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A Country Comparative Analysis of International Print Media's Framing of the COVID-19 Pandemic

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This study examines how newspapers in six countries frame the COVID-19 pandemic. The quantitative content analysis shows that most articles were written with a "consequence" or a "collective action" frame and portrayed the pandemic in a social and national context. Journalists used thematic and loss frames more often than episodic and gain frames. Framing differed between countries. Pakistani articles had a social justice perspective. South Korean and South African journalists employed the collective action frame more than other countries. German articles used gain more than loss frames. South Korean and Argentinian journalists used the individual action frame the least and focused stronger on the future than journalists in other countries. U.S. articles used the uncertainty frame more than articles from other countries. These differences might help understand the different approaches countries take in trying to manage the spread of the virus and give some insights into how people across the world take different actions.

Keywords: SARS-CoV-2, COVID-19, framing, media coverage, content analysis, country comparison

SARS-CoV-2, which causes COVID-19, was first identified in Wuhan, China, in December 2019. The COVID-19 outbreak was declared a pandemic by the World Health Organization (WHO, n.d.) on March 11, 2020. As of February 1, 2022, the novel coronavirus infected more than 373 million people worldwide and caused over 5.6 million deaths (WHO, n.d.). This pandemic has contributed to widespread social and economic instability and exacerbated political polarization (Hart, Chinn, & Soroka, 2020).

Media play a valuable role in the communication of knowledge and prevention tips during public health crises (Carducci, Alfani, Sassi, Cinini, & Calamusa, 2011). Media can influence public opinion, decision making, and behaviors (Abroms & Maibach, 2008; Ogbodo et al., 2020). Legacy media news consumption increased during the COVID-19 crisis (Casero-Ripollés, 2020; Newman, Fletcher, Schulz, Andi, & Nielsen, 2020). Analyzing media framing allows us to determine how the media approaches pandemics (Liu & Kim, 2011) like COVID-19.

Media outlets often reflect broader differences in national politics, media governance, and local culture by divergent framing patterns that result in varying perceptions of global issues (including COVID-19) in different countries (Jiang, Barnett, & Taylor, 2016; Van Gorp, 2007). To provide insights into cultural differences in media framing of COVID-19 coverage, we examine cross-country variation in COVID-19 coverage by print media in Argentina, Germany, Pakistan, South Africa, South Korea, and the United States. Given the global reach of COVID-19 and the global action needed, understanding of different countries' climates around this is needed to better understand diverse strategies adopted by various countries. This media framing analysis offers some explanation for different country coping strategies. Understanding how this health crisis was framed can help inform public health communication strategies for countries with different cultural traits in the future.

Framing of Health Issues in Mass Media

Framing helps media audiences organize "everyday reality" through subconscious mental processes (Lakoff, 2010; Tuchman, 1978) and promotes particular viewpoints (Shah, Watts, Domke, & Fan, 2002). Framing can influence how an individual sees an issue, its reality, and eventually the individual actions (Ogbodo et al., 2020; Scheufele, 1999). Media framing presents, promotes, and defines an issue by selecting aspects of perceived reality (Entman, 1993).

Shoemaker and Reese (2014) introduced the Hierarchical Model of Influence to help understand frame-building at various levels. Based on their model, media content can be studied at individual, routines, organization, social institution, and social system levels. Similarly, Hänggli (2011) highlighted the importance of identifying factors that affect the production and frequencies of media frames. Culture, one of these factors at the social system level, shapes frames and thus, constructs social realities about an issue—the pandemic in this case—for the news audiences (Shoemaker & Reese, 2014).

Framing has been used to study diverse topics, including climate change (Boykoff & Boykoff, 2007; Feldman & Hart, 2018; Lakoff, 2010), political issues (Aalberg, Strömbäck, & de Vreese, 2011; Coombs, 2014; Shah et al., 2002), science (Nwakpu, Ezema, & Ogbodo, 2020; Scheufele, 2014), biotechnology (Delshad & Raymond, 2013; Marks, Kalaitzandonakes, Wilkins, & Zakharova, 2007), and wealth and poverty (Kendall, 2011).

Numerous studies have examined how health risks, particularly epidemics, have been framed in media coverage (Dudo, Dahlstrom, & Brossard, 2007; Shih, Wijaya, & Brossard, 2008; Washer, 2004; Wasserman, Chuma, Bosch, Uzuegbunam, & Flynn, 2021; Zhang & Fleming, 2005). Media framed the H1N1 pandemic as "disaster," as "health crisis," and as "general health crisis" and most often used emotions like confusion, alertness, fear, sympathy, and sadness (Liu & Kim, 2011). South African newspapers' COVID-19 coverage predominantly used alarmist narrative, sensationalism, negative tones, and covered impacts of the pandemic in an episodic manner (Wasserman et al., 2021). Framing of health issues influences perception, understanding, and actions, which are important for health crises where information can save lives (Reynolds & Quinn, 2008).

Media framing of health-related issues can be influenced by risk impact and magnitude, proximity or immediate relevance to the audience, and politicization (Shih et al., 2008). Extramedial factors, including professional norms, social ideologies, cultural norms, or government or industry influence can impact coverage content and quality (Oh et al., 2012; Shih et al., 2008; Zhang & Fleming, 2005). Framing has a strong relationship with "risk science," where the knowledge of a risk shapes the audience's opinion and future actions (Aven & Bouder, 2020, p. 849; Chakraborty, 2020). Readers often formulate stronger opinions when issues are more personally relatable, like illness or deaths of loved ones (Aven & Bouder, 2020).

Media frame issues differently depending on cultural context and political leanings. CNN and the British Broadcasting Corporation (BBC) framed the SARS virus from a global perspective, covering public health and travel; however, CNN used control and economic impact frames more than BBC (Tian & Stewart, 2005). The U.S. media were found to heavily politically polarize COVID-19 (Hart et al., 2020).

German (Hallin & Manchini, 2004), Argentinian (Tareen, 2014), South Korean (Han, 2018), and U.S. (Hart et al., 2020) media coverage are known to differ depending on political leaning. Political polarization in Pakistani media is less explored, but studies discuss it in light of the political instability in the region (Bilal, Ali, & Ullah, 2019; Sarwar, Umber, & Bajwa, 2020). South African media is not as politically polarized since it exists in a one-party democracy (Sparks, 2011). The political polarization of media outlets means that audiences receive differently framed coverage (Prior, 2013), which can be an issue when global action is required to stop the spread of a virus. Therefore, this study compares media with different political or social leanings.

Framing Devices

Media use different frame devices (Lee & Basnyat, 2013). We include episodic or thematic frames (general frames), dominant and contextual frames (sometimes called themes), and prospect (gain or loss) frames.

Episodic frames focus on individual cases and discrete events, whereas thematic frames connect and highlight events within larger contexts (Iyengar, 1991). Thematic framing can cause blame to shift from individuals to groups including government or institutions; and they tend to be more effective at presenting risk than episodic frames (Hart, 2010; Iyengar, 1991). Episodic frames tend to be more emotionally engaging for audiences (Gross, 2008). Press releases using thematic frames are more likely to be selected by the news media during an outbreak situation (Lee, 2014). The H1N1 pandemic was often thematically framed in Singapore media (Lee & Basnyat, 2013). In contrast, episodic frames, high sensationalism, and minimal information promoting self-efficacy were most common in U.S. and South African media coverage of the avian flu and the COVID-19 pandemic, respectively (Dudo et al., 2007; Wasserman et al., 2021).

Dominant frames represent broader themes the media focus on. Shih and colleagues (2008) identified dominant frames including consequence, uncertainty, action, reassurance, conflict, and new evidence for public health epidemics in *The New York Times*' coverage. Several studies found that war/battle metaphors are commonly used when talking about pandemics (Basnyat & Lee, 2014; Benziman, 2020; Shih et al., 2008). Conflict frames dominated COVID-19 speeches given by former U.S. President Trump and the British Prime Minister Johnson (Benziman, 2020), indicating potential similarities in coverage between the COVID-19 pandemic and previously politicized health risks.

Contextual frames describe the broader context of the article and can include social, economical, political, and scientific frames (Lee & Basnyat, 2013; Liu & Kim, 2011; Luther & Zou, 2005). de Vreese (2005) recommended using generic frames, such as contextual frames, for cross-national comparisons. Although dominant frames (like conflict and reassurance) were common for epidemics in the past, this can be because of the political nature of actors (Shih et al., 2008).

According to Kahneman and Tversky's (1979) prospect theory, use of gain or loss frames may affect people's preferences of different policy interventions and ones with gain frames are more persuasive (Hameleers, 2020). Studies have examined gain and loss frames when covering pandemics (Basnyat & Lee, 2014; Lee & Basnyat, 2013; Rothman, Bartels, Wlaschin, & Salovey, 2006). When COVID-19 was

communicated using gain frames, people supported more risk-aversive interventions, whereas for loss frames they supported risk-seeking alternatives (Hameleers, 2020). Press releases with gain frames and with a more positive tone were more likely to be selected by the media during the H1N1 pandemic outbreak (Lee, 2014).

Cross-Cultural Media Comparison

Culture can play an important extramedial role in shaping media reporting as it reflects national interests, media governance, and local culture. Journalists may use cultural symbols to intimately link to the publics' cultural assumptions (Jiang et al., 2016; Van Gorp, 2007). Cross-cultural comparisons have been conducted on news framing of political events (Jiang et al., 2016), social issues (Jiang et al., 2016; Zhou, 2008), environmental issues (O'Neill et al., 2017), and health issues (Duru, 2016; Hameleers, 2020; Luther & Zhou, 2005; Oh et al., 2012; Wu, 2006).

In contrast to Wu's (2006) study that highlighted confrontational frames, Luther and Zhou (2005) examined to what extent Chinese news resonate with frames predominantly used in western media when covering SARS. U.S. and South Korean H1N1 framing differed, in that U.S. media attributed more responsibility and emphasized reassurance and action more (Oh et al., 2012). Duru (2016) compared U.S. and U.K. coverage of the Ebola outbreak with Nigeria, Liberia, and Sierra Leone's media coverage and saw that the U.K. and U.S. newspapers drew on ancient stereotypes about Africa, emphasizing the continent's limitations, whereas the West African press focused on broader implications of the outbreak for African countries.

As a renowned tool for conceptualizing and operationalizing culture, Hofstede's dimensions synthesize dissimilar attributes of cultures by adding multidimensional perspectives (Soares, Farhangmehr, & Shoham, 2007). Hofstede (1984) introduced five dimensions of culture: individualism-collectivism, uncertainty avoidance, masculinity-femininity, power distance, and long- and short-term orientations. Dimensions were generated by assigning indexes on these nations based on demographic, geographic, economic, and political aspects (Hofstede, 1984, 2011; Kale & Barnes, 1992). Collectivism considers oneself as a part of a group and prioritizes group interests, while individualism prioritizes individual interests. Uncertainty avoidance indicates the intensity of threat people feel toward ambiguity whereas power distance to what extent people tolerate power inequality when power is unequally distributed across social classes. Long-term orientation is represented by Confucianism exerting power over eastern countries and short-term orientation signifies western ideologies. Femininity-masculinity relates to what values are perceived more important in a society as masculine values include heroism, achievement, and assertiveness, while feminine values represent cooperation and modesty (Hofstede, 1991, 2011). Femininity-masculinity was excluded here because of its irrelevance to the context. Hofstede's dimensions have been adopted in various contexts, including psychology, sociology, crisis communication, and management (Dawar, Parker, & Price, 1996; Mooij & Hofstede, 2010; Sivakumar & Nakata, 2001; Søndergaard, 1994; Wertz & Kim, 2010). Although scant attention has been dedicated to adopting Hofstede's dimensions in understanding journalistic framing, they can identify and enhance understanding of cultural similarities and differences in reporting on COVID-19 in different countries.

Although there is a substantial amount of research on cross-cultural comparison of framing in health issues, minimal country comparisons have been based on cultural dimensions. Using Hofstede's Cultural Dimensions to select countries and steer frame selection and frame operationalization adds novelty to the field. We argue that at the early stages of the pandemic covered in this study, the cultural landscapes within individual countries would influence how the pandemic was perceived, more so than the country's political ideology or agenda that became prevalent during later stages of the crisis. Countries have unique and individual cultures, and we argue that this is an important dimension when comparing countries' media coverage, otherwise important variations could be overlooked or misinterpreted. The aim of the study is to understand how COVID-19 was framed in Argentina, Germany, Pakistan, South Africa, South Korea, and the United States during peak coverage time (March 1–May 2, 2020):

RQ1: How was COVID-19 predominantly framed in the print news media overall?

RQ2: How did (a) general, (b) dominant, (c) contextual, and (d) prospect framing vary in different countries that are defined by differences in Hofstede's Cultural Dimensions?

RQ3: How did the (a) general, (b) dominant, (c) contextual, and (d) prospect frames differ within the countries among the sampled newspapers?

RQ4: Which (a) general, (b) dominant, (c) contextual, and (d) prospect frames correlate/cooccur with each other to shape communication around COVID-19 in those countries?

Methods

This study analyzes newspaper articles using quantitative content analysis, a research technique that analyzes texts to collect information (Krippendorff, 2004). Using the data collected from each of the countries' newspapers, we draw conclusions on media representation of COVID-19 around the world. The selected timeframe was chosen based on the most common peak in media coverage volume among countries. The period was then expanded to encompass two weeks before and four weeks after the peak, resulting in March 1–May 2, 2020.

Country, Newspaper, and Article Sample

To determine how the outbreak of the pandemic was covered in different countries, the study based the country selection on Hofstede's Cultural Dimension Comparison (Hofstede, 2011) and the languages represented within the research team. The countries are compared using individualism, uncertainty avoidance, power distance, and long-term orientation (Figure 1). These dimensions seem important considering how pandemic containment approaches might differ: individual thinking considering a problem needing collective action, uncertainty seems relevant to this early stage of the pandemic where little was known about it, power distance because of potential governmental interventions, and long-term orientation given the long-term perspective of lifestyle changes needed. The masculinity-femininity dimension was deemed irrelevant for media framing of the COVID-19 pandemic. Newspapers were selected based on highest circulation and political leaning (Table 1; online

supplementary materials: https://tinyurl.com/9dndj57h). For each country, 110 articles were analyzed (55 for each newspaper); this sample size was selected based on the resources available to the research team, including number of coders and time. In the United States, 220 articles (110 for each newspaper) were analyzed, as these articles were sampled as part of a larger study examining media coverage of COVID-19 in the United States. The sample keywords used were: "covid" or "covid19" or "covid-19" or "sars-cov-2" or "coronavirus" or "corona virus" or "sars cov 2" or "corona" or "chinese virus" or ("wuhan" and "virus"), or the equivalent translation in each language.

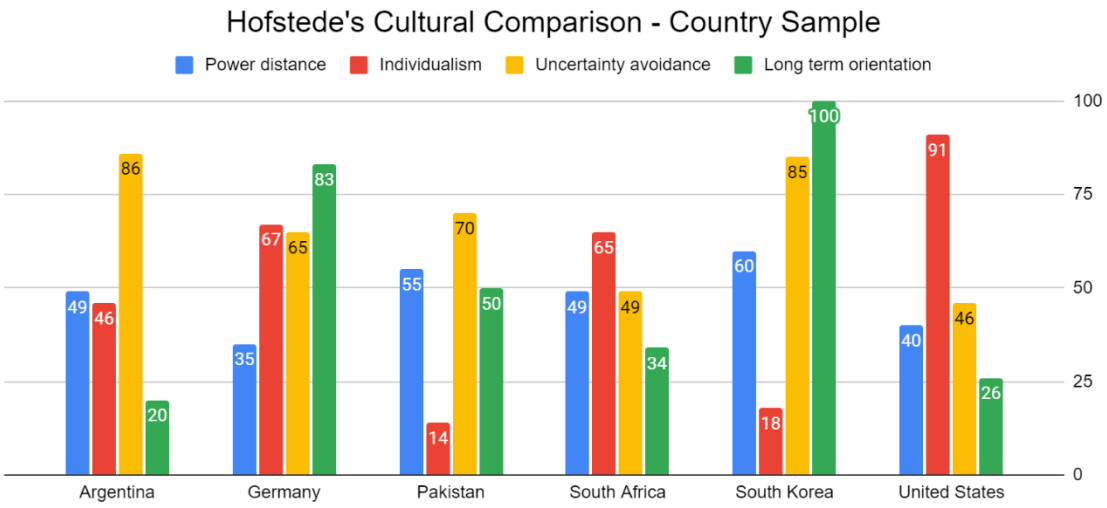

Figure 1. Hofstede's cultural comparison—country sample (Hofstede, 2011).

Media groups in Latin America have been impacted by U.S. media houses but have been largely owned by a handful of companies, like Clarín in Argentina, which were also extremely controlled by the state (Mastrini & Becerra, 2017). As one of the major media groups is in Argentina, Argentina was selected for analysis. Argentina has the highest uncertainty avoidance of the studied countries and the lowest long-term orientation comparatively. The newspaper *La Nación* (rather centrist) and *Clarín* (left-leaning) were selected to capture different political voices and for their large audiences.

Germany was included because of its importance within the EU, and high newspaper circulation (Hallin & Mancini, 2004). Germany is more middling for individualism and uncertainty avoidance and has a high score for long-term orientation (Figure 1). The newspapers chosen were *Süddeutsche Zeitung* (center-left) and *Frankfurter Allgemeine Zeitung* (center-right).

Pakistan was chosen because of its constant struggle with political instability, terrorism, and economic issues in the region and the added burden of dealing with the global pandemic. It has the sixth largest population in the world and the second largest market for media consumption in South Asia following India (Thomas, 2017). Pakistan has the lowest score for individualism of all the countries sampled (Figure 1). Until the 1980s, the state had maintained a monopoly over broadcasting, but with the advent of

independent media houses postindependence, the main goal for the media became to support their political party in power (Thomas, 2017). We sampled *Nawaiwaqt* and *The Daily Jang*, both newspapers in Urdu. Pakistan overall is right-leaning; *Nawaiwaqt* is extremely conservative, whereas *The Daily Jang* is slightly less conservative and, in many cases, leans left on political issues (Fair & Hamza, 2016).

South Africa was selected because it does not have politically polarized media coverage. Even though before 1994, South Africa was considered one of the most polarized countries in the world with regard to political issues because of apartheid, colonialism, White supremacy, and so on, postapartheid, the situation has changed drastically (Southall, 2019). South Africa is different from many countries that transitioned to democracy as it is a one-party democracy, where African National Congress has won overwhelming support in all the free elections and the mass working-class organizations that played a huge role in ending apartheid continue to garner support therefore leaving little room for polarization (Sparks, 2011). Continued economic struggles and political history postapartheid challenges the media to communicate issues like the COVID-19 pandemic (Workneh, 2017). South Africa has a relatively strong individualism and weak long-term orientation (Figure 1). The two high-circulation English language newspapers selected, *The Sowetan* (Black "liberation struggle" newspaper) and *The Star* (quality newspaper) play an important role in agenda setting and inform policy and decision making in the region (Wasserman et al., 2021).

South Korea was selected because it was one of the first countries in the world to be exposed to COVID-19. It has also been positively evaluated for flattening the curve without sacrificing democratic values, which is attributed to the voluntary citizens' cooperation, high-tech tracing, and fast testing (Jo, 2020; Thompson, 2020). South Korea showed very low individualism, high uncertainty avoidance, and long-term orientation (Figure 1). We sampled articles from *Chosun Ilbo* (right-wing conservative) and *Hankyoreh* (left-wing liberal) that have the highest circulation rates among news sources from each political orientation (Oh et al., 2012).

The United States has had one of the highest reported rates of COVID-19 infections in the world and a very polarized perspective on the situation. The U.S. rates highest in individualism, whereas both long-term orientation and uncertainty avoidance were on the lower end comparatively (Figure 1). The two newspapers chosen were *The Wall Street Journal* (right-leaning) and *The New York Times* (left-leaning).

Research Instrument

This analysis and codebook were modeled after the public health epidemics news framing study by Shih and colleagues (2008). The codebook was sectioned based on the popular framing devices: dominant frames (DF), contextual frames (CF), general frames (GF), and prospect frames (PF). Consequence, uncertainty, action, reassurance, conflict, and new evidence were included under DF. The six framing devices from Shih and colleagues (2008) were combined with additional frames, including some specific to this pandemic, such as travel/tourism and environment. Aligned with the Hofstede's (2011) dimensions relevant to the COVID-19 pandemic, frames for collective action and individual action were added to investigate if countries that culturally favor individualism or collectivism focused on this in their news coverage. Future and uncertainty frames were added to capture Hofstede's (2011) dimensions of long-term orientation and uncertainty avoidance.

The CF discussed in Pan and Meng (2016) were included to understand the overall context of the articles: social, political, science, and economic. Episodic versus thematic (GF), and gain and loss framing (PF) were also analyzed. Included were national versus international focus to assess whether coverage focused more on international or national aspects of COVID-19.

Intercoder reliability (ICR) tests assessed codebook reliability among the seven coders. Coders were trained during several weeks by practicing coding of English language articles. ICR was tested throughout coder training, and coding discrepancies were discussed with the entire research team. Codebook clarity revisions were made throughout the training. Training included identifying articles that had a strong enough focus on the COVID-19 pandemic. Articles that focused less than 50% on the pandemic were excluded. Several ICR tests were conducted throughout coder training: first n = 10, second n = 9, and the last one, reported here, n = 28.

Lotus and S-Lotus coefficients were used to assess ICR using the SPSS Lotus Package. Lotus shows the percentage of agreement between coders, whereas S-Lotus shows the ratio of coding of all possible agreements where it did not happen because of chance (Fretwurst, 2015). Lotus was used since it overcomes some issues other ICR coefficients have (Hopmann, Esser, & de Vreese, 2017; Kristiansen, 2017). The Lotus score shows 87% agreement between the seven coders (Table 2).

Statistical Analysis

An analysis of variance (ANOVA) assessed statistical differences of each frame across the countries. Tukey's HSD was used to test pairwise differences when an overall statistically significant difference in group means was shown by the ANOVA (Table 3; online supplementary materials: https://tinyurl.com/9dndj57h).

Table 2. Intercoder Reliability and Frame Definitions.

Variable	Definition	Lotus	S-Lotus
Focus	The article has a clear and strong connection to COVID-19 and/or talks about the pandemic consequences.	.94	.89
Amount of Attention	The article should meet the following criteria to be sampled: It talks about COVID-19, the pandemic, or direct consequences of it. At least 50% of the article talks about the pandemic crisis.	.90	.79
International or National Focus	The article is international focus if it focuses on countries other than the one it was published in; otherwise, its focus is national.	.90	.79
	Dominant Frames		
Consequence	Consequences of the disease, including human life (victims), social impact, or economic impact (cost), social/political issues, events, or discussion generated by the spread of COVID-19 (Shih et al., 2008).	.90	.79
Responsibility	Discussions of "who is responsible for the detriment?" (i.e., blame, scapegoating for actions/events; Luther & Zhou, 2005).	.83	*.67*

Cooperation	Individuals or groups (incl. scientists, countries) formal or informal, working together (e.g., by following instructions) to reduce or mitigate impacts (exacerbated by) COVID-19.	*.73*	*.46*
Conflict	Opinion differences about COVID-19 issues and actions (e.g., arguments/disagreements among news sources, science, or policy actions to mitigate COVID-19 impact; Shih et al., 2008).	.83	*.66*
Reassurance	Attempts to restore public confidence and mitigate public anxiety toward COVID-19 by underlining the readiness and/or authorities' successes (Shih et al., 2008).	.87	*.74*
Uncertainty	Portrayal of COVID-19 as something unknown requiring further examination by experts or governments (Shih et al., 2008).	.82	*.65*
New Evidence	New findings/research results/evidence that advance the understanding of or ability to cope with COVID-19 (discovery of new disease strains, new ways of spreading/transmitting, new methods to prevent/cure/treat this disease; Shih et al., 2008).	.93	.86
Collective Action	Steps already taken, or call for collective action, by formal or informal groups, including government officials, health officials, countries, schools, NGO's, citizens groups, scientists, corporations, religious institutions, and more, to prevent and protect citizens from COVID-19.	.87	*.73*
Individual Action	Steps taken by an individual in reaction to the COVID-19 pandemic, including following healthy and safety guidelines, social distancing, washing hands, wearing a face mask, working from home, isolating, and more; individual citizens' efforts, individual mindsets, knowledge, or opinions about the pandemic, and so on.	.82	*.65*
Personal Story	Introduction of individuals' voices to personalize the story, with emotional emphasis (Luther & Zhou, 2005).	.84	*.68*
Future	Implied or explicit discussion of future outcomes with explicit links made to the pandemics' predictions, actions, and trends (Shih et al., 2008).	*.71*	*.43*
Social Justice	Statistics/outcomes (including accessibility to public health services, and violence) based on race, class, ethnicity, gender, religion, or other minority factors because of COVID-19.	.91	.82
Travel/ Tourism	Travel bans, limitations and economic or other losses, domestic and international because of COVID-19; any COVID-19 impact on the tourism industry; any travel restrictions' lifting.	.87	*.74*
Environment	Positive or negative impacts the COVID-19 pandemic has had on environmental issues and injustices, including but not limited to pollution, emissions, waste, and wildlife.	.96	.92
	Prospect Frames		
Gain	Positive outcome/positive action or what is gained by taking action.	.85	*.70*
Loss	Negative outcome/action or what is lost by failing to take action.	.80	*.59*

	Contextual Frames		
Social	Public health (e.g., numbers of infected, dead, COVID-19 testing, personal stories), cost of health care (with social context, e.g., hesitancy receiving care caused by lack of insurance).	.90	*.79*
Economic	Negative economic impacts, Wall Street, cost of health care (focus on impacts on economy or individuals financial circumstances; i.e., bankruptcy from treatment; testing cost).	.91	.82
Political	Political intervention, political presence, policies, science regulation, health-care policy, leadership, government action/inaction, effects on political entities.	.90	*.79*
Science	Data presentation, direct evidence from scientists, more intricate language than a societal/public health frame, scientific side of testing.	.90	*.79*
	General Frame		
Episodic	Article presents the effects of coronavirus by offering a specific example, case study, or event-oriented report.	.81	*.63*
Thematic	Article places issues caused by the coronavirus into a broader context by discussing statistics or overall trends.		
Entire Codebook		**.87**	***.74***

Note. Italic scores were below the strived for 80% agreement.

Results

RQ1: Framing of COVID-19 in the Print News Media

The pandemic was mostly covered within a social context, from a national perspective, and with a thematic focus. Consequence (consequences of the pandemic), collective action (steps already taken, or call for collective action), and future (future actions/outcomes related to the pandemic) were the most occurring dominant frames, and the loss frame occurred more often than the gain frame (Figure 2). The environment frame was the least observed dominant frame.

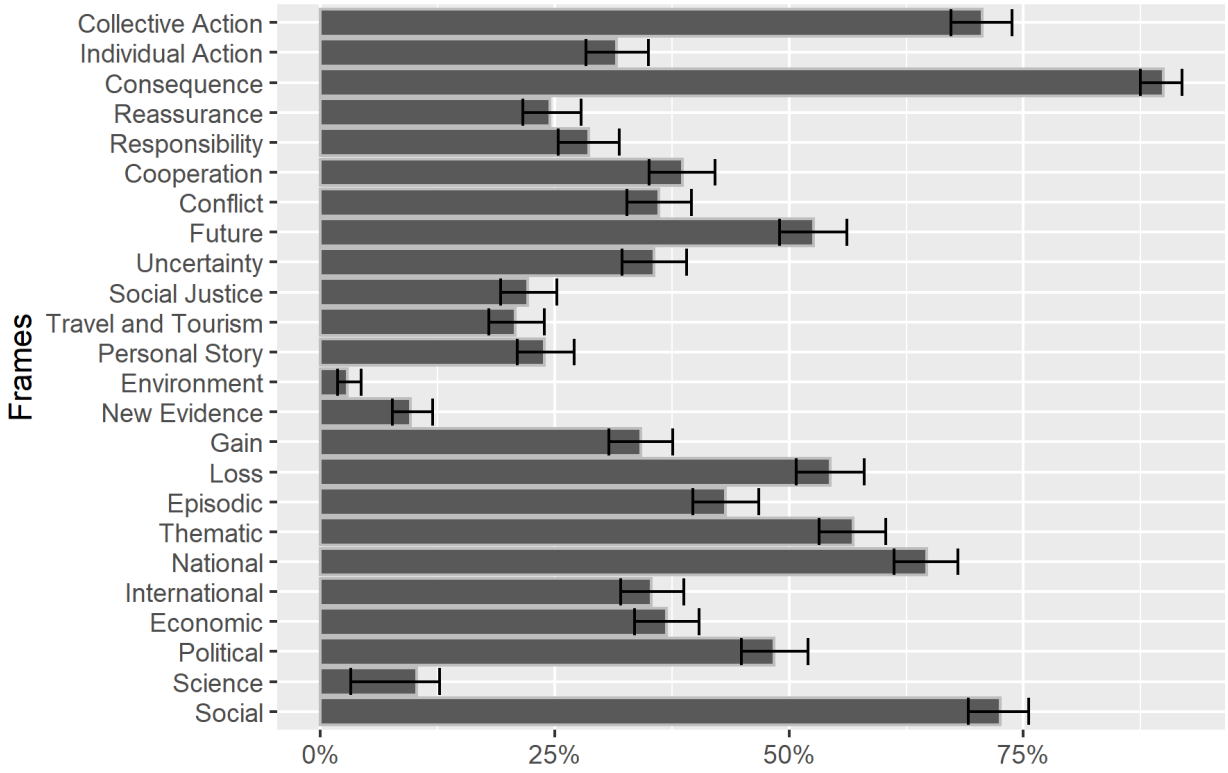

Figure 2. Percentage coverage of overall frames with 95% confidence intervals.

RQ2: Country Specific Framing Differences

Figure 3 shows the amount of media coverage of each frame in each country and the ANOVA results in Table 3 (online) shows additional statistical details.

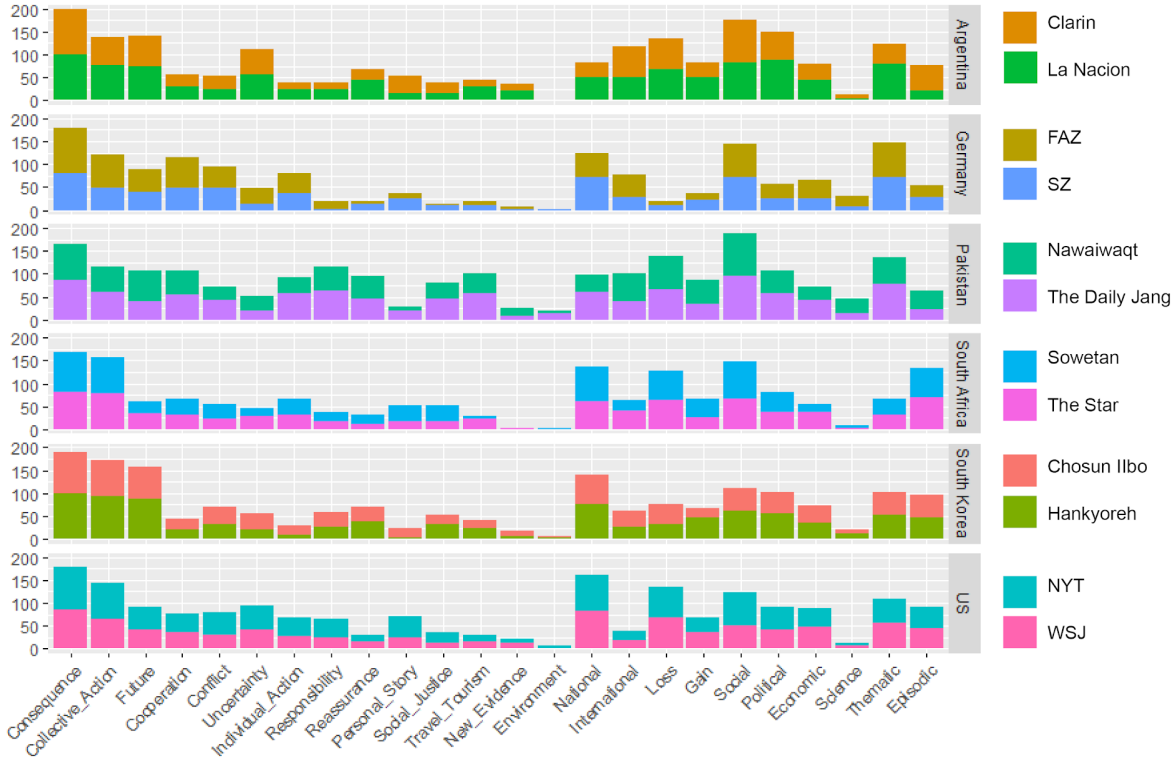

Figure 3. Country comparison of all frames.

General Frames (Thematic vs. Episodic)

South African articles had significantly more episodic frames than the other countries, whereas Germany had significantly more thematic frames than South Africa, the United States, and South Korea.

Dominant Frames

The popular consequence frame was observed most frequently in Argentinian articles and least frequently in Pakistani articles. Pakistani news demonstrated significantly higher frequencies of the responsibility and social justice frames than other countries. Social justice got the least attention in German coverage. Germany and Pakistan adopted a cooperation frame significantly more often than other countries, especially South Korea and Argentina.

German news used the conflict frame more often than other countries, and Argentina and South Africa the least. Pakistan and South Korea used the reassurance frame significantly more than Germany and the United States; Pakistani news covered the frame the most and Germany the least. Argentina and the United States used the uncertainty frame significantly more than the other countries. Argentina most

frequently used new evidence frames while South Africa showed the lowest frequency. South Korea and South Africa had significantly more coverage of the collective action frame than Pakistan and Germany. Conversely, South Korea had significantly lower individual action framing than Pakistan, Germany, and the United States. The United States showed significantly higher coverage of the personal story frame than the other countries, while South Korea used the personal story frame the least. South Korea and Argentina used the future frame more often than the other countries.

Contextual Frames

There were a few significant cross-country differences with the contextual frames. The social frame was the most popular in all the countries followed by the political and economic frame (except Germany, which had more economic than political focus, and the United States, where the difference among the two was minimal). Science was the least covered frame in all countries. Articles from Pakistan included social frames significantly more than South Korea, the United States, Argentina, and South Africa; South Korea used social frames the least. Comparatively, political framing was seen significantly more in Argentinian articles and less in German articles. Pakistan had significantly more science frames than South Africa, the United States, and Argentina. There were no significant variations across countries for the economic frame.

Prospect Frames

Gain and loss frames both showed significant variations across countries. Gain framing was significantly lower for German articles compared with Pakistan, Argentina, and the United States. Similarly, German and South Korean articles had significantly less loss framing comparatively.

International vs. National Focus

Argentinian and Pakistani press presented the pandemic with a more international focus, whereas other countries covered the pandemic with a stronger national focus.

RQ3: Framing Differences Between Newspapers With Different Political Leaning

There were few statistically significant differences between the newspapers within countries (Table 4). In Argentina, *La Nación* (conservative) covered COVID-19 through a thematic frame ($M = 80$, $SD = 0.5$, $t(103.37) = -4.19$, $p = 0.0012$) and used the political contextual frame ($M = 87$, $SD = 0.5$, $t(95.61) = -3.17$, $p = 0.0404$) significantly more than *Clarín* (popular). In Germany, the consequence frame ($M = 100$, $SD = 0.3$, $t(54) = 3.67$, $p = 0.0121$) was used significantly more by *FAZ* (center-right) than by *SZ* (center-left). In the United States, personal stories ($M = 46$, $SD = 0.43$, $t(213.43) = 3.46$, $p = 0.0144$) and the social contextual frame ($M = 73$, $SD = 0.45$, $t(215.15) = -3.40$, $p = 0.0167$) received significantly more coverage in *The NYT* (left-leaning) than in *The WSJ* (right-leaning).

Table 4. T-test (Two-Sided With 95% Confidence Interval) With Significant P-Values.

Frames	Country	Group1	Group2	p-value	Adjusted p-value
Thematic frame	Argentina	*Clarín*	*La Nación*	5.80E-05	0.0012
Political contextual frame		*Clarín*	*La Nación*	0.00202	0.0404
Consequence frame	Germany	*FAZ*	*SZ*	0.000549	0.0121
Personal stories	United States	*NYT*	*WSJ*	0.000656	0.0144
Social contextual frame		*NYT*	*WSJ*	0.000797	0.0167

RQ4: Which Frames Are Used Together to Shape COVID-19 Coverage?

To determine frame patterns, an exploratory factor analysis was conducted on the 22 frame variables using orthogonal rotation (varimax). The Kaiser-Meyer-Olkin (KMO) measure of .64 is considered mediocre (Hutcheson & Sofroniou, 1999). Field (2013) suggests all KMO values for single variables should be greater than .5, which all our variables have. The .64 KMO value can be explained because some of the pairwise correlations among frames are high (Figure 4) and do not correlate strongly with other frames in the model, which reduces the KMO value. Our factor analysis model has four factors that are defined by only two variables, which contributes to a lower KMO. Despite the mediocre KMO, the results of our factor analysis can be interpreted and make sense. Given the high number and diversity of frames, we have chosen to accept the KMO value and interpret the results of the factor analysis.

The Kaiser's criterion eigenvalue analysis shows eight factors with a value >1. Together these eight factors explain 37% of the variance. Table 5 shows the >.3 factor loadings after rotation.

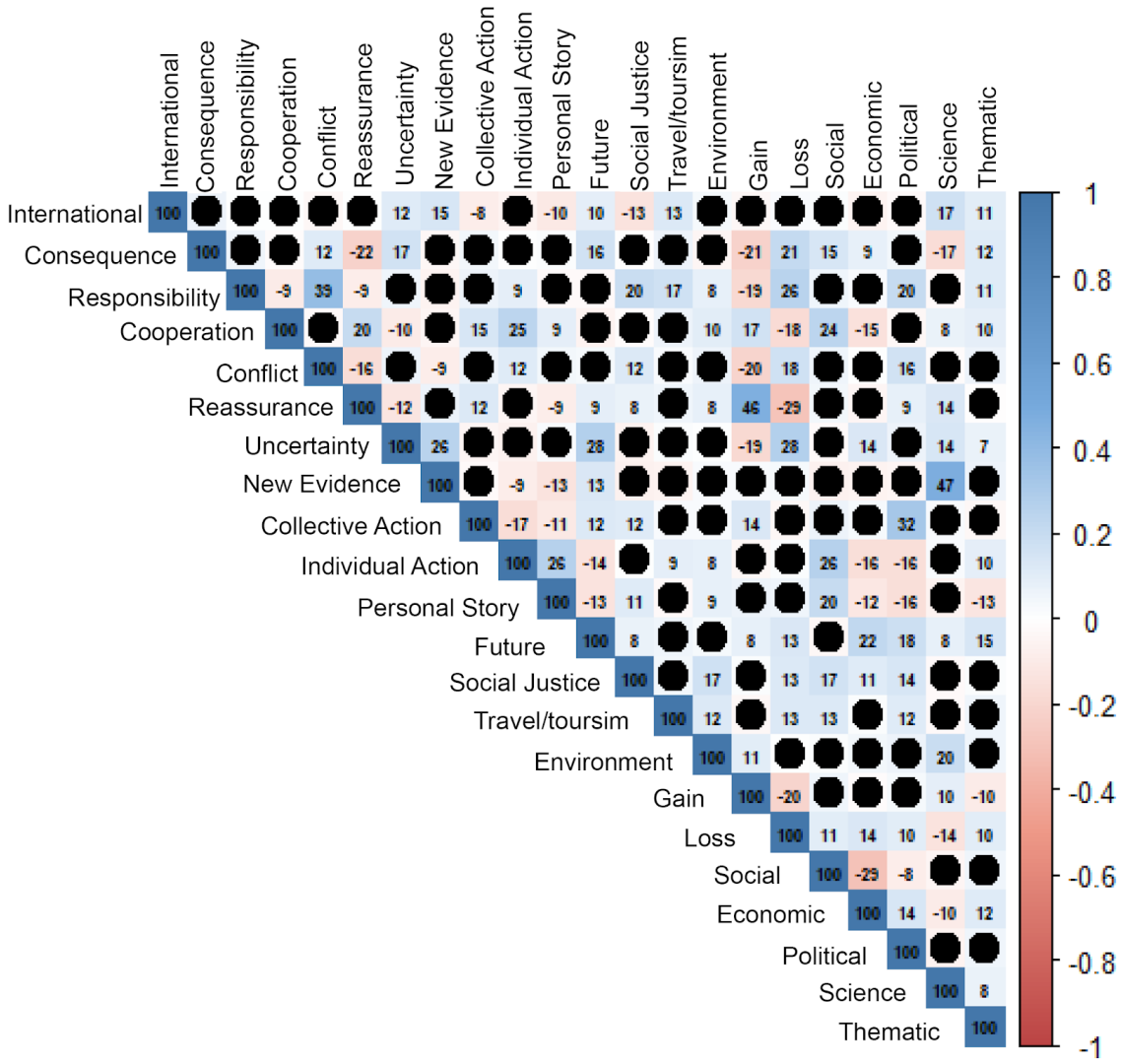

Figure 4. Correlation matrix for the overall frames with the nonstatistically significant ones redacted.

The factor analysis shows eight factors (Table 5). The first factor, "Calming of Public," shows articles focusing on reassuring the public and what could be gained. The "Scientific Discovery" factor shows articles focusing on responsibility and new scientific evidence. The "Inequality Outcomes" factor is defined by the frames: responsibility, conflict, social justice, loss, and political context. Articles focus on "Government Responsibility" through the responsibility and the political context frames. The "Strongly Social" articles are defined by the social frame and absence of an economic context. Cooperation and individual action frames

define the factor "Individual Cooperation." "Hitting Close to Home" is a factor defined by a strong national perspective with absence of consequence discussions.

Table 5. Summary of Exploratory Factor Analysis.

	Rotated Factor Loadings (*n* = 770)							
Variable	Calming of Public	Scientific Discovery	Inequality Outcomes	Concern for Future Loss	Government Responsibility	Strongly Social	Individual Cooperation	Hitting Close to Home
Reassurance	0.68							
Gain	0.64							
New Evidence		0.59						
Science		0.83						
Responsibility			0.71		0.73			
Collective Action								
Social						0.62		
Economic						−0.58		
Cooperation							0.55	
Personal Story								
National vs. International								0.53
Consequence				0.39				−0.32
Conflict			0.44					
Uncertainty				0.48				
Individual Action							0.47	
Future				0.50				
Social Justice			0.35					
Travel/ Tourism								
Environment Loss			0.31	0.45				
Political			0.30		0.41			
Episodic vs. Thematic								
Eigenvalues	2.47	2.13	1.93	1.78	1.32	1.23	1.15	1.05
Proportion Variance	0.06	0.06	0.05	0.05	0.04	0.04	0.04	0.03

Discussion

This study found that all countries analyzed used the consequence and social context frames most frequently and the environment frame least frequently. This resonates with Shih and colleagues' (2008) findings that the consequence frames predominates when covering diseases. This reveals a journalistic tendency to concentrate on substantive attributes of epidemic hazards (Shih et al., 2008), including the consequences of the disease outbreak and social issues associated with it. The low frequency of the environment frame can be attributed to scant media attention devoted to environmental issues as well as its relatively lower relevance with the disease itself.

There were striking country differences in prevalence of the social justice frame. It was present in 40% of the Pakistani articles but only 6% of the German articles, and between 19% and 26% in the other countries' coverage. In some developing countries, the communities hit the hardest would be those most vulnerable to disasters in general, including low-income, women, children, minorities.

According to our results, the level of presence of a cultural dimension by Hofstede is not always reflected in the media framing (e.g., the United States with its high individualism score uses the collective action frame more than the individual action frame). This might be because of the difference between the constructed media reality and the culturally constructed social reality (Shoemaker & Reese, 2014). This might be a sign of a realization that the pandemic requires collective action, and in strongly individual societies journalists might highlight this. Even though the U.S. articles showed a low usage of individual action frames, they used the personal story frame significantly more comparatively, which reflects individualistic features. This aligns with Maddux, Kim, Okumura, and Brett's (2011) conclusion that a fundamental assumption of individualistic culture is that people believe the causal factor of an event resides in individual actors. Contrarily, in South Korea, with low levels of individualism according to Hofstede, collective action is covered frequently. Considering that collectivist cultures tend to perceive the causes of an event from contextual and group-level (Maddux et al., 2011), the findings that Korean newspapers used the collective action frame the most and the personal story frame the least are congruent with Hofstede's characterization of collectivist culture. Interestingly, in Pakistan where the difference between collective action and individual action framing is the smallest, the coverage of individual action is stronger than in other countries. This might be because of the Pakistani media's focus on letting the public know that the government and other organizations are cooperating.

South Africa has a low long-term orientation in Hofstede's score, and the lowest focus on the future (Figure 3). Although Argentina, with an even lower long-term orientation score, shows high future media framing, South Korea, with the highest long-term orientation score used the future frame most. Since long-term oriented cultures tend to concentrate on future outcomes rather than those of present (Hofstede, 2011), the future frames were more prevalently adopted for Korean news readers. The inconsistency between Hofstede's dimension and our results, exemplified by the case of Argentina, might indicate the particular situation the pandemic presents; cultures with generally low long-term orientation might shift focus strongly on the future.

Pakistan showed significantly higher reassurance and gain frames than other countries which conforms to Pakistan's high uncertainty avoidance score. According to Hofstede's dimensions, people of cultures with high uncertainty avoidance demonstrate lower tolerance for ambiguity (Hofstede, 2011). Hence, Pakistani media might have employed frames such as reassurance and gain frames that fall under the category of "calming the public" (Table 5) to alleviate the perceived fear and restore public confidence (Shih et al., 2008).

Overall, we discovered that some findings conformed to Hofstede's cultural categories, whereas others did not. The findings that the coverage patterns of the consequence, social, and environment frames were congruent across six cultures and that the frequencies of some of the frames deviated from Hofstede's dimensions reveal that there exists a complicated and intertwined, yet distinct relationship between the journalistic culture and culture. For instance, journalists' reporting of COVID-19 in U.S. newspapers underscored collective action more frequently than individual action even though the United States has been rated high for individualism according to Hofstede's dimensions, implying that journalistic culture does not necessarily mirror the general characteristics of a culture. According to the Hierarchal Influences Model (Shoemaker & Reese, 2014), news content is shaped by different levels of influences, including social system, social institutions, media organizations, routine practices, and individuals. Although cultural factors do exert effects on news content, they are confined to a single, macro level of influence called social systems (Shoemaker & Reese, 2014). Forces from other levels of influences, including organizational policy (media organizations), gatekeeping mechanism of a news company (routine), and the innate characteristics or values of individual journalists (individuals), can contribute to media framing of an issue (Shoemaker & Reese, 2014). These external factors from different levels of news production explain why the framing patterns did not necessarily correspond to the preestablished cultural categorizations. Additionally, this result can be attributed to the idiosyncrasy of the pandemic, which might have exerted a greater effect on the framing patterns than cultural attributes did. Simultaneously, the results that matched Hofstede's (2011) cultural characteristics corroborated that media frames reflect cultural values to a certain extent as news media often tailor their framing strategies to the cultural norms and tendency of the news audiences during crises. These competing outcomes revealed a complicated dynamic between framing and culture, which reinforces the needs for the future investigation at a more macro level. Interestingly, the otherwise often-seen political polarization between media with different political leanings, as seen in, for example, Hart and colleagues (2020), does not appear in most countries in this study. This may indicate that polarization had not crystallized in the early stages of the pandemic and that it varied across countries.

Conclusion

There are similarities and important differences in media framing of the COVID-19 pandemic across the six countries studied. This study has important implications for media framing, risk communication, and intercultural communication by drawing multicultural perspectives to media coverage of a significant health risk. As illustrated in Table 5, we used an exploratory approach and developed eight overarching frames by grouping the cooccurring frames and applying the context of COVID-19, which theoretically and methodologically contribute to the literature on framing of health crises. Our findings advance current literature on media framing by contextualizing framing in the contexts of pandemic, cultural differences, and digital journalism. This research has practical implications for risk communicators and media

practitioners by demonstrating how different aspects of a pandemic are highlighted and reported differently across countries. In particular, our finding that media framing of COVID-19 did not always correlate with cultural attributes speaks to the complexity of factors that influence both news coverage of and public behavior in response to health crises.

A limitation to this study is the restricted sample analyzing only articles published during the time period of "peak" coverage. Our results do not reflect how the framing of COVID-19 may have changed over the course of the pandemic. Our sample was also limited to legacy newspapers, and we recognize that different trends may be observed in other media. Lastly, our research did not address how the specific cultural traits of each country played into media framing because of the methodological limitation of content analysis.

This opens up opportunities for future research on public perception of and responses to media framing of COVID-19 and other health risks. The research invites the exploration of different approaches to perform comparative studies across various cultures. Efforts are needed to strengthen the theoretical foundation and practice of empirical research in this area. Future research should examine how framing of health risks varies across cultural contexts at different points in the issue attention cycle and in different media. Future studies should explore when political polarization sets in when it comes to a novel health threat, and what frames media use to highlight different aspects of a global threat.

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