Running head: LEADER GENDER, COLLECTIVISM, AND PANDEMIC DEATHS

Leader responses to a pandemic: The interaction of leader gender and country collectivism predicting pandemic deaths

Cite:

Triana, M., Richard, O., Byun, S-Y., Park, K., Delgado, D. M., Delgado, J. (2025). Leader responses to a pandemic: The interaction of leader gender and country collectivism predicting pandemic deaths. ***Equality, Diversity, and Inclusion: An International Journal***, 44, 541-559.

María del Carmen Triana
Vanderbilt University

Orlando Richard
University of Massachusetts - Amherst

Seo-Young Byun
Ball State University

Kendall Park
Vanderbilt University

Dora María Delgado
Northside Independent School District

Jorge R. Delgado
University of Massachusetts - Amherst

Authors' Note. We are grateful to Sylvia Landry, Dora Triana, and Manuel Triana for their contributions to earlier versions of the manuscript. We recall Elio Izquierdo and all those who have died from COVID-19 as we continue this line of research. Correspondence should be sent to Maria Triana, Owen Graduate School of Business, Vanderbilt University, 401 21st Ave S, Nashville, TN 37203, or at maria.triana@vanderbilt.edu.

Leader Responses to a Pandemic: The Interaction of Leader Gender and Country Collectivism Predicting Pandemic Deaths

Structured Abstract

- Purpose: The present study examines head of state gender and national collectivism to explain how some leaders have been able to manage a pandemic better than others.
- Design/methodology/approach: We measure pandemic deaths per million using objective numbers for each country. Country collectivism is measured using the GLOBE study. Qualitative analyses of world leader speeches are used to examine how health-focused leaders' language is. Media attention with sentiment analysis about each leader's handling of the pandemic is also used to show how others reacted to leaders.
- Findings: Countries with female leaders showed fewer pandemic deaths than those led by male leaders. The interaction between leader gender and country collectivism predicted death. Media sentiment was more favorable for women leaders than men leaders.
- Originality: The study examines leader gender and national collectivism to predict pandemic deaths.
- Practical implications: During times of crises, and specifically early during a pandemic, women's more careful tendencies keep their constituents safer than their male counterparts. Country collectivism also aids male leaders in keeping constituents safe, as some of the lowest rates of death were in collectivistic countries with male leaders.
- Social implications: The present study helps unpack when women leaders thrive and outperform their male counterparts. This furthers United Nations Sustainable Development Goal 5: gender equality.

Keywords: gender; leadership; collectivism; country culture; pandemic; death; public health

Introduction

Around the world, the pandemic not only put public health at risk but also greatly expanded the role of leaders into the realm of public health and safety (Harbert, 2021). Indeed, the pandemic presented countries with an enormous challenge, and world leaders now share responsibility for keeping members of the public safe. The pandemic also made it clear that a leader's words and actions matter during a crisis (Cochran, 2020; Dada et al., 2021; Doerr, 2021; Pearce et al., 2020; Yarchi & Herschman-Shitrit, 2023) and can set a population either on a path to containment or to continued spread of a virus. This is evidenced by the considerable variance across countries in terms of leader responses to the pandemic and the subsequent outcomes such as the number of deaths (Khafaie & Rahim, 2020; Roser et al., 2020). Thus, in the current study, we focus on lessons learned from the way world leaders handled the pandemic. Studying how global leaders managed the pandemic will provide important implications for leaders of various institutions (e.g., organizations) to follow suit given their expanded role of maintaining employee, customer, and public safety in a post-pandemic, or endemic, world (Stieg, 2021).

Given the catastrophic effect that pandemics have on the populations in which they occur, (Meo et al., 2020), it is important to examine what factors increase or reduce pandemic-related deaths (Feng, Zou, & Savani, 2023). Specifically, our research seeks to understand why some countries showed fewer pandemic related deaths than others, focusing on country leadership and national culture. First, we examine the gender of country leaders, extending an emerging stream of research on pandemic leadership (see Bolino et al., 2023; Luoto & Varella, 2021; Soares & Sidun, 2021 for a review). Especially given its relative infancy, extant research shows mixed findings on the role of leader gender in managing the pandemic. For instance, in the United States (US), states with women governors showed fewer pandemic related deaths relative to

other states with male governors (Sergent & Stajkovic, 2020). The authors argued that this female advantage stemmed from female leaders expressing greater empathy and confidence based on a qualitative analysis of governor briefings. A similar pattern was found in Brazil where municipalities with female mayors had fewer pandemic deaths compared to others with male mayors (Bruce et al., 2022). Some global-level studies shed light on this female advantage across countries as well, showing that women leaders were able to reduce pandemic-related deaths by implementing more timely policy interventions than their men counterparts (e.g., Coscieme et al., 2020; Garikipati & Kambhampati, 2021). However, other country-level work did not find a statistically significant effect of leader gender on policy adoption (e.g., Aldrich & Lotito, 2020) or on the number of pandemic-related deaths (e.g., Purkayastha et al., 2020; Windsor et al., 2020). In fact, Windsor and colleagues (2020) found that countries with more women on their parliaments did worse in terms of pandemic death tolls, asking for additional empirical studies and more nuanced approaches to examining the female advantage in the context of the pandemic (Aldrich & Lotito, 2020). Acknowledging both sides of the argument, we investigate whether leader gender indeed relates to pandemic deaths as of the middle of 2020 during the initial height of the pandemic. In this study, we use the words “president” and “leader” to refer to individuals who are political heads of state. This includes leaders who hold titles in their country such as President, Prime Minister, Chancellor, and other supreme leader titles.

More importantly, the present paper integrates signaling theory (Certo, 2003; Connelly et al., 2011) and role congruity theory (Eagly & Karau, 2002), and considers the interactive effect of the president’s gender with the national culture in which the leader makes decisions. We argue that although male leaders, in general, may be at a disadvantage during pandemics (Collins et al., 2023; Offermann & Foley, 2020), country culture (collectivistic values in particular) will

mitigate this negative impact of male leadership on pandemic outcomes. Because collectivism puts more emphasis on conformity and concern for others compared to individualism (Fincher et al., 2008), collectivistic countries are likely to be more conducive to virus containment than those with individualistic values. Thus, the incongruence of male leaders stereotypically being less nurturing and more self-oriented (Dufwenberg & Muren, 2006) combined with the collectivistic culture that promotes collective well-being will help them better manage the pandemic as opposed to the congruence of male leaders with individualistic countries which also values self-interest. Thus, this work proposes that male leaders of collectivistic nations would respond in a more health-conscious way than other male leaders of individualistic countries, experiencing reduced levels of pandemic deaths.

In doing so, this research makes several contributions. First, we take on a nuanced approach and extend literature on female leadership advantage (see Offermann & Foley, 2020 for review), or male disadvantage, especially amid a major public health crisis. We identify collectivism as a cultural boundary condition that may make female advantage during crisis less applicable and enable male leaders to be as effective as their female counterparts. As such, the present paper answers calls to study contextual variables that trigger perceptions of role (in)congruence (Triana et al., 2023) and that strengthen or negate female advantage in leadership (Offermann & Foley, 2020). Second, we conduct both quantitative and qualitative analyses using not only global archival data (i.e., pandemic-related death data, GLOBE study) but also transcripts of world leaders and the media attention they received. This multi-data approach allows for a richer examination of individual and contextual factors that explain leadership outcomes in a major world-wide health crisis.

Theory and Hypotheses

Leader Gender and the Global Pandemic

We begin by making the case that leaders send signals to constituents. According to signaling theory (Certo, 2003; Connelly et al., 2011), the signaler is a person, product, or firm. In the present study, the country leader is the signaler. The signal is sent to the receiver, in our case, members of the public. Receivers (i.e., the general population within the country) observe and interpret the signal, and information received from the leader which they can use to make decisions related to their pandemic response. Our prediction is that the presence of a female leader could signal to the public that health concerns are valued. This logic stems from Miller and Triana (2009) who found that having more gender diversity (i.e., women) on the board signals to stakeholders that social values matter. In the present study, we assume that having a male versus female leader can send different signals to the population for the most part because men are expected to show agentic leadership behaviors while women are expected to express communal leadership behaviors (e.g., compassionate, humble) (Dunlop & Scheepers, 2023; Hsu, Badura, Newman, & Speach, 2021).

Based on the notion that women possess such communal leadership traits (Dunlop & Scheepers, 2023), we posit that both the gender of women leaders and their language or messaging in speeches (more so than men presidents) could signal that health and saving lives is most important (Connelly et al., 2011). The population, irrespective of gender, will listen to their leader because the assumption is that the president has insider information about the nature of the pandemic risk that the general population does not have (Stiglitz, 2002). However, we argue that the messages and signals from female leaders focusing on health and safety will be especially imperative in managing the situation. Indeed, research on gender in the leadership domain

proposes that women offer advantages to men as leaders during periods of crisis (Preston et al., 2007; Ryan et al., 2007), and some studies have found support for this argument in the initial stages of the pandemic (e.g., Coscieme et al., 2020; Garikipati & Kambhampati, 2021; Sergent & Stajkovic, 2020). This is because, compared to male leaders, female leaders are more inclined to help others (Jonsen et al., 2010) and avoid taking large risks (Kyriakidou, 2011; Ryan et al., 2016). Using these arguments, we posit that countries led by a female president will experience fewer pandemic deaths than countries with a male president.

Research provides evidence that women are more nurturing and less likely to be harmful to others due to their preference for displaying altruism (Dufwenberg & Muren, 2006; Radtke, 2000). For instance, both Jonsen et al. (2010) and Zou and colleagues (2018) find that the major reason behind women leaders focusing on social responsibility initiatives is their altruistic tendencies. This is consistent with research that women leaders, more so than men leaders, show concern for others and their well-being (i.e., communion) (Eagly & Carli, 2007; Eagly & Johnson, 1990; Eagly et al., 1995). Moreover, research on the leadership styles of men and women across 27 countries concluded that women leaders prefer participative and team-oriented leadership more so than their male counterparts (Paris et al., 2009). In two different studies examining the leadership of men and women in the United States, Australia, Norway, Sweden, and Bangladesh, Amos-Wilson (2000) and Gibson (1995) reported that men emphasized setting goals and task completion while women emphasized interaction facilitation, collaboration, and relationship building. Taken together, these findings support our premise that female leaders are likely to manage the pandemic in ways that consider all members of the population and are inclusive to everyone working as a team to address the pandemic.

In addition to their altruistic tendencies, female leaders' risk-averse approaches in decision-making (Hunt et al., 1999; Pillai & Meindl, 1998; Ryan et al., 2011) support our logic that women-led countries would have fewer pandemic deaths. Research shows that female leaders are more likely to avoid riskier strategies with higher potential for short term loss than male leaders (Faccio et al., 2016; Huang & Kisgen, 2013), and this substantially contributes to high organizational performance over the longer term (Jeong & Harrison, 2017). Given the risk and the detrimental repercussions of pandemic fatalities, we propose that women presidents, relative to men presidents, will make more risk-averse decisions as they cope with the pandemic, ultimately leading to fewer pandemic deaths. The message that Jacinda Ardern, the female former Prime Minister of New Zealand, conveyed in May 2020 after "achieving zero cases two days in a row" exemplifies how cautious female leaders can be. She stated "Don't do anything that snatches our potential victory at this point… Stay home, stay in your bubble, maintain physical distancing and let's double down this week to maintain this good run of numbers" (Rev, 2020d).

Hypothesis 1. The presence of a female leader compared to a male leader is negatively related to pandemic deaths.

The Interactive Effect of Leader Gender and Collectivism

Next, we turn our attention to country collectivistic culture as a contextual variable that can either exacerbate or buffer the effects of male and female leadership on pandemic deaths. Role congruity theory (Eagly & Karau, 2002) describes that people develop prejudice against women in leadership because the leadership roles require behaviors that are inconsistent (i.e., incongruent) with the communal characteristics (e.g., caring, supportive) that are stereotypically expected of women. Eagly and Karau (2002) propose that incongruity exists between female

gender roles and leadership roles, and because of this, female leaders receive less favorable evaluations than male leaders. However, a recent review of role congruity theory (Triana et al., 2023), called for more research to unpack "contextual factors that might influence the fundamental definitions of various roles in organizations along with expectations about these roles." Therefore, we consider pandemic response in collectivistic versus individualistic cultures to explore one context that might affect the activation of gender roles and leadership role incongruity.

Cultural values represent shared conceptions of the fundamental beliefs and behaviors that are considered acceptable and expected within a society (Chen et al., 2009). Thus, individuals' perspectives, attitudes, and interactions with others are, to a certain extent, shaped and regulated by their nation's cultural values (e.g., Oyserman & Lee, 2008; Shi & Veenstra, 2020). Within the broad typology of national culture, collectivism (i.e., valuing interdependence and being part of a collective) and individualism (i.e., valuing independence and personal autonomy) have emerged as the most studied and relevant values that influence one's psychological processes and behaviors (Chhokar et al., 2008; Oyserman et al., 2002). Collectivism is pertinent to the pandemic and other similar public health crises because collectivism rather than individualism endorses values and behaviors that provide better protection against the spread of disease (Fincher et al., 2008). Collectivism promotes conformity and mutual obligations whereas individualism values self and personal goals and has greater tolerance for deviance (Oyserman et al., 2002). Thus, during the pandemic, we expect that people in a more collectivistic nation would be more cautious and behave in ways to preserve the well-being of others compared to those in a more individualistic nation who may emphasize free will of individuals and act in a more self-interested manner.

Therefore, in collectivistic countries with a female leader, there is congruence between a leader who is stereotypically expected to be caring and prosocial (Eagly & Karau, 2002; Jonsen et al., 2010) and a culture that also values the collective, so the odds of preventing pandemic deaths are promising. An example of this may be found in the words of Halimah Yacob, President of Singapore (a collectivistic country), who stated the following in February of 2020:

> We hear of many heartening stories of compassion and public-spiritedness. Stories of how Singaporeans are stepping forward to help and support one another during this difficult time. … These deeds give me hope that there is still care, compassion and cohesion in our midst, and are good reminders of how we as Singaporeans have a choice in the kind of society we desire (President of the Republic of Singapore, 2020).

However, we argue that during pandemics such a congruence can, in fact, backfire if the cultural value orientation in question does not provide defense against the spread of disease. In other words, when there is congruence of a male leader who is stereotyped to be less nurturing and supportive of others with an individualistic culture that also emphasizes individual desires over the collective need, this can be a dangerous situation in a pandemic. We thus predict that individualistic countries led by male presidents are likely to suffer from the highest levels of pandemic deaths. Countries with an individualistic orientation encourage their citizens to prioritize self-expression and one's own well-being over that of others (Shi & Veenstra, 2020; Triandis, 1995). Given that a male president is less likely to show concern for others compared to their more altruistic female counterparts (Dufwenberg & Muren, 2006), we propose that a male president provides a greater fit to the expectations and norms of an individualistic nation, making those values more salient and acceptable. Nevertheless, as the behavioral manifestations of individualism go against the prevention mechanisms of infectious diseases (Fincher et al., 2008),

this congruence between a male leader and a more individualistic culture will inhibit disease prevention and increase death.

For example, the United States is an individualistic country according to GLOBE (House et al., 2004), and President Donald Trump expressed being reluctant to wear a face mask in April of 2020: “I just don't want to wear one myself. It's a recommendation, they recommend it. I think wearing a face mask as I greet presidents, prime ministers, dictators, kings, queens. I don't know somehow I don't see it for myself” (Mcilkenny, 2020). Another example comes from Canada, which is also a more individualistic country according to GLOBE (House et al., 2004). In a speech given by Canadian Prime Minister, Justin Trudeau, in March of 2020, he asks Canadians to be careful but frames his comments as “advice” to be taken within the scope of personal choice, stating that “people need to make responsible decisions and check with their medical professionals and check their own travel plans in terms of what makes sense for them” (Rev, 2020b). As of April of 2020, he also maintained “I’m not going to make health recommendations to people. I don’t think politicians should be opining on health solutions or fixes” (Rev, 2020c).

It is also important to note what may occur in situations where there is incongruence (i.e., a male leader in a collectivistic setting, or a female leader in an individualistic setting). Where there is an incongruence between the leader and environment (e.g., individualistic setting with a female leader like Jacinda Ardern in New Zealand, or collectivistic setting with a male leader like Xi Jinping in China), the reaction is complex and people will need to assess the entire context to determine how they will behave (Triana et al., 2023). All the leader can do is provide a signal of what they value and role model it. In these incongruence situations, we predict that the more collectivistic environment will soften the potential blow of having male leaders (who are stereotypically less caring) on pandemic deaths. A good example of this would be Xi Jinping

in China, a country that is collectivistic.

On the flip side of the incongruence situation (i.e., a female leader in an individualistic country), we propose that it is the female leader that can soften the blow of the more individualistic environment on pandemic deaths through her example of caring for the collective well-being. Examples of this could be Jacinda Ardern in New Zealand or Mette Frederiksen of Denmark, women who ran the two of the most individualistic countries in the world (House et al., 2004). Taken together, we propose an interaction between the president's gender and the nation's collectivistic values explaining pandemic deaths. We propose the following.

Hypothesis 2. The highest levels of pandemic deaths occur when countries have a male leader (rather than a female leader) and a more individualistic national culture (rather than a collectivist culture).

Method

To test the hypotheses, we collected pandemic deaths per million by country to assess pandemic deaths. We measured collectivism using GLOBE study data (House et al., 2004) and collected leader gender by conducting Google searches to identify the head of state for each country. Our final sample size was 57 countries for which we obtained all variables for analyses using listwise deletion. Data used in this study were derived from entirely publicly available sources cited herein which are available in the public domain.

Dependent Variable

Pandemic deaths. This was measured as being unable to keep one's citizens alive during the pandemic (i.e., number of deaths). Deaths were measured on July 11, 2020 using data from Our World, a statistics and research center at the University of Oxford in the United Kingdom which collected and reported data since the pandemic began (Our World in Data, 2020). In

addition to this measure, we collected COVID-19 deaths per million using an alternative measure from Worldometer (2020) as of July 11, 2020 to be used as a robustness check. Our use of archival data to examine country leadership in a pandemic and its public health outcomes is consistent with a call to use archival macro-level variables to examine more micro-level concepts (Hill, Aguinis, Drewry, Patnaik, & Griffin, 2021).

Independent Variable

Leader gender. This was measured as of March 2020 by conducting Google searches and finding information about heads of state (i.e., the leader) for each country for which national collectivistic practices (GLOBE data) were available. We identified the highest elected political official, or the country's supreme leader, who represents the country and its citizens in foreign and domestic matters of government. This was coded 0 = male and 1 = female.

Moderator Variable

National collectivistic practices. We measured collectivistic practices using the GLOBE data (House et al., 2004) which studied 62 countries. We used the data for in-group collectivism practices which indicates how much people act in ways that protect the collective on a daily basis (e.g., show concern for others' health). Countries with lower scores on the measure are less collectivistic, which we refer to as more individualistic in orientation.

Control Variables

To rule out alternate explanations that can influence death, we controlled for *country global freedom score* (which may make citizens feel entitled to do as they wish), using the Freedom House (2020a) report. Freedom House measures political rights and civil liberties on a scale from 0 to 100, with 100 being greater freedom (Freedom House, 2020b). *Population density per square kilometer* was controlled using World Population Review country data

(2020a), because in high population density areas it would be more difficult to maintain social distancing guidelines. *World Health Organization health care rank* was controlled, because the health care system can prevent death during a pandemic (WHO, 2020). The WHO ranks 190 countries on the quality of their healthcare system, with 1 being the best and 190 being the worst. *Mean years of schooling* by country was controlled using data from World Population Review (2020b), because the more educated the population is, the more likely people are to listen to science. *Global gender equality score* was controlled using the World Economic Forum Global Gender Gap Report (2020), because progressive countries that treat women more equally are also likely to care about various disadvantaged groups within their society which can minimize death. In 2020, the World Economic Forum ranked 153 countries in the world from best to worst on an equality index that ranges from 0 to 1, with 1 being complete equality between women and men. *National GDP in US dollars* was controlled by using Worldometer (2020) data, because wealthier countries can afford to handle a pandemic more easily than poorer countries. We also controlled for *life expectancy* by country using data from the U.S. Central Intelligence Data World Fact Book (2020), because having a higher life expectancy to begin with could limit the number of deaths. Results are consistent with or without the use of these control variables.

Results

Hypothesis testing. We conducted a hierarchical linear moderated regression analysis to test our hypotheses. Continuous predictor variables were centered prior to computing the interaction term to avoid multicollinearity as suggested by Aiken and West (1991). Table 1 presents descriptive statistics and correlations between all variables in the study.

[Insert Table 1 about here.]

Hypothesis 1 predicted that the presence of a female president compared to a male leader

will be negatively related to pandemic deaths. Model 2 of Table 2 shows support for Hypothesis 1, as the main effect of a female leader on pandemic deaths is negative and statistically significant ($\beta = -.29$, $p = .046$). Hypothesis 2 predicted that the highest levels of pandemic deaths occur when countries have a male leader and a more individualistic culture. Model 3 of Table 2 shows that there is a statistically significant interaction effect between leader gender and national collectivistic culture ($\beta = .41$, $p = .027$). We plotted the interaction (see Figure 1) according to Aiken and West (1991). As Figure 1 shows, death is the greatest under male leadership in individualistic countries, supporting Hypothesis 2. As a robustness check, we ran the same analyses using Worldometer data for deaths per country. As you can see in Table 3 and Figure 2, the results are the same. The country with the least deaths per million in the world was Taiwan, which is high in collectivism and led by Tsai Ing-wen, a woman leader. After Taiwan came a group of several male leaders of countries fairly high in collectivism. The country with the most deaths per million was England, an individualistic country led by Boris Johnson, a male leader. England was preceded by several male leaders of countries of lower than average collectivism (e.g., Italy, Sweden, U.S.). For a list of leaders and deaths by country, see the online appendix.

[Insert Tables 2 and 3 about here.]

[Insert Figures 1 and 2 about here.]

Robustness analysis. We conducted the Durbin-Watson test and the statistic was 2.27, which is very close to the ideal value of 2, meaning that there is no serious serial correlation between errors (Field, 2018). Tolerance values also showed that multicollinearity is not a sizable concern in this study (Field, 2018).

Supplemental Analyses

Qualitative analysis of leader speeches about COVID-19. We conducted a supplemental qualitative analysis using president speeches to examine whether there is a difference in how country leaders communicate health and public safety related matters to their citizens depending upon their gender and collectivism of their nations.

We used the Linguistic Inquiry and Word Count (LIWC) which has multiple dictionaries with predetermined words that represent a variety of psychological constructs and emotions. We analyzed world leader speeches of 16 countries, leading to almost 800,000 words. Among them, five transcripts are from English-speaking countries (i.e., Australia, Canada, England, New Zealand, and the US), and the transcripts for these countries were from the website of Rev, a transcription company. Because most of the countries in our sample are non-English speaking countries, we searched on government websites for each country and looked for English transcripts of leader speeches that were officially uploaded, and where we could not find translations, bilingual US citizens transcribed and translated those videos. Out of the 16 countries, ten were led by males (Argentina, Australia, Canada, Ecuador, England, Guatemala, South Korea, Mexico, Spain, and the US).

In order to explore if there is a gender difference, we focused on three LIWC criteria: reward (e.g., win, gain, benefit; representing an expression of masculine trait), affiliation (e.g., we, help, social; representing an expression of feminine trait), and health (e.g., wash, health, medic*; representing words that directly relate to health concerns). The scores for these criteria are the percentage of words used in the transcripts that specifically relate to each dictionary. For instance, a value of 2 on achievement indicates that 2% of the total words are achievement-related. T-test results showed that gender alone does not explain a significant difference in how the leaders spoke. Although the lack of statistical significance could have been partially

attributed to limited sample size, presidents' gender may be sending signals beyond the masculine or feminine orientation of their communication to citizens.

Next, we examine the role of collectivism in how male and female leaders speak. According to the GLOBE data, countries can be grouped into bands based on their in-group collectivism practices scores, where Band A represents countries with the highest collectivism scores and Band C consists of those with the lowest collectivism scores (House et al., 2004). Within our sample, eight countries – Argentina, Ecuador, Guatemala, South Korea, Mexico, Singapore, Spain, and Taiwan – are in Band A while the other eight – Australia, Canada, Denmark, England, Germany, New Zealand, Switzerland, and the US – are in Band C. T-tests were conducted using this distinction on the same LIWC criteria as before within male and female presidents respectively. Regarding male leaders, those of highly collectivistic countries used fewer reward-related words (mean = 1.12, *SD* = .12) than male leaders of less collectivistic countries (mean = 1.55, *SD* = .11; $t = 2.53$, $p = .03$). Also, those of highly collectivistic nations used more health-focused words (mean = 2.00, *SD* = .34) compared to their counterparts of low collectivistic cultures (mean = .76, *SD* = .12; $t = -2.82$, $p = .02$). This lends partial support to the incongruity notion that country-level collectivism may shape male leaders to show less masculine orientation and more concern for health issues in their public communication compared to their counterparts of individualistic countries. Such differences were not evident for female leaders, implying that national collectivism may play a stronger role in mitigating the disadvantage that male leaders have during a public health crisis.

Media sentiment toward global leaders during COVID-19. To determine how others assessed leader effectiveness during the pandemic, we used RavenPack's query capacity to identify articles written about world leaders in our sample for the period between July 1, 2020

and December 31, 2020. RavenPack is a unique dataset of news events covering nearly 200,000 companies, government organizations, and influential people from over 19,000 sources. For each unique news event, RavenPack creates a sentiment score which ranges between -100 and 100 (negative to positive sentiment). In our case, the entity was the individual country leader. We searched for all articles including the terms "pandemic," "covid" or "coronavirus" with the country leader's name as the relevant entity. We manually filtered articles to ensure each article was about the leader's pandemic response. This resulted in 6,961 articles about 41 world leaders (33 men and 8 women) from our sample. The average sentiment score for women leaders .12 (SD = .31) was more positive than that of men leaders -.20 (SD = .36); t = 2.36, p = .023. We interpret this statistically significant result with caution since the sample size was small at 41 and the range of the effect between women and men leaders' sentiment was .32 on a 200 point scale.

Discussion

The findings support our hypotheses. Overall, countries with women leaders experienced fewer pandemic deaths. Results show an interaction between leader gender and collectivistic culture predicting pandemic deaths whereby collectivist countries with male leaders experienced some of lowest death rates in the world. Examples are Emmerson Mnangagwabof Zimbabwe and Prayut Chan-o-chaj of Thailand, Nicolás Maduro of Venezuela, and Xi Jinping of China. Also, some women leaders from more individualistic countries, such as Jacinda Ardern of New Zealand, Sanna Marin of Finland, and Mette Frederiksen of Denmark all had lower than average pandemic deaths despite running three of the most individualistic countries in our sample. These findings suggest that role incongruity may be an advantage in some contexts. Collectivistic countries with male leaders showed lower levels of pandemic deaths than individualistic countries with male leaders. In a nutshell, we found that in a collectivistic culture context there was a male president advantage. Furthermore, there was some evidence that women presidents

might fare somewhat better when there is role incongruity between their natural leadership style and the cultural orientation (i.e., individualistic culture).

Theoretical Implications

This study extends the extant literature on leadership during the pandemic (Bolino et al., 2023; Luoto & Varella, 2021; Soares & Sidun, 2021) in several ways. First, addressing the need for additional empirical studies and novel perspectives on the effectiveness of leadership in the context of the pandemic (Bolino et al., 2023; Aldrich & Lotito, 2020), we not only find a female leadership advantage, but also, a cultural factor that helps male leaders handle pandemics better. While previous work has shown that within a country, female politicians managed the pandemic outcomes more effectively compared to their male counterparts (e.g., Bruce et al., 2022; Sergent & Stajkovic, 2020), we extend and conduct the investigation across multiple countries. Second, we examine female leadership through a novel theoretical lens – namely, signaling theory and role congruity theory – and illuminate how national collectivism versus individualism may frame (in)congruity for men and women leaders differently during a crisis. Prior research at the international level has explored female leaders mainly from a public policy standpoint, focusing on how they reduced death tolls via different policy adoption (e.g., Aldrich & Lotito, 2020; Coscieme et al., 2020; Garikipati & Kambhampati, 2021). Although work by Windsor and colleagues (2020) was an exception, examining the effect of leader gender and country culture on pandemic deaths, they found no significant difference between male and female presidents but that females may be advantageous only in countries with cultural values more supportive of female leadership (e.g., high femininity, low individualism, low indulgence). Conversely, our findings show that incongruity, as opposed to congruity, between leader gender and culture may be beneficial, especially for male leaders during the pandemic, which expands our understanding

of gender and leadership in public health crises.

As such, the present study supports and extends role congruity theory (Eagly & Karau, 2002), which predicts that female leaders will be evaluated less favorably than male leaders because of the incongruity between female gender roles and leadership role expectations. On the one hand, our study shows that the number of deaths observed in countries with a female president is lower than those with a male president and that this difference is especially evident in more individualistic countries. This is consistent with previous studies on the benefits of female leadership during the early phases of the pandemic (e.g., Cocieme et al., 2020; Sergent & Stajkovic, 2020; Windsor et al., 2020). On the other hand, we find that male presidents in more collectivistic countries consistently resulted in some of the lowest levels of death. Taken together, while it is true that women presidents tend to show concern for people's health, which is reflected in the number of pandemic deaths in their countries, we posit that leader gender is only one piece of the puzzle. Role incongruity may be advantageous in public health emergencies, especially for male leaders if the culture of their country supports the values and behaviors needed to manage such a crisis.

Therefore, role congruity theory should be extended to account for the cultural context in which the leader is serving. We propose that country culture mitigates the negative impact of male leadership on public health outcomes. When male presidents serve the citizens of a more collectivistic country, the cultural orientation at the national level seems to offset the limitations of male leadership. Our transcript data supports this. For example, Alejandro Giammatia, the male President of Guatemala, a collectivistic country, made a statement in March of 2020 where he explained to the people that certain individual freedoms must be curtailed for a period to protect the public health (Gobierno de Guatemala, 2020). Ultimately, the present study offers a

more nuanced approach to role congruity theory and extends the literature on female leadership advantage (Offermann & Foley, 2020) – and male disadvantage – by identifying the cultural boundary conditions that may allow male leaders to be as effective as their female counterparts during a public health crisis.

This example from Guatemala is also a clear example of how the leader of a country can send a signal to the public that people must prioritize health during a pandemic. In this case, President Alejandro Giammatei makes it clear that individual freedoms must be curtailed for a period of time for the safety of the community. A similar tone was sent by Prime Minister Jacinda Ardern of New Zealand in her quote earlier in this article. This supports signaling theory (Certo, 2003; Connelly et al., 2011) and extends it to the context of pandemic deaths. When leaders send a clear signal to value public health and exercise caution, it makes a difference in reducing pandemic deaths. The present study also suggests that the leaders who are most willing to make such statements are women leaders and male leaders of collectivistic countries. This both supports and extends signaling theory within the context of a pandemic.

Practical Implications

The present study has important implications both in the world and for leaders in organizations because of the lives that have been lost due to the global pandemic (Our World in Data, 2020). Considering the expansion of leadership to include not only employee well-being but also public health and safety (Harbert, 2021), the number of pandemic-related deaths as well as leader responses to the pandemic are important management outcomes to be examined by management scholars. COVID-19 has changed the nature of work in fundamental ways, and leaders continue to grapple with their responsibility for the health and safety of their employees. Governments have even required human resource managers to document employee vaccination

status, hospitalizations, and deaths related to the pandemic (Smith, 2021; Society for Human Resource Management, 2021). The pandemic continues to pose a challenge for organizations, as leaders consider how to keep employees safe and healthy with policies such as whether/when COVID-positive employees should come to work, health screenings, vaccination policies, flexible working arrangements, and physical distancing measures (Society for Human Resource Management, 2021). Our findings provide implications as organizations navigate responsibilities of employee health post-pandemic.

These findings also provide implications for organizational leaders as they prepare for potential health crises in the future. Especially in cultures with more individualistic values, where people tend to be more self-centered (Triandis, 1995), male leadership appears to exacerbate negative outcomes as shown from our results on the number of pandemic deaths. Even when male leaders of more individualistic countries do ask their citizens to make a sacrifice for the greater public, they do it reluctantly. For instance, in a speech by British Prime Minister, Boris Johnson, he ultimately asked people to stay home as much as possible, but only after lamenting that "We're taking away the ancient, inalienable right of free-born people of the United Kingdom to go to the pub" (Rev, 2020a). Finally, this study suggests that leaders should consider their cultural context in crafting public health responses. Leader gender and collectivistic culture interact in important ways to affect the success of public health initiatives. Ultimately, our results show that male leaders perform best in collectivistic cultures whereas female leaders perform best in individualistic cultures during a pandemic.

Limitations and Future Research

With 57 country observations, it is possible that some of the relationships which were not statistically significant in this study may have been statistically significant if we had more

statistical power. However, we note that our results supporting a female leadership advantage during the pandemic are generally consistent with prior studies with larger sample sizes (e.g., Garikipati & Kambhampati, 2021; Windsor et al., 2020), indicating that these effects may not be a mere byproduct of sample size. Also, the GLOBE study only examined 62 societies in the world and we had to match those data with our current variables; the entire data available from the world population with no missing observations was 57 countries. If the GLOBE study were to be updated, future research can expand upon the present findings.

Future research may also extend this study by examining the characteristics of the leadership teams or the pandemic task forces of the various countries. Although we find support for the role of president's gender in initially explaining pandemic-related death, presidents work with other government authorities as they cope with the pandemic. Thus, it could be that having more women on the decision-making team (beyond just a woman president) could lead to more caring strategic decisions, which might result in fewer pandemic deaths, or vice versa. Alternatively, a powerful woman (or powerful women) working under the leadership of a male president, depending on the relationship type (Fiske & Haslam, 1996), may impact the pandemic-related decisions that are made. There are periods in which change emanates from powerful women actors that can influence a man decision-maker, such as Progressive Era labor feminist in the early 1900s who influenced the election of President Roosevelt and his support around equality and justice (Orleck, 2017). Therefore, future research may consider how the characteristics of other decision-makers interact with the president's personal qualities in establishing relationships that influence pandemic health outcomes.

Conclusion

This study sought to understand the role of leader gender and collectivistic culture in explaining pandemic deaths (i.e., the number of pandemic deaths). Women leaders appear to be more effective than men in managing the global pandemic, in general, as reflected in fewer pandemic related population deaths as of July 2020. However, men leaders in collectivistic countries also have some of the lowest pandemic death rates in the world. Overall, this study provides valuable insights into how gender and collectivism interact to influence crisis management during a global pandemic and adds nuance to the discussion of female gender roles in the context of leadership.

References

Aiken, L. S., & West, S. G. (1991). *Multiple Regression: Testing and interpreting interactions*. Newbury Park, CA: Sage.

Aldrich, A. S., & Lotito, N. J. (2020). Pandemic performance: women leaders in the Covid-19 crisis. *Politics & Gender*, *16*(4), 960-967.

Amos-Wilson, P. (2000). Women civil servants and transformational leadership in Bangladesh. *Equal Opportunities International*, *19*, 23–31.

Bolino, M. C., Henry, S. E., & Whitney, J. M. (2024). Management Implications of the COVID-19 Pandemic: A Scoping Review. *Journal of Management*, *50*(1), 1-36.

Bruce, R., Cavgias, A., Meloni, L., & Remígio, M. (2022). Under pressure: Women's leadership during the COVID-19 crisis. *Journal of Development Economics*, *154*, 102-761.

Centers for Disease Control and Prevention. (2021). COVID-19. Retrieved from https://www.cdc.gov/coronavirus/2019-ncov/index.html

Central Intelligence Data World Fact Book. (2020). Life expectancy at birth. https://www.cia.gov/library/publications/the-world-factbook/fields/355.html

Certo, S. T. (2003). Influencing initial public offering investors with prestige: Signaling with board structures. *Academy of Management Review*, *28*(3), 432-446.

Chen, Y. R., Leung, K., & Chen, C. C. (2009). Bringing national culture to the table: Making a difference with cross-cultural differences and perspectives. *Academy of Management Annals, 3*, 217–249.

Chhokar, J. S., Brodbeck, F. C., & House, R. J. (Eds.). (2008). Culture and leadership across the world: The GLOBE book of in-depth studies of 25 societies. Mahwah, NJ: Lawrence Erlbaum.

Cochran, J. J. (2020). Why we need more coronavirus tests than we think we need. *Significance, 17*, 14–15.

Collins, M. D., Dasborough, M. T., Gregg, H. R., Xu, C., Deen, C. M., He, Y., & Restubog, S. L. D. (2023). Traversing the storm: An interdisciplinary review of crisis leadership. *The Leadership Quarterly*, *34*(1), 101-661.

Connelly, B. L., Certo, S. T., Ireland, R. D., & Reutzel, C. R. (2011). Signaling Theory: A Review and Assessment. *Journal of Management*, *37*(1), 39-67.

Coscieme, L., Fioramonti, L., Mortensen, L. F., Pickett, K. E., Kubiszewski, I., Lovins, H., & Wilkinson, R. (2020). Women in power: female leadership and public health outcomes during the COVID-19 pandemic. *MedRxiv*.

Dada, S., Ashworth, H. C., Bewa, M. J., & Dhatt, R. (2021). Words matter: political and gender analysis of speeches made by heads of government during the COVID-19 pandemic. *BMJ global health*, *6*(1), e003910.

DiTomaso, N. (2021). Why differences make a difference: Diversity, inequality, and institutionalization. *Journal of Management Studies*, doi:10.1111/joms.12690.

Doerr, A. J. (2021). Locked (down) and loaded (language): Effect of policy and speech on COVID-19 outcomes. *Journal of Leadership & Organizational Studies*, *28*(3), 340-348.

Dufwenberg, M., & Muren, A. (2006). Gender composition in teams. *Journal of Economic Behavior & Organization, 61(1)*, 50–54. doi:10.1016/j.jebo.2005.01.002

Dunlop, R., & Scheepers, C.B. (2023). The influence of female agentic and communal leadership on work engagement: vigour, dedication and absorption. *Management Research Review*, 46 (3), 437-466. https://doi.org/10.1108/MRR-11-2021-0796

Eagly, A. H., & Carli, L. L. (2007). *Through the labyrinth: The truth about how women become*

leaders. Boston, MA: Harvard Business Press.

Eagly, A. H., & Karau, S. J. 2002. Role congruity theory of prejudice toward female leaders. *Psychological Review*, *109*, 573-598.

Eagly, A. H., & Johnson, B. T. (1990). Gender and leadership style: A meta-analysis. *Psychological Bulletin, 108*, 233–256.

Eagly, A. H., Karau, S. J., & Makhijani, M. G. (1995). Gender and the effectiveness of leaders: A meta-analysis. *Psychological Bulletin, 117*, 125–145.

Edwards, J.R. (2008). Person-environment fit in organizations: An assessment of theoretical progress. *Academy of Management Annals, 2*, 167-230. https://doi.org/10.5465/19416520802211503

Eisenberger, R., Huntington, R., Hutchison, S., & Sowa, D. (1986). Perceived organizational support. *Journal of Applied Psychology, 71*, 500–507.

Faccio, M., Marchica, M.-T., & Mura, R. (2016). CEO gender, corporate risk-taking, and the efficiency of capital allocation. *Journal of Corporate Finance, 39*, 193–209.

Feng, Z., Zou, K., & Savani, K. (2023). Cultural antecedents of virus transmission: Individualism is associated with lower compliance with social distancing rules during the COVID-19 pandemic. *Journal of Personality and Social Psychology, 124*(3), 461–482. https://doi.org/10.1037/pspa0000322

Field, A. (2018). Discovering statistics using SPSS, 5th Ed. Sage: Thousand Oaks.

Fincher, C. L., Thornhill, R., Murray, D. R., & Schaller, M. (2008). Pathogen prevalence predicts human cross-cultural variability in individualism/collectivism. *Proceedings of the Royal Society Biological Sciences, 275*, 1279–85. https://doi.org/10.1098/rspb.2008.0094

Fiske, A. P., & Haslam, N. (1996). Social Cognition Is Thinking About Relationships. *Current*

Directions in Psychological Science, *5*(5), 143-148. https://doi.org/10.1111/1467-8721.ep11512349

Freedom House. (2020a). Countries and Territories. https://freedomhouse.org/countries/freedom-world/scores

Freedom House. (2020b). Freedom in the world research methodology. https://freedomhouse.org/reports/freedom-world/freedom-world-research-methodology

Garikipati, S., & Kambhampati, U. (2021). Leading the Fight against the Pandemic: Does Gender really matter? *Feminist Economics*, *27*(1-2), 401-418.

Gibson, C. (1995). An Investigation of Gender Differences in Leadership across Four Countries. *Journal of International Business Studies, 26*, 55-279.

Gobierno de Guatemala. (2020, March 16). Mensaje del presidente de Guatemala, Alejandro Giammattei en Cadena Nacional sobre el Covid-19. https://www.youtube.com/watch?v=_yetzDZAXck

Harbert, T. (2021, September 1). The pandemic has expanded the role of HR. Society for Human Resource Management. https://www.shrm.org/hr-today/news/hr-magazine/fall2021/Pages/pandemic-expands-role-of-hr.aspx

Hill, N. S., Aguinis, H., Drewry, J., Patnaik, S., & Griffin, J. J. (2021). Using archival databases to expand theory in micro research. *Journal of Management Studies*, doi:10.1111/joms.12764.

House, R. J., Hanges, P. M., Javidan, M., Dorfman, P., & Gupta, V. (2004). *Culture, leadership, and organizations: The GLOBE Study of 62 Societies*, Sage: Thousand Oaks, CA.

Hsu, N., Badura, K. L., Newman, D. A., & Speach, M. E. P. (2021). Gender, "masculinity," and "femininity": A meta-analytic review of gender differences in agency and

communion. *Psychological Bulletin, 147*(10), 987–1011.

Huang, J., & Kisgen, D. J. (2013). Gender and corporate finance: Are male executives overconfident relative to female executives? *Journal of Financial Economics, 108*, 822–839.

Hunt, J. G., Boal, K. B., & Dodge, G. E. (1999). The effects of visionary and crisis-responsive charisma on followers: An experimental examination of two kinds of charismatic leadership. *The Leadership Quarterly, 10*, 423– 448. http://dx.doi.org/10.1016/S1048-9843(99)00027-2

Jeong, S., and Harrison, D.A. (2017). Glass Breaking, Strategy Making, and Value Creating: Meta-Analytic Outcomes of Women as CEOs and TMT members. *Academy of Management Journal, 60*, 1219–1252.

Jonsen, K., Maznevski, M. L., & Schneider, S. C. (2010). Gender differences in leadership – believing is seeing: implications for managing diversity. *Equality, Diversity and Inclusion: An International Journal*, *29*, 549–572.

Jung, D. I., & Avolio, B. J. (1999). Effects of leadership style and followers' cultural orientation on performance in group and individual task conditions. *Academy of Management Journal, 42*, 208-218.

Khafaie, M. A., & Rahim, F. (2020). Cross-Country Comparison of Case Fatality Rates of COVID-19/SARS-COV-2. *Osong public health and research perspectives, 11*(2), 74–80. https://doi.org/10.24171/j.phrp.2020.11.2.03

Kristof-Brown, A., & Guay, R. P. (2011). Person–environment fit. In S. Zedeck (Ed.), APA handbooks in psychology. APA handbook of industrial and organizational psychology, Vol. 3. Maintaining, expanding, and contracting the organization (p. 3–50). American

Psychological Association. https://doi.org/10.1037/12171-001

Kyriakidou, O. (2011). Gender, management and leadership. *Equality, Diversity and Inclusion: An International Journal*, *31*, 4–9. https://doi.org/10.1108/02610151211201296

Luoto, S., & Varella, M. A. C. (2021). Pandemic leadership: sex differences and their evolutionary–developmental origins. *Frontiers in Psychology*, *12*, 633862. doi: 10.3389/fpsyg.2021.633862

Mcilkenny, S. (2020, October 3). Donald Trump coronavirus: Trump's most notable quotes about Covid 19. The Herald. https://www.heraldscotland.com/news/18768112.donald-trump-coronavirus-trumps-notable-quotes-covid-19/

Meo, S. A., Abukhalaf, A. A., Alomar, A. A., AlMutairi, F. J., Usmani, A. M., & Klonoff, D. C. (2020). Impact of lockdown on COVID-19 prevalence and mortality during 2020 pandemic: observational analysis of 27 countries. *European Journal of Medical Research*, *25*, 1-7.

Miller, T., & Triana, M. (2009). Demographic diversity in the boardroom: Mediators of the board diversity- firm performance relationship. *Journal of Management Studies*, *46*, 755-786.

Offermann, L. R., & Foley, K. (2020). Is there a female leadership advantage?. In *Oxford Research Encyclopedia of Business and Management*.

Office of the President of Republic of China. (2020, May 20). Inaugural address of ROC 15th-term President Tsai Ing-wen. https://english.president.gov.tw/NEWS/6004/covid

O'Reilly, E. D. (2021). Monster risk: Fauci says COVID cases 10x too high. AXIOS. https://www.axios.com/fauci-no-control-covid-a2572210-dbdb-48b0-aa2e-

92e8e9fcd69a.html

Orleck, A (2017). *Common Sense and a Little Fire, Second Edition: Women and Working-Class Politics in the United States, 1900-1965* (2nd ed.). University of North Carolina Press. http://www.jstor.org/stable/10.5149/9781469635927_orleck

Our World in Data. (2020). Coronavirus pandemic (COVID-19). University of Oxford. https://ourworldindata.org/coronavirus

Oyserman, D., Coon, H. M., & Kemmelmeier, M. (2002). Rethinking individualism and collectivism: evaluation of theoretical assumptions and meta-analyses. *Psychological Bulletin, 128*, 3-72.

Oyserman, D., & Lee, S. W. (2008). Does culture influence what and how we think? Effects of priming individualism and collectivism. *Psychological Bulletin, 134*, 311-342.

Paris, L., Howell, J., Dorfman, P., & Hanges, P. (2009). Preferred leadership prototypes of male and female leaders in 27 countries. *Journal of International Business Studies, 40*, 1396–1405.

Pearce, N., Vandenbroucke, J. P., VanderWeele, T. J. & Greenland, S. (2020). Accurate statistics on COVID-19 are essential for policy guidance and decisions. *American Journal of Public Health, 110*, 949–951.

Pillai, R., & Meindl, J. R. (1998). Context and charisma: A "meso" level examination of the relationship of organic structure, collectivism, and crisis to charismatic leadership. *Journal of Management, 24*, 643– 671.

President of the Republic of Singapore. (2020, Feb 11). Speech by President Halimah Yacob at The Straits Times Singaporean of the Year 2019 Award Ceremony. https://www.istana.gov.sg/Newsroom/Speeches/2020/02/11/Speech-by-President-

Halimah-Yacob-at-The-Straits-Times-Singaporean-of-the-Year-Award-Ceremony

Preston, S. D., Bechara, A., Damasio, H., Grabowski, T. J., Stansfield, R. B., Mehta, S., & Damasio, A. R. (2007). The neural substrates of cognitive empathy. Social Neuroscience, 2, 254–275. https://doi.org/10.1080/17470910701376902

Purkayastha, S., Salvatore, M., & Mukherjee, B. (2020). Are women leaders significantly better at controlling the contagion during the COVID-19 pandemic? *Journal of Health and Social Sciences*, *5*(2), 231-240.

Radtke, R. R. (2000). The effect of gender and setting on accountants' ethically sensitive decisions. *Journal of Business Ethics, 24*, 299–312.

Rev. (2020a, Mar 21). Boris Johnson UK Coronavirus Update Transcript: UK Shuts Down Pubs, Restaurants. https://www.rev.com/blog/transcripts/boris-johnson-uk-coronavirus-update-transcript-uk-shuts-down-pubs-restaurants

Rev. (2020b, Mar 13). Justin Trudeau Speech Transcript After Wife Gets COVID-19 Virus. https://www.rev.com/blog/transcripts/justin-trudeau-speech-transcript-after-wife-gets-covid-19-virus

Rev. (2020c, Apr 6). Justin Trudeau Canada COVID-19 Briefing Transcript April 6. https://www.rev.com/blog/transcripts/justin-trudeau-canada-covid-19-briefing-transcript-april-6

Rev. (2020d, May 4). New Zealand COVID-19 Briefing Transcript May 4. https://www.rev.com/blog/transcripts/new-zealand-covid-19-briefing-transcript-may-4

Roser, M., Ritchie, H., Ortiz-Ospina, E., & Hasell J. (2020). Coronavirus Pandemic (COVID-19). Published online at OurWorldInData.org. Retrieved from: https://ourworldindata.org/coronavirus

Ryan, M. K., Haslam, S. A., Hersby, M. D., & Bongiorno, R. (2011). Think crisis-think female: The glass cliff and contextual variation in the think manager-think male stereotype. *Journal of Applied Psychology, 96*, 470 – 484. http://dx.doi.org/10.1037/a0022133

Ryan, M. K., Haslam, S. A., Morgenroth, T., Rink, F., Stoker, J., & Peters, K. (2016). Getting on top of the glass cliff: Reviewing a decade of evidence, explanations, and impact. The *Leadership Quarterly, 27*, 446 – 455. http://dx.doi.org/10.1016/j.leaqua.2015.10.008

Ryan, M. K., Haslam, S. A., & Postmes, T. (2007). Reactions to the glass cliff: Gender differences in the explanations for the precariousness of women's leadership positions. *Journal of Organizational Change Management, 20*, 182–197.

Scandura, T., & Dorfman, P. (2004). Leadership research in an international and cross-cultural context. *The Leadership Quarterly, 15*(2), 277-307.

Sergent, K., & Stajkovic, A. D. (2020). Women's leadership is associated with fewer deaths during the COVID-19 crisis: Quantitative and qualitative analyses of United States governors. *Journal of Applied Psychology, 105*(8), 771-783.

Shi, W., & Veenstra, K. (2020). The moderating effect of cultural values on the relationship between corporate social performance and firm performance. Journal of Business Ethics

Smith, A. (2021, November 15). Federal Contractor Employees Must Be 'Fully Vaccinated' by Jan. 18, 2022. Society for Human Resource Management. https://www.shrm.org/resourcesandtools/legal-and-compliance/employment-law/pages/coronavirus-federal-contractor-employees-must-be-fully-vaccinated.aspx

Soares, S. E., & Sidun, N. M. (2021). Women leaders during a global crisis: Challenges, characteristics, and strengths. *International Perspectives in Psychology: Research, Practice, Consultation*, *10*(3), 130-137.

Society for Human Resource Management. (2021). Checklist: Return-to-Work (COVID-19). https://www.shrm.org/resourcesandtools/tools-and-samples/hr-forms/pages/covid-19-back-to-work-checklist.aspx

Stieg, C. (2021, August 25). How the U.S. can reach 'Covid normalcy' by spring 2022, according to Fauci — and what experts say that'll look like. CNBC. https://www.cnbc.com/2021/08/25/dr-fauci-how-the-us-can-reach-covid-normality-by-spring-2022.html

Stiglitz, J.E. 1985. Information and economic analysis: A perspective. *Economic Journal*, *95*, 21-41.

Triana, M., Song, R., Um, C., Huang, L. (2023). Stereotypical Perception in Management: A Review and Expansion of Role Congruity Theory. Journal of Management. DOI: 10.1177/01492063231180836

Triandis H.C. (1995). Individualism and collectivism: New directions in social psychology. Boulder: Westview Press.

Windsor, L. C., Yannitell Reinhardt, G., Windsor, A. J., Ostergard, R., Allen, S., Burns, C., Giger, J., & Wood, R. (2020). Gender in the time of COVID-19: Evaluating national leadership and COVID-19 fatalities. *PloS one*, *15*(12), e0244531.

World Economic Forum. (2020). Global Gender Gap Report. http://www3.weforum.org/docs/WEF_GGGR_2020.pdf

World Health Organization. (2020). The World Health Organization's ranking of the world's health systems, by Rank. https://photius.com/rankings/healthranks.html

Worldometer. (2020). GDP by country. https://www.worldometers.info/gdp/gdp-by-country/

World Population Review. (2020a). Countries by density 2020.

https://worldpopulationreview.com/country-rankings/countries-by-density

World Population Review. (2020b). Education rankings by country 2020. https://worldpopulationreview.com/country-rankings/education-rankings-by-country

Yan, J., & Hunt, J. G. J. (2005). A cross cultural perspective on perceived leadership effectiveness. *International Journal of Cross Cultural Management, 5*(1), 49-66.

Yarchi, M., & Hershman-Shitrit, M. (2023). Leaders' rhetoric during crisis: gender differences in leaders' communication during the COVID-19 pandemic crisis. *The Journal of International Communication*, *29*(1), 1-19.

Zou, Z., Wu, Y., Zhu, Q., & Yang, S. (2018). Do female executives prioritize corporate social responsibility? *Emerging Markets Finance and Trade, 54*, 2965-2981.

Table 1

Descriptive Statistics and Correlations [a]

Variables	Mean	*SD*	1	2	3	4	5	6	7	8	9	10
1. Global freedom score	67.75	27.20										
2. Population density/km^2	273.43	1090.94	-.08									
3. WHO[c] health care rank	.75	.19	.42	.18								
4. Mean years of schooling	10.20	2.39	.55	.08	.55							
5. Global gender equality score	.72	.05	.64	-.02	.19	.46						
6. National GDP in US dollars	30250.55	21164.88	.39	.43	.65	.65	.23					
7. Life expectancy	76.61	6.47	.51	.22	.87	.66	.20	.71				
8. Leader gender [b]	.16	.37	.25	.29	.19	.35	.32	.30	.25			
9. Country collectivism practice	5.19	.72	-.62	.08	-.40	-.61	-.49	-.57	-.48	-.32		
10. Pandemic deaths (July 2020 death from Our World)	108.43	155.84	.37	-.09	.31	.29	.27	.33	.32	-.10	-.43	
11. Pandemic deaths (July 2020 death from Worldometer)	110.20	156.77	.37	-.09	.31	.29	.27	.33	.31	-.10	-.43	.99

[a] $N = 56$. One country had a missing observation for one month in the Our World database for COVID-19 deaths, so the listwise sample size is 56.
[b] Leader gender was coded 0 = male, 1 = female. [c] WHO = World Health Organization.
Correlations greater than or equal to |.27| are statistically significant at $p < .05$. Correlations greater than or equal to |.35| are statistically significant at $p < .01$. Two tailed tests. Table by authors.

Table 2

Results of Moderated Hierarchical Regression Analysis Predicting Pandemic Deaths by Country

(Our World data)

	COVID-19 July 2020 Deaths (Our World)		
Variables	Model 1	Model 2	Model 3
Controls			
Global freedom score	.18 (.386)	.09 (.641)	.03 (.884)
Population density per kilometer[2]	-.23 (.133)	-.07 (.692)	-.20 (.244)
WHO health care rank [a]	.11 (.683)	.11 (.683)	.14 (.561)
Mean years of schooling	-.12 (.555)	-.09 (.674)	-.22 (.292)
Global gender equality score	.10 (.568)	.13 (.480)	.21 (.247)
National GDP in US dollars	.35 (.112)	.18 (.447)	.26 (.258)
Life expectancy	-.01 (.972)	.03 (.933)	.00 (.988)
Independent variables			
Leader gender [b]		-.29 (.046)	-.12 (.452)
Country Collectivism Practice		-.29 (.150)	-.50 (.022)
Interaction			
Leader gender × Country Collectivism Practice			.41 (.027)
R^2	.23 (.076)	.31 (.078)	.38 (.027)
ΔR^2		.08	.07

N = 56. One country had a missing observation for one month in the Our World database for COVID-19 deaths, so the sample size is 56. Standardized Beta coefficients presented. Probability values are presented in parentheses.

[a] WHO = World Health Organization.

[b] Leader gender was coded 0 = male, 1 = female.

Table by authors.

Table 3

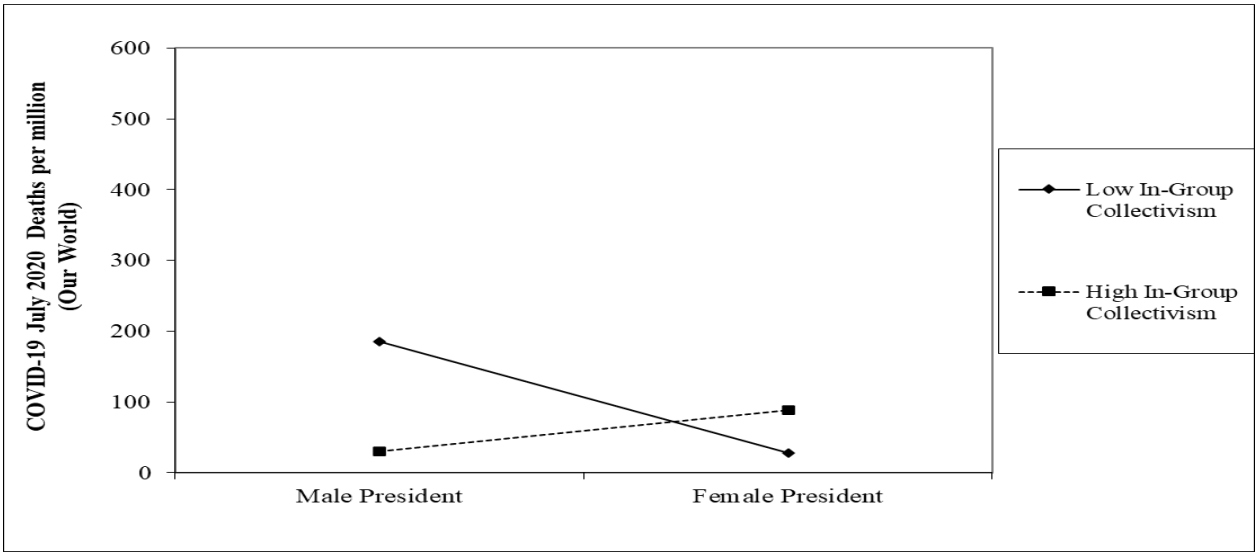
Results of Moderated Hierarchical Regression Analysis Predicting Pandemic Deaths by Country

(Worldometer data)

	COVID-19 July 2020 Deaths (Worldometer)		
Variables	Model 1	Model 2	Model 3
Controls			
Global freedom score	.15 (.441)	.10 (.613)	.04 (.841)
Population density per kilometer[2]	-.24 (.112)	-.11 (.513)	-.23 (.171)
WHO health care rank[a]	.15 (.576)	.13 (.603)	.17 (.496)
Mean years of schooling	-.21 (.298)	-.16 (.425)	-.28 (.165)
Global gender equality score	.19 (.295)	.22 (.206)	.29 (.092)
National GDP in US dollars	.35 (.102)	.24 (.299)	.32 (.166)
Life expectancy	.01 (.964)	.05 (.874)	.03 (.927)
Independent variables			
Leader gender[b]		-.28 (.050)	-.12 (.448)
Country Collectivism Practice		-.18 (.359)	-.38 (.072)
Interaction			
Leader gender × Country Collectivism Practice			.38 (.035)
R^2	.26 (.035)	.32 (.126)	.38 (.035)
ΔR^2		.06	.06

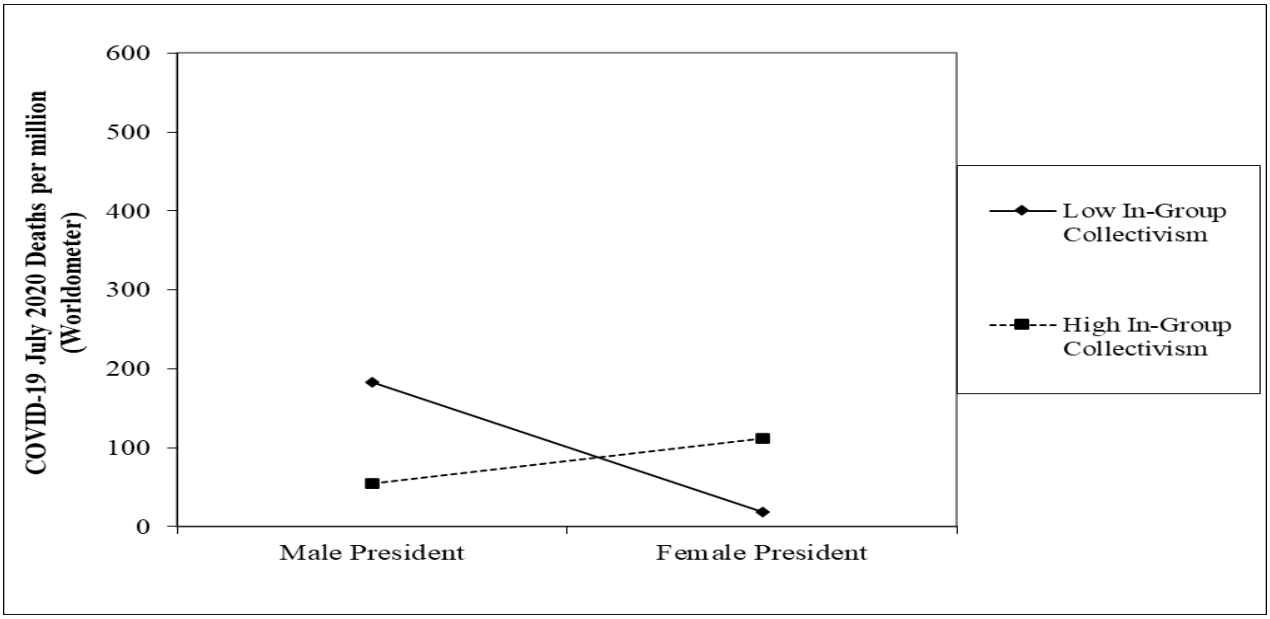
N = 57. Standardized Beta coefficients presented. Probability values are presented in parentheses.
[a] WHO = World Health Organization.
[b] Leader gender was coded 0 = male, 1 = female.
Table by authors.

Figure 1. Moderating effect of collectivism practice on the relationship between leader gender and pandemic deaths (Our World).



Note: Figure by authors.

Figure 2. Moderating effect of in-group collectivism practice on the relationship between leader gender and pandemic deaths (Worldometer).



Note: Figure by authors.