

Culture and COVID-19: Don't Throw Your Elderly Away!

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Abstract

Enormous differences exist in rates of death from COVID-19 in countries around the world. Collectivist cultures and countries are characterized by concern for culture and country to a greater extent than for self-interest, whereas the reverse is true for individualistic cultures and countries. In light of this cultural difference, and suggestive evidence that cultures known for their collectivist orientation are more likely to have near-universal compliance with infection-preventive behaviors such as public mask-wearing and less likely to place their elderly in nursing homes (which account for a high proportion of deaths in individualistic countries such as the US, Canada, and the UK), we hypothesized that death per million (DPM) rates would be significantly lower for collectivist countries than individualistic countries. We categorized every country for which there are collectivist-individualistic scores and split the countries into two groups as defined by Hofstede's (1980) cut-offs. As predicted, the DPM rate for collectivist countries was significantly lower than for individualistic countries. Furthermore, an analysis of covariance controlling for median age showed that the alternative explanation that the observed difference could be accounted for in terms of the significantly lower average age of citizens of collectivist countries was implausible. Implications in areas related to reopening schools, etc., and directions for future research are discussed.

Background

Culture and COVID-19: Don't Throw Your Elderly Away!

As we are writing this, the world is in the midst of the worst pandemic in a century, with over 800,000 deaths so far from COVID-19 (SARS-CoV-2; Coronavirus Cases, 2020) despite extensive measures being taken throughout the world to control its spread, such as widespread public mask-wearing and shutdowns of non-essential businesses. COVID-19 is both more contagious and more likely to be fatal than seasonal influenza (Peterson et al., 2020). However, mortality rates have varied enormously across countries, ranging from several hundred per million people in the United States and several countries in Western Europe and Latin America to less than 10 in East Asian countries and much of the Global South. The United States alone accounts for more than 20% of the world's deaths (Coronavirus Cases, 2020), and COVID-19 is currently the third-leading cause of death in the United States (Gowdy, 2020). At the opposite extreme, Vietnam, a country of nearly 100 million people, has had 27 deaths to date (Coronavirus Cases, 2020).[1]

What accounts for these differences? One possible factor involved is age. Given that age is highly associated with rates of death from COVID (US Centers for Disease Control, 2020), it seems plausible that countries with older populations are likely to have higher death rates than countries with younger populations. However, there are several countries with older populations (e.g., Japan and South Korea) that have low death rates. Similarly, although obesity is also a major risk factor for COVID death (Sattar et al., 2020), there are countries with high rates of obesity (e.g., Jordan) that have very low death rates.

Given that death rates for COVID-19 vary across countries by a factor of several hundred, it seems far more likely that variations in how countries have responded to the virus account for a large proportion of the variance than differences in demographic characteristics such as median age, which only varies across countries by a few years in either direction from the overall median. Countries that mandated mask-wearing in public early on (Al Jazeera, 2020), for example, are among those that have the lowest death rates (Leffler et al., in press).

An interesting comparison that illustrates the stark difference a locale's collective response to the virus makes is that of Hong Kong versus New York City (Ward, 2020). Each has about 8 million people, is densely populated, is heavily reliant on crowded public transportation, and is a frequent destination for travelers from all over the world. Hong Kong, in fact, is only a 4 ½ hour train ride from Wuhan, the original epicenter of the virus. Yet, as of May 18, New York City had nearly 24,000 COVID-19 deaths,[2] whereas Hong Kong had only four, despite having a considerably older median age (44.4 vs. 38.1; Wikipedia, 2020). Opinion polls indicated that 97.5% of Hong Kong residents reported wearing masks in public by mid-February,[3] 90.2% reported that they avoided going into crowded places, and 92.5% reported sanitizing or washing their hands frequently. The high rate of mask-wearing occurred *in spite* of the fact that at the time, the Hong Kong government had a *ban* on wearing face masks as a security measure in light of sometimes violent anti-government protests that have been taking place since last year. In contrast,

despite a mandate to wear masks in public spaces implemented in New York State on April 17 (Zhang et al., 2020), a recent observational study (Newman, 2020) found that roughly one third of men and one sixth of women were not wearing masks on New York City's often-crowded streets.

Another possibly important contributor to cross-national differences in COVID-19 death rates is the extent to which societies have a large number of elderly people, the demographic most vulnerable to the disease (US Centers for Disease Control, 2020), living in nursing homes, where they come into contact with a much larger number of other people than is the case if they live in their own homes. In fact, more than one third of COVID-19 deaths in the United States (Yourish & Rebecca, 2020), about half of those in Europe (Booth, 2020), and 80% of those in Canada (CBC, 2020) have occurred in nursing homes, and the proportion of elderly individuals living in nursing homes was found to be significantly associated with COVID-19 deaths across 32 European countries and across the 50 US states (Gandal et al., 2020).

In short, two key factors differentiating countries that have had low death rates from COVID-19 from those that have had high death rates are: 1) rapid collective action to minimize the spread of the infection with near-universal adherence and 2) a lower prevalence of high-density housing of their frail elderly populations. In our view, a key cultural dimension that can account to a significant extent for both of these differences is collectivism-individualism (Hofstede, 1980). In individualistic cultures, behavior is predominantly determined by personal goals, attitudes, and values, and personal freedom and achievement is emphasized; in collectivist cultures, behavior is predominantly determined by goals, attitudes and values that are shared with some group or groups with which one identifies (Gorodnichenko & Roland, 2012; Triandis & Gelfand, 1998). People from collectivist cultures are more likely than those from individualistic cultures to emphasize the importance of the well-being of others such as coworkers, to place high value on cooperation with others, and to see taking care of and staying together with family members as highly important (Triandis & Gelfand, 1998). Given these differences in attitudes and values, which are consistent with both high compliance with measures to limit the spread of infectious disease and a relatively low rate of elderly residence in nursing home facilities, we hypothesize that collectivist cultures will have a lower death rate from COVID-19 than individualistic cultures.[4]

[1] Readers may wonder why we made no mention of cross-national variations in infection rates. We are focusing on death rates rather than infection rates because, as Sinclair and Kumar (2020) point out, there have to date been no studies of countries' infection rates that have tested a random sample of the population. Thus, estimates of countries' infection rates should at this point be taken with a huge grain of salt; there are much more reliable data on the number of people who have died of COVID than on the number infected.

[2] Ward (2020) reported 28,000 deaths, but other sources put the figure below 24,000 (Choi et al., 2020).

[3] The first author's business partner, who lives in Hong Kong, reported that the only people he observed not wearing masks in public were Americans.

[4] It could be argued that, due to their generally higher levels of development, individualistic countries will have significantly older populations, resulting in more vulnerability to COVID-19 than collectivist countries. We examined this alternative possibility by using median age as a covariate in our analysis of the relationship between culture and COVID mortality.

Method

Procedure

All countries ($N = 103$) for which Hofstede's (1980) collectivism-individualism scores could be located were included in the study. Countries with scores of 51 or higher were considered to be individualistic ($n = 28$) and countries with scores of 48 or lower were considered to be collectivist ($n = 75$). Populations (2020) of each country were collected from the *Worldometer*

pages. Numbers of COVID-19 deaths in each country were collected from the *Wikipedia* daily case/death site. All data were collected on August 18, 2020. DPMs were computed for each country. Median age for each country was also recorded.

Results

Collectivist – Individualistic Scores

A 2-sample *t*-test showed that the collectivist countries ($M = 26.05$, $s = 10.08$) had significantly lower individualism scores than individualistic countries ($M = 69.21$, $s = 11.29$), $t(101) = 18.71$, $p < .0001$.

Deaths per Million (DPM)

An analysis of variance (*ANOVA*) supported our predictions. The DPM rate for collectivist countries ($M = 88.17$, $s = 148.35$) was significantly lower than that for individualistic countries ($M = 227.61$, $s = 251.88$), $F(1, 101) = 11.98$, $p < .002$, partial $\eta^2 = .11$.

Age

We conducted a 2-sample *t*-test on the median ages of the collectivist versus individualistic countries. The individualistic countries are, generally, more industrialized and have better healthcare systems. Thus, if the individualistic countries have significantly older populations, it could be argued that the differences reported above are because the individualistic countries have aging populations with compromised immune systems who are more likely to die from COVID-19 (cf. our hypothesis that collectivist countries are more concerned about their societies as a whole and are more likely to care for their elderly in their own homes, relative to individualistic countries in which the elderly are put in nursing homes and long-term care facilities which have been ravaged by COVID-19). Indeed, individualistic countries ($M = 40.55$, $s = 4.19$) had significantly higher median ages than collectivist countries ($M = 29.89$, $s = 8.27$), $t(101) = 6.51$, $p < .0001$.

Thus, it is possible that the difference we found in median DPM rates between collectivist and individualistic countries is accounted for by age differences between them. In order to rule out this alternative explanation, we conducted an analysis of covariance (ANCOVA) with collectivism versus individualism as the between groups factor, median age as the covariate, and DPM as the dependent variable. The ANCOVA indicated that age was not a significant covariate, $F(1, 100) = 0.28$, *ns*. Our predicted effect remained significant, $F(1, 100) = 6.72$, $p < .02$, partial $\eta^2 = .06$. Thus, median age of the population does not provide a viable explanation for the pattern of our effects.

Discussion

Because people from collectivist cultures are more likely than those from individualistic cultures to emphasize the importance of others' well-being, place high value on cooperation with others, and see taking care of and staying together with family members as highly important, we predicted that death rates from COVID-19 would be significantly lower in collectivist countries than in individualistic countries. Our results were consistent with our predictions: the DPM rate was significantly—in fact, more than 50%—lower in collectivist countries. The effect remained significant when we analyzed the data with median age as a covariate; thus, the difference could not be explained by the fact that the median age in collectivist countries was lower than the median age in individualistic countries. There is evidence to suggest that this difference is a product of both longstanding differences in how the two types of societies tend to organize their affairs and differences in their immediate reactions to the pandemic. Of course, there are exceptions to the rule that collectivist countries have lower death rates than individualistic countries, because there are many factors involved in determining how viruses spread, but the general pattern is unmistakable, and there appear to be several reasons for it.

Implications for Nursing Homes and Long-term Care Facilities

First, as discussed above, a very large share of COVID-19 deaths in individualistic countries such as the US, Canada, and many Western European countries have occurred in nursing homes and long-term care facilities, whose typically elderly residents are much more vulnerable than younger people to developing severe illness if infected with COVID-19. When coronavirus is

inadvertently introduced into these densely populated facilities, the elderly population is ravaged by COVID-19. This has not happened in collectivist countries,[1] because even very frail elderly individuals tend to live in family homes with their children and extended families. Because the overwhelming tendency in collectivist countries is for the elderly to be cared for by their families rather than living in densely populated nursing homes, they are less likely to be exposed to coronavirus, contract COVID-19, and die; collectivist cultures do not throw their elderly away.

Implications in Terms of Government Policy

A second likely reason for the difference in death rates is differences in the nature and timeliness of governments' responses to the pandemic in collectivist and individualistic countries. Within less than three weeks of identification of the virus in Wuhan, China, where it originated, the city—and soon the entire province of Hubei—were locked down. All mass transit was halted, travel to and from the province was shut down, all non-essential businesses were shut down, citizens were required to stay at home except for essential needs such as grocery shopping and urgent medical care, and anyone venturing out was required to wear a mask (Wikipedia, 2020). A massive contact tracing and testing program was implemented, special hospitals solely for COVID patients were built within weeks, and quarantine housing was set up for individuals who tested positive but did not require hospitalization.

Similarly, rapid and sweeping public health measures—*not* in every case involving the extensive lockdown measures taken in Wuhan, but comprehensive nonetheless—were taken in many collectivist countries—Taiwan (Farr & Gao, 2020), Cuba (Morris & Kelman, 2020), Vietnam (Dabla-Norris et al., 2020), Thailand (United Nations, 2020), etc. A study of when different countries implemented mask-wearing requirements or adopted near-universal mask-wearing identified 41 countries that adopted mask requirements or strong recommendations to wear masks within 20-30 days of their first case (Leffler et al., 2020); all except the Czech Republic and Slovakia were collectivist countries. Certainly, there are exceptions to the rule that collectivist countries' governments reacted more effectively. Among the individualistic countries, New Zealand rapidly implemented a sweeping lockdown and temporarily wiped out COVID within the country in less than two months (Kam & Reynolds, 2020), and still has fewer than 25 deaths to date (Coronavirus Cases, 2020), while several collectivist countries in Latin America, such as Brazil (Barberia & Gomez, 2020; Diario, 2020), Peru (Saavedra, 2020), and Chile (Beaubien, 2020), had very ineffective governmental responses to COVID and have among the highest death rates in the world. But in general, effective governmental responses to COVID have been very much the exception among individualistic countries, and common in collectivist countries.

Implications in Terms of Citizen Conduct

A third possible difference between collectivist and individualistic countries that could account for the difference in median DPM rates is the responses of individual citizens to the pandemic. After all, government mandates to stay at home and to socially distance and wear masks when out in public would do little good if citizens did not obey them. To take the example of mask-wearing, it is well-known that East Asian countries had very high rates of mask-wearing (typically above 90%) among the public from very early on in the pandemic, whereas in the vast majority of European countries and in North America, mask-wearing rates were much lower (Donaghy, 2020). Latin American countries also have high rates of mask-wearing outside the home compared to, for instance, the United States (Moloney, 2020). Italy is an exception among the individualistic countries, having had a high rate of public mask-wearing since April (Donaghy, 2020), but adoption did not become widespread until after it had been hard-hit by the pandemic (He & Laurent, 2020). In contrast, as we discussed previously, residents of Hong Kong spontaneously adopted a high rate of mask-wearing very early on in the pandemic despite the existence of a government ban on wearing masks at the time! Meanwhile, at the opposite end of Eurasia, thousands of protesters recently gathered in the streets of Berlin ((Cohen, 2020) and London (Turnnidge, 2020) to loudly protest against the government's infringement on their "right" to gather in public without masks or social distancing and declare the pandemic a "hoax" or propagate conspiracy theories about it, and across the ocean, hundreds of thousands of motorcyclists gathered in South Dakota, USA for an annual festival, with little in the way of masks or social distancing evident, spreading new COVID infections far and wide (O'Kane, 2020). It may as well be on another planet. Mass resistance to sound public health policy simply does not occur in collectivist countries.

In short, there is evidence suggesting that the substantial differences in death rates from COVID-19 between collectivist and individualistic countries that we have identified may be a product of three factors: 1) higher rates of nursing home residence in individualistic countries, 2) more rapid and effective government action to control the spread of COVID, and 3) differences in citizens' actions that protect themselves and others (e.g., a high rate of mask-wearing), or put themselves and others at greater risk (e.g., attend mass gatherings without social distancing). However, future research needs to undertake a more thorough examination of evidence about these differences. In addition, we noted a number of major exceptions to the rule that collectivist countries have lower DPM rates—some individualistic countries also have low COVID death rates, and some collectivist countries have very high death rates. What factors might account for these exceptions to the rule? Certainly, one plausible explanation is the nature of their current governments. New Zealand, a low-DPM individualistic country, currently has a self-described progressive social democrat, Jacinda Ardern of the Labour Party, as its Prime Minister (Wikipedia, 2020). Brazil, in contrast, currently has a far-right President, Jair Bolsonaro, who formerly served as an officer in Brazil's military dictatorship (Wikipedia, 2020), and has been openly disdainful of the recommendations of the country's health experts and of the seriousness of the threat posed by COVID-19 (Barberia & Gomez, 2020). Future research needs to systematically examine the possible reasons for such exceptions to the rule that collectivist countries have lower death rates from COVID-19 than individualistic countries.

Implications for Decisions About Reopening Schools

A major practical concern about countries' approach to the pandemic that we have not yet discussed is whether schools should be reopened while the pandemic is still ongoing and, if so, how that should proceed. Several individualistic countries, such as the United States and Canada, are proceeding to do so (at least partially) while they still have high infection rates, because there is immense pressure for workers with children to go back to work if they have not done so already. We believe that this is a recipe for disaster.

First, without proper physical distancing and mask use, there is an increased likelihood of contracting COVID-19. Given that we currently have no good estimates of true COVID-19 infection rates (Sinclair, 2020a; Sinclair, 2020b; Sinclair, 2020c; Sinclair, 2020d; Sinclair & Kumar, 2020; Sinclair & Singh, 2020) or the percentage of the population that is asymptomatic and walking around shedding the virus, and given that students are in close quarters (much like the elderly), students may become infected and, during the 14 day incubation period in which they may have few (if any) symptoms, unwittingly infect their families. This becomes an exponential function of infection as infected family members proceed about their daily business and shed the virus. Eventually, the virus will re-emerge in nursing homes and long-term care facilities and, at every step along the way, deaths will occur (especially among the elderly).

We suggest the following approach to reopening schools:

1. Continue online education.
2. If our first suggestion is not adopted, double the number of buses so that physical distancing can be maintained.
3. Lengthen the school day so that half of the class is taught in the morning and the other half is taught in the afternoon. This way, physical distancing can be maintained in the classroom.
4. When one half of the class is being taught in the classroom, the other half of the class engages in physical distancing in the gymnasium and/or auditorium and, under strict supervision, watches educational films.
5. Universal mask use must be implemented in schools.
6. Mask use will be difficult for children from kindergarten to about 3rd grade so we do our best and, at least, have the ability to maintain physical distancing.
7. Extracurricular activities and socializing can still occur but with mask use and physical distancing strictly enforced.

This approach, while not perfect, certainly helps to alleviate the potential nightmare scenario that we described above. Furthermore, it reduces the stress on parents with respect to daycare because students are in school for the entire day. This affords parents the opportunity to return to their dual-income jobs, increases purchasing power, and benefits the economy, in

general. The ill-planned and haphazard approaches being used in various states and provinces in the US and Canada, respectively, we argue are dangerous and, potentially, disastrous.

Implications in Terms of Misperceptions of Safety When Reopening the Economy

Furthermore, the move to reopen the economy in the West might provide a false sense of security and a gross overestimate of the control over coronavirus as well as an underestimate of the likelihood of contracting COVID-19. Consider the research addressing the availability heuristic (Tversky & Kahneman, 1973; Kahneman, 2011). The reopening of the economy being pushed in the West is, upon superficial consideration, simply a return to the state of affairs people overwhelmingly remember as normal and without significant risk of serious illness and death. Thus, when politicians and others promote doing so and do not present it as a risky choice—particularly given the significant lag between increased risk of exposure upon reopening and the actual development of serious illness from COVID-19—people are likely to overestimate their safety and underestimate the danger associated with the potential of contracting COVID-19 and let their guard down. This is extremely problematic, because a return to “business as usual” in the economy with insufficient social distancing will likely lead to spikes in infections and deaths in the same manner as reopening schools. Indeed, reopening schools may also contribute to the false sense of security through the availability heuristic.

The Importance of Random Sample Testing

Recently, epidemiologists and other scientists have been making predictions about potential “herd immunity.” Their inferences are highly speculative at this point because, as Sinclair and Kumar (2020) point out, there is no objective data regarding true COVID-19 infection rates. Indeed, the epidemiological models and “curves” appear to be based on flawed data and invalid assumptions. They use number of positive cases as a proxy measure for infection rates. This is based on a biased sample of the population because, generally, people displaying symptoms and who are likely to test positive, frontline workers who are more likely, we believe, to contract the virus, and the types of people who want to be tested form the basis of the sample: This sample does not represent the population and, thus, no valid inferences about true infection rates can be made.

Random sample testing, on the other hand, provides an unbiased sample and is representative of the population (i.e., the sample is unbiased). Through public opinion polling, we can predict the outcome of a US presidential election within three percentage points 19 times out of 20 with a random sample of about 350 Americans. The error variance in the predictability of these polls occurs because some people change their minds between the time of the poll and the election. Of course, predictive validity increases as the time between the poll and the election decreases (see, e.g., Fishbein & Ajzen, 1975; Steel & Ovalle, 1984).

The error variance in COVID-19 tests is extremely low, and we would prefer a bias toward false positives than false negatives during a pandemic situation: COVID-19 does not change its mind in the way that people do; a person tests positive at one point in time or they do not. No health agency in the world including the CDC, WHO, Health Canada, etc., has collected the correct data. Had we been collecting (or start collecting now) random sample COVID-19 tests from the beginning of the pandemic, we would know, exactly, the infection rate as well as the percentage of the population that is asymptomatic and shedding the disease: Testing each week would provide exact information regarding our success at battling the virus (Sinclair & Kumar, 2020).

In the present study, we relied on DPM in order to assess culture-based differences in relation to COVID-19 because DPM is the most objective measure that we have to date. Finally, we argue that to be able to progress further in our battle with the virus, understand cultural differences, and make judgments about potential herd immunity, reopening the economy, and reopening schools, we must shift from the guesswork of scientists who are using biased samples to estimate infection rates to random sample testing which leads to truth.

[1] We reanalyzed the European long-term care facility death rate data from Gandal et al. (2020), who showed differences in long-term care facility COVID-19 deaths as a function of country, and obtained results consistent with this argument. We categorized the countries as collectivist ($n = 11$) or individualistic ($n = 21$; there are more individualistic countries in Europe,

whereas there are more collectivist countries in the world). A 2-sample *t*-test showed that there were significantly fewer nursing home deaths in collectivist ($M = 41.45$, $s = 51.22$) than individualistic ($M = 209.62$, $s = 222.63$) countries, $t(30) = 2.45$, $p < .03$.

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