is compounded (as in the USA) when the policy response is devolved to each locality—states, cities and counties—resulting in a patchwork of directives that are inconsistently enforced. In many localities it is left to each individual's choice to decide whether to comply with recommendations such as wearing masks or practicing social distancing. It does not help that politicians have exploited existing fracture lines by encouraging their supporters to flout public health advice as an expression of fealty.

'Lockdown fatigue' is cited as the reason why governors in several US states are rushing to reopen businesses despite rising caseloads. Their rallying call is that the cure cannot be worse than the disease. But the voices of frontline workers are being drowned out by the clamour of business owners to reopen. When employers call them back to work, workers are being thrust into the position of choosing whether to stay at home (and lose their unemployment benefits), or to return to work and risk losing their health. The 'frontline' is a metaphor borrowed from war, and

echoes past conflicts when young men lacking the where-withal to defer the military draft were dispatched to the frontlines. In the context of the pandemic, 'essential' workers are being sent back to work in order to resuscitate the economy (and to improve the re-election chances of incumbent politicians). In the USA, frontline workers are even being equated with 'warriors' (as when President Trump declared during a visit to a face mask factory in Arizona in May 2020, 'The people of our country should think of themselves as warriors. Our country has to open.').[7]

Meanwhile, far away from the frontlines, conversations about when businesses should reopen seemingly revolve around an entirely different set of concerns, such as how long one can go without a haircut. For those with the ability to work remotely, the pandemic might even produce a tiny health dividend. For them, tele-work has resulted in less commuting stress, more discretionary time to engage in daily physical activity (as evidenced by booming sales of stationary exercise bikes) and more home cooked meals. (Needless to add, these theoretical benefits apply mainly to families who do not have young children at home.)

A Call for an Explicit Health Equity Lens in Decision Making

When future historians look back on the dismal performance of unequal societies during the Covid-19 pandemic, they will conclude that their leaders were too slow to implement public health measures, and too hasty in loosening them. A polarized society in which those who feel protected from the virus do not share the same lived reality as the vulnerable is a recipe for flawed decision making. A health equity framework is needed to guide debates about how societies should respond to the ongoing Covid-19 crisis. Yet the information systems upon which we base our forecasting models are sorely lacking in socio-economic data. Electronic health records in the USA omit information such as occupation, educational attainment and household income, resulting in the resort to imperfect proxies such as Medicaid status or neighbourhood socio-economic status.[8] In turn, the absence of relevant socio-economic data means that the current tools we use to guide decisions lack an explicit equity focus.

For example, infectious disease models do not formally incorporate social inequalities in transmission dynamics and infection severity. Compartmental epidemiological models, such as susceptible–infected–recovered (SIR) models, typically do not factor in the influence of social determinants when estimating the transition probabilities between different states (e.g. exposed → infected, or infected → recovered). The R-nought is discussed in the aggregate but not broken down by race, social class or other axes of social stratification. As a result the health equity impact of policy choices are presented in qualitative terms, but never quantified.

Similarly, mathematical forecasting of the Covid-19 pandemic only speaks of aggregate numbers. Modelling has suggested that one in five people around the globe are at risk of severe COVID infection, due to underlying conditions like diabetes, respiratory and cardiovascular disease.[9] Yet these projections are silent with regard to the social distribution of vulnerability. The reason for this lacuna is because the Global Burden of Disease project (upon which the projections are based) is silent with regard to the social distributions of underlying diseases that elevate the risk of severe COVID infection. Aggregate projections stripped of their socio-economic context serve as an insufficient basis to guide momentous decisions, such as who should receive priority when a vaccine eventually becomes available. What will be the basis to debate whether a white-collar professional with pre-existing conditions (working from home) deserves higher priority access to a vaccine compared with an otherwise healthy Black frontline worker?

Economic models are equally silent with regard to distributive effects of policy choices. Cost–benefit and cost–utility analyses of border closures and lockdowns[10] inform us about costs to society in the aggregate, but typically they do not consider who bears the costs of job losses and lost productivity vs loss of life and morbidity. It may turn out to be the case that lockdowns produce a net health equity gain by saving the lives of the most vulnerable segments of the workforce (especially if adequate social protections are in place to mitigate the consequences of job loss). But we cannot know the true answer unless formal modelling is undertaken to incorporate equity considerations. For example, recent quasi-experimental evidence from the national lockdown in Italy showed a proportionally sharper reduction in the mobility of the less well off, suggesting that both poverty and income inequality will be exacerbated as a result.[11]

Forecasting models do not set out, by design, to ignore socio-economic status; the problem is that the raw data are not being collected at source (e.g. hospital records, COVID registries). Epidemiologic forecasting models need to advance beyond making aggregate projections. The goal of an equity-informed forecasting exercise should be to inform decision makers about how to anticipate and mitigate the inevitable health equity consequences of policy debates about when to reopen borders, schools, workplaces and public spaces, as well as how to prioritize the global distribution of a vaccine (when it materializes). The moment seems ripe when the international epidemiological community should be calling upon hospitals, health authorities and governments to begin collecting socio-economic data.

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