The Rise of COVID-19 Cases is Associated with Support for World Leaders

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K. C. Yam formulated the research idea, designed the study, and drafted the manuscript. J. C. Jackson analyzed the data and drafted the manuscript. C. Barnes provided critical revisions to the manuscript. J. Lau coded the data and provided critical revisions to the manuscript. Q. Xin provided critical revisions to the manuscript. H. Y. Lee coded the data. K. C. Yam is the guarantor who accepts full responsibility for the conduct of the study, has access to the data, and control over the decision to publish. The corresponding author attests that all listed authors meet authorship criteria and that no others meeting the criteria have been omitted.

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Abstract

COVID-19 has emerged as one of the deadliest and most disruptive global pandemics in recent human history. Drawing from political science and psychological theory, we examine the effects of daily confirmed cases in a country on citizens' support for the nation's leader through first 120 days of 2020. Using two unique datasets which comprises daily approval ratings of head of government ($N = 1,411,200$) across 11 world leaders (Australia, Brazil, Canada, France, Germany, Hong Kong, India, Japan, Mexico, the United Kingdom, and the United States), we find a strong and significant positive association between new daily confirmed and total confirmed COVID-19 cases in the country and support for the heads of government. Exploratory analyses reveal that this effect might be strongest for countries high on individualism. These analyses show that world leaders benefit from COVID-19, at least in the early months of the pandemic. Moreover, these findings suggest that the previously documented "rally 'round the flag" effect applies beyond just intergroup conflict.

Introduction

As of April 30th 2020, COVID-19 has infected over 3 million and killed 250,000 people. Many political leaders and governments have been criticized for their responses to the pandemic. The United States government has been criticized for insufficiently testing its citizens during the early stages of the crisis (1); the Japanese government has been criticized for not declaring a national emergency until recently in the hope of hosting the Olympic Games as planned (2); medical doctors and nurses in Hong Kong went on strike due to government's inefficiency in handling the pandemic (3). All of these anecdotes suggest that world leaders should suffer in their political ratings during this crisis, because many, if not all, countries have failed to aggressively address this pandemic effectively. Indeed, even the best possible outcome from COVID-19 would involve distressingly high numbers of infected and dead and a severe impact on the economy, leaving political leaders vulnerable to negative attributions from bad publicity.

The political science literature, however, suggests another possibility. Specifically, the "rally 'round the flag" effect suggests that citizens tend to support their national leaders in times of international crises (4–6). The rally effect can be explained by enhanced feelings of patriotism, under the perception that one's nation is under attack and hence unity is required to defend the nation and support the incumbent (4). Developed in the 1970s, the rally effect has received empirical support in many international crises. US Presidents' approval ratings increased during the Cuban Missile Crisis, Iran Hostage Crisis, Gulf War, 9/11 Terrorist Attack, and the death of Osama bin Laden (7–9).

Here we explore whether this rally effect generalizes beyond intergroup conflict to leaders' approval ratings during the COVID-19 pandemic. Most, if not all, events that triggered the rally effect examined by prior research were limited to contexts of interpersonal and inter-country violence, involved primarily the US President, and were anthropogenic hazards. In this paper, we integrate the political science literature with psychological theories to suggest that COVID-19, as an international public health crisis, would also lead to increased political support for one's national leader. Most importantly, we hypothesize that this effect is beyond just the US, transcends individuals' political ideology, and generalizable across world leaders regardless of their effectiveness in handling the pandemic.

Multiple psychological theories converge to lend support for this hypothesis. System justification theory (10, 11) posits that people are consciously and unconsciously motivated to justify and rationalize the way things are, even when the social, political, or economic systems negatively affect their self-interest. Perceived threat is a key trigger of system justification beliefs, leading people to support the status quo and display increase trust towards authorities such as governments because doing so reduces uncertainty and minimizes the perceived threat (10, 12). Similarly, terror management theory (13) suggests that when people are exposed to cues of morality salience, they would react positively to people who uphold their cultural values, such as political leaders (14). This support buffers death-related anxiety, either through material means (e.g., supporting policies to curb COVID-19) or psychological means (e.g., listening to political rhetoric).

The rally effect identified in the political science literature and multiple psychological theories thus provide some conceptual support for a counterintuitive hypothesis – citizens would *increasingly* endorse their national leaders as the COVID-19 pandemic worsens. We therefore predict that daily new COVID-19 cases should be linked with higher levels of support for national leaders, regardless of their performance in handling the pandemic.

Because the COVID-19 pandemic is rapidly evolving, monthly or weekly political polling would not be able to capture these swift changes. Thus, we use two unique data sets that survey citizens' *daily* political approval ratings of their national leaders. The first data set includes daily political ratings of the chief executive of Hong Kong ($N = 98,875$ daily ratings from February 3rd to April 30th 2020). The second data set includes daily political ratings of the prime ministers and presidents across 10 countries: Australia, Brazil, Canada, France, Germany, India, Japan, Mexico, the United Kingdom, and the United States ($N = 1,312,325$ daily ratings from January 1st to April 30th 2020). These two datasets offer us unique strengths. In the Hong Kong data set, we are able to test our hypothesis in an extremely conservative manner because the chief executive's political ratings had already plummeted due to the city's recent political unrest and the city has confirmed a very small number of COVID-19 cases. This restriction of range provides a very conservative test for our hypotheses. However, participants in this data were recruited via online convenience sampling and may not be representative of the general population. This weakness is mitigated in the broader cross-nation data set which included 10 nationally representative samples. The cross-cultural sample also gave us the opportunity to test our hypothesis across countries that differ dramatically on culture, geographical region, and their effectiveness of COVID-19 response.

Results

Analytic Strategy. We tested our hypotheses with a series of multiple regressions, where leader approval ratings (on a 0-100 scale) were regressed on new and total documented COVID-19 cases. Documented cases do not reflect the actual number of COVID-19 cases, but they are appropriate for our analysis since the public has access to documented cases rather than true cases. The bivariate distribution of cases and leader approval rating appeared to be better characterized by a logarithmic relationship than a linear relationship (see Figure 1), and so we log-transformed leader approval ratings before testing our hypotheses. Our results are substantively the same whether or not we employed log-transformation (see SI), but we employ log-transformation here in order to minimize the risk of heteroscedasticity and correlated residuals.

For the Hong Kong analysis, we fit a multi-level model to account for the fact that days were nested in individuals. We also replicated our results controlling for age, gender, and political orientation (scored from 1-4 where higher values were more liberal). For the cross-cultural analysis, we fit multi-level models in to account for the fact that days were nested in nations. We also within-nation centered the number of cases to avoid confounding cross-cultural (level-2) variation in COVID-19 cases and leader approval with within-nation (level-1) variation in these variables across time. This centering strategy made our analyses exclusively focused on level-1 variation. Thus, we did not include level-2 covariates such as GDP per capita since these variables would not affect level-1 variation.

Models. Our Hong Kong regression revealed a robust effect of COVID-19 total, $b = .00001$, $\beta = .01$, $SE = .000002$, $t(78510) = 7.58$, $p < .001$, and new, $b = .0004$, $\beta = .01$, $SE = .00004$, $t(78090) = 8.61$, $p < .001$, cases on leader approval. The effects of total, $b = .00002$, $\beta = .01$, $SE = .000002$, $t(70770) = 9.88$, $p < .001$, and new, $b = .0004$, $\beta = .01$, $SE = .00004$, $t(70300) = 10.08$, $p < .001$, cases replicated controlling for age, gender, and self-reported political orientation. This analysis suggests that days with more COVID-19 cases had higher approval of Carrie Lam, the Chief Executive of Hong Kong.

Our cross-cultural models revealed a similar dynamic. Total cases, $b = .000001$, $\beta = .08$, $SE = .0000001$, $t(1200) = 6.46$, $p < .001$, and daily new cases, $b = .00001$, $\beta = .08$, $SE = .000002$, $t(1200) = 6.31$, $p < .001$, were robustly associated with leader approval ratings. Specifically, 1,995.21 daily new COVID-19 cases translated to an additional point of leader approval. To put this number into context, the US has averaged about 30,000 new cases per day in April, whereas the UK has averaged about 4,000 new cases per day in April. Figure 1 displays this relationship in general, and by country. Table 1 summarizes each country in this analysis by its change in approval from January 1st to April 30th, its number of COVID-19 cases as of April 30th, and the standardized relationship between COVID-19 cases and approval rating.

Figure 1. Top: the logarithmic relationship between daily approval rating and total cases (left) and new cases (right), averaged across nations. Bottom: the trajectory of leader approval rating and total COVID-19 cases for each country.

Table 1. Approval Rating and COVID-19 Cases Across Nations

Country	Change in Approval	COVID-19 Cases	Effect of Total Cases on Approval	Effect of Daily New Cases on Approval
Overall	$M = +13.63$	$M = 169,412$	$\beta = .08, p < .001$	$\beta = .08, p < .001$
Australia	+61.19	6,746	$\beta = .97, p < .001$	$\beta = .44, p < .001$
Brazil	-16.43	78,162	$\beta = -.81, p < .001$	$\beta = -.80, p < .001$
Canada	+30.65	51,587	$\beta = .80, p < .001$	$\beta = .90, p < .001$
France	+8.38	128,442	$\beta = .74, p < .001$	$\beta = .78, p < .001$
Germany	+34.88	159,119	$\beta = .94, p < .001$	$\beta = .76, p < .001$
Hong Kong	+0.98	1,041	$\beta = .01, p < .001$	$\beta = .01, p < .001$
India	+12.85	33,050	$\beta = .69, p < .001$	$\beta = .73, p < .001$
Japan	-16.08	14,088	$\beta = -.79, p < .001$	$\beta = -.61, p < .001$
Mexico	-7.95	17,799	$\beta = -.08, p = .40$	$\beta = -.07, p = .43$
United Kingdom	+23.68	165,221	$\beta = .74, p < .001$	$\beta = .90, p < .001$
United States	+4.08	1,039,909	$\beta = .63, p < .001$	$\beta = .84, p < .001$

Note. Change in approval is calculated by the difference between approval on the first available day and the final available day, COVID-19 cases are documented cases as of April 30th data, and difference in approval ratings is calculated by the difference between the first available day and the last available day. Hong Kong data come from a different dataset than the other cultures and Hong Kong estimates come from a multi-level model rather than a general linear model.

Country-specific analyses revealed that the effect of daily COVID-19 cases on approval rating was strongest in Canada ($\beta = .90$), the United Kingdom ($\beta = .90$), and the United States ($\beta = .90$), and was weakest in Brazil ($\beta = -.80$), Japan, ($\beta = -.61$), and Mexico ($\beta = -.07$). It is possible that this variation is related to collectivism—the three countries with the weakest effects were the most collectivistic in our sample and an exploratory analysis found that collectivism (15) correlated at $r = -.73$ with the country-level effect of daily new cases on approval ratings and $-.74$ with the effect of total cases. While COVID-19 is equally salient for collectivists and individualists, collectivists may view it as part of a leader's duty to deal with the pandemic whereas individualists view it as going above and beyond their duty. However, this is an exploratory analysis and our small sample of nations means that we did not have the statistical power to systematically explore cross-cultural variation.

Discussion

Our analysis of daily political approval ratings across 11 countries/regions supports our hypothesis that new daily COVID-19 cases are positively associated with political ratings on the same day. A limitation is that our data were correlational, which means that we cannot make causal claims. However, our models show that the association between COVID-19 cases and political ratings holds across 11 geographically and culturally diverse regions, even among world leaders who are widely unpopular prior to the pandemic. That said, we do note that, although on average citizens do rally 'round the flag, this effect is stronger for some countries than others (Table 1). Another limitation is that we do not know how long this effect would last. We are hesitant to predict the duration of this effect due to the unpredictability of COVID-19 and a lack of future political polling data.

Our findings could have important voting implications. If citizens do rally 'round the flag, then upcoming elections in the aftermath of COVID-19 might be especially advantageous for

the incumbents. This suggests that COVID-19 may have an enduring geopolitical impact long after its acute impacts have subsided.

Materials and Methods

We purchased the Hong Kong data from Hong Kong Public Opinion Research Institute (HKPOP; <https://www.pori.hk/>), and the cross-nation data from Morning Consult (<https://morningconsult.com/>). We confirmed that we reported *all* available dates and countries in which daily political approval ratings data were collected. Morning Consult also collected data from Russian and Chinese participants. However, political approval rating was not part of the survey in these two countries and hence we are unable to include these two countries in the analyses.

Hong Kong Data: HKPOP recruited panelists in random telephone surveys, and interested participants provided their contact information and demographic information. In this particular survey, HKPOP recruited participants through daily email surveys and asked participants to provide ratings of the Chief Executive and other social issues. All survey questions were provided in both English and Cantonese. Because of convenience sampling, this sample skewed female (54.60%) and are slightly younger (52.55% below the age of 40) than the general population. HKPOP provided individual raw data for our research, which allowed us to use hierarchical linear modeling to test our hypotheses. The total number of unique individuals in this sample is 21,904.

Cross-nation data: Morning Consult recruited its participants using a stratified sampling approach by matching their participant pools with a given nation's official government census data, based on age, gender, region, and education (plus ethnicity in the US). Approximately 300-500 *unique* individuals from each country were polled daily, except in the US where approximately 6000 *unique* individuals were polled daily. Attention check items were employed to screen out inattentive respondents. All survey questions were provided in languages appropriate for the participants' countries, translated and localized by professional translation firms. Because this data is proprietary, we *do not* have access to individual raw data. Instead, Morning Consult provided us the daily aggregated data for each country, which were used for data analyses.

Collectivism. We used data on individualism-collectivism from Hofstede's survey of values, obtained from <https://www.hofstede-insights.com/product/compare-countries/>.

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References

1. S. Kaplan, K. Thomas, Despite Promises, Testing Delays Leave Americans ‘Flying Blind.’ *The New York Times* (2020) (May 4, 2020).
2. L. Kihara, Japan’s Abe says cannot hold Olympics unless pandemic contained. *Reuters* (2020) (May 4, 2020).
3. R. Ip, The bitter pill medical workers on strike might have to swallow. *South China Morning Post* (2020) (May 4, 2020).
4. J. E. Mueller, Presidential Popularity from Truman to Johnson. *Am Polit Sci Rev* **64**, 18–34 (1970).
5. M. J. Hetherington, M. Nelson, Anatomy of a Rally Effect: George W. Bush and the War on Terrorism. *APSC* **36**, 37–42 (2003).
6. P. Arena, D. Bak, Diversionary Incentives, Rally Effects, and Crisis Bargaining. *Foreign Policy Anal* **11**, 233–250 (2015).
7. K. J. Callaghan, S. Virtanen, Revised Models of the “Rally Phenomenon”: The Case of the Carter Presidency. *The Journal of Politics* **55**, 756–764 (1993).
8. W. D. Baker, J. R. Oneal, Patriotism or Opinion Leadership?: The Nature and Origins of the “Rally ‘Round the Flag” Effect. *The Journal of Conflict Resolution* **45**, 661–687 (2001).
9. J. M. Jones, Obama Approval Rallies Six Points to 52% After Bin Laden Death. *Gallup.com* (2011) (May 4, 2020).
10. J. T. Jost, O. Hunyady, Antecedents and Consequences of System-Justifying Ideologies. *Curr Dir Psychol Sci* **14**, 260–265 (2005).
11. J. T. Jost, M. R. Banaji, B. A. Nosek, A Decade of System Justification Theory: Accumulated Evidence of Conscious and Unconscious Bolstering of the Status Quo. *Political Psychology* **25**, 881–919 (2004).
12. J. T. Jost, B. W. Pelham, O. Sheldon, B. N. Sullivan, Social inequality and the reduction of ideological dissonance on behalf of the system: evidence of enhanced system justification among the disadvantaged. *European Journal of Social Psychology* **33**, 13–36 (2003).
13. J. Greenberg, S. Solomon, T. Pyszczynski, “Terror Management Theory of Self-Esteem and Cultural Worldviews: Empirical Assessments and Conceptual Refinements” in *Advances in Experimental Social Psychology*, M. P. Zanna, Ed. (Academic Press, 1997), pp. 61–139.
14. M. J. Landau, *et al.*, Deliver us from Evil: The Effects of Mortality Salience and Reminders of 9/11 on Support for President George W. Bush. *Pers Soc Psychol Bull* **30**, 1136–1150 (2004).
15. G. Hofstede, G. J. Hofstede, M. Minkov, *Cultures and Organizations: Software of the Mind, Third Edition*, 3 edition (McGraw-Hill Education, 2010).

Supplementary Information

1. Using Raw Rather than Log-Transformed Variables

Results were substantively similar using raw (rather than log-transformed) variables. In Hong Kong, leader approval was significantly associated with new, $b = .003$, $\beta = .01$, $SE = .0003$, $t(77530) = 9.29$, $p < .001$, and total, $b = .0002$, $\beta = .01$, $SE = .00002$, $t(77740) = 11.35$, $p < .001$, cases. The effect of new, $b = .004$, $\beta = .01$, $SE = .0003$, $t(69820) = 10.92$, $p < .001$, and total, $b = .0002$, $\beta = .01$, $SE = .00001$, $t(70080) = 13.86$, $p < .001$, cases was robust to controlling for age, gender, and political orientation.

Results were also similar in the cross-cultural analysis. Daily new cases, $b = .0005$, $\beta = .08$, $SE = .00008$, $t(1200) = 6.30$, $p < .001$, and total cases, $b = .00002$, $\beta = .08$, $SE = .00003$, $t(1200) = 6.39$, $p < .001$, were robustly associated with leader approval ratings. Table S1 reproduces Table 1 with raw (rather than log-transformed) variables.

Table S1. Replication of Table 1 Without Log-Transformation

Country	Change in Approval	COVID-19 cases	Effect of Total Cases on Approval	Effect of Daily New Cases on Approval
Overall	$M = +13.63$	$M = 169,412$	$\beta = .08$, $p < .001$	$\beta = .08$, $p < .001$
Australia	+61.19	6,746	$\beta = .99$, $p < .001$	$\beta = .37$, $p < .001$
Brazil	-16.43	78,162	$\beta = -.79$, $p < .001$	$\beta = -.79$, $p < .001$
Canada	+30.65	51,587	$\beta = .84$, $p < .001$	$\beta = .93$, $p < .001$
France	+8.38	128,442	$\beta = .76$, $p < .001$	$\beta = .83$, $p < .001$
Germany	+34.88	159,119	$\beta = .96$, $p < .001$	$\beta = .74$, $p < .001$
Hong Kong	+0.98	1,041	$\beta = .01$, $p < .001$	$\beta = .01$, $p < .001$
India	+12.85	33,050	$\beta = .68$, $p < .001$	$\beta = .74$, $p < .001$
Japan	-16.08	14,088	$\beta = -.74$, $p < .001$	$\beta = -.60$, $p < .001$
Mexico	-7.95	17,799	$\beta = -.08$, $p = .37$	$\beta = -.08$, $p = .38$
United Kingdom	+23.68	165,221	$\beta = .74$, $p < .001$	$\beta = .91$, $p < .001$
United States	+4.08	1,039,909	$\beta = .63$, $p < .001$	$\beta = .84$, $p < .001$

Note. Change in approval is calculated by the difference between approval on the first available day and the final available day, COVID-19 cases are documented cases as of April 30th data, and difference in approval ratings is calculated by the difference between the first available day and the last available day. Hong Kong data come from a different dataset than the other cultures and Hong Kong estimates come from a multi-level model rather than a general linear model.

2. Replication with United States Governors

To explore the robustness of our findings, we also purchased data on U.S. weekly gubernatorial approval ratings. In total, we analyzed 912,048 weekly approval ratings of each of state's governor, starting on the week of January 1st and ending on the week of May 11th. The number of ratings varied by state, with 1,304 ratings of the Alaskan governor and 73,051 ratings of the Florida governor, but no state had under 1,000 ratings. We employed the same log-transformed multilevel regression procedure as in our main text analyses of world leaders, and replicated our models examining (a) percentage of approval and (b) the difference between the percentage of approval and the percentage of disapproval ratings. As

with our main text models, we within-state centered COVID-19 cases, so as not to confound cross-state effects with within-state effects. In these models, we focused on weekly confirmed COVID-19 cases, since this was the more face-valid measure of COVID-19 salience than total cases.

Our regression model revealed a robust effect of COVID-19 cases on gubernatorial approval, $b = .000002$, $\beta = .14$, $SE = .0000002$, $t(969) = 6.32$, $p < .001$. These models suggested that an additional 12,324.38 weekly COVID-19 cases would result in an additional percentage-point of approval. This model replicated when we examined a composite index of approval – disapproval, $b = .000001$, $\beta = .08$, $SE = .0000003$, $t(969) = 4.30$, $p < .001$. Figure S1 displays a time series of weekly COVID-19 cases (in red) against weekly approval rating (in blue). On average, U.S. governors' approval ratings increased 14.62% from January 1st until May 11th.

Figure S1. A comparison of weekly gubernatorial approval ratings (in blue) against weekly new confirmed COVID-19 cases (in red).