Covering Major Epidemics/Pandemics

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Introduction

Over the past four decades, the world has encountered at least eight major epidemics. Of these health crises, three are still open chapters in the history of emerging and infectious diseases, while five are controlled threats. Along with the COVID-19 pandemic, many countries are still enduring a cholera epidemic that began in 1961, and the HIV/AIDS pandemic, which has killed an estimated 40.1 million people worldwide, remains a serious public health and economic issue (UNAIDS, 2022). Epidemics that have been mostly resolved include the 2002 Severe Acute Respiratory Syndrome (SARS) outbreak, the H1N1 swine flu pandemic of 2009, the 2012 Middle East Respiratory Syndrome (MERS) outbreak, the 2014–2016 Ebola epidemic, and the

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2015–2016 Zika outbreak, which began in Brazil and caused microcephaly in thousands of newborn babies around the globe (Fauci & Morens, 2016).

As Ophir (2018) notes, public health crises, including large-scale infectious disease outbreaks, "may cause severe physical, psychological, economic and social impact. Epidemics are dynamic, and unexpected, and their course is often unpredictable. Under these conditions, adequate and effective crisis communications become vital for mitigation of risks" (p. 101). However, the messages that need to be communicated continuously change as new evidence becomes available (Powers & Xiao, 2008).

The Centers for Disease Control and Prevention (CDC) Crisis and Emergency Risk Communication (CERC) guidelines recommend different communication elements at different stages of the crisis to provide the public with needed information. During an outbreak, the CERC lifecycle model calls for the CDC to provide information about risks, including "the crisis circumstances, consequences, and anticipated health and social outcomes" and responses—"specific actions by health organizations and the public to mitigate threats" (Ophir, 2018, p. 148). Although the CDC uses a variety of direct channels, including social media, to communicate with the public, the organisation recognises that people often look for health information through news sources, rather than seeking it directly from medical sources like the CDC. Thus, mainstream media still play a key role in the message dissemination (Ophir, 2018).

Just as the interconnected world accelerates the spread of infectious organisms and as connectivity has changed how we get information (and misinformation), technology, through the open sharing of scientific data and collaborations, has increased the velocity and detail with which we understand the science behind these pathogens. The avalanche of scientific developments constantly arising within the uncertainties of any evolving health crisis makes pandemic coverage a particularly difficult task. In these environments, journalists have the responsibility to select which findings to cover and to ensure that the coverage provides adequate context, while skilled (but often overworked and fatigued) reporters translate the scientific findings, with or without the help of sometimes *newly* expert sources (Lavazza & Farina, 2020).

Moreover, researchers have found that media coverage can directly affect specific characteristics of an epidemic, including "the magnitude of its peak, its timing and the final level of infections" (Yan et al., 2016, p. 11). In a study examining the H1N1 outbreak in China, Yan et al. (2016) discovered that increases in the number of news items about the epidemic were correlated with subsequent decreases in the number of cases, suggesting that when people hear or read more news about an epidemic, they change their behaviours, avoiding contact with others and thereby reducing new infections.

One explanation for how news coverage influences public risk perceptions is the differential-impact hypothesis, which argues that exposure to media, including news coverage, influences perceived risk by arousing "self-relevant emotions through vivid depictions of the risk issues" (Oh et al., 2021, p. 973).

These transient emotions, which may include fear, anger, or compassion, stem from individuals' thoughts about their lives and can shape their beliefs about their personal levels of risk and, in turn, the actions they take to reduce those risks. Thus, news stories that trigger these emotions influence the likelihood of people adopting desirable preventive behaviours (Paek et al., 2016).

Unfortunately, in this era of the Internet and social media, individuals encounter not only news coverage of pandemics but also many other sources of information, much of it of questionable quality. The World Health Organization (WHO) has labelled this phenomenon an *infodemic*—an "overabundance of information—some accurate and some not—that makes it hard for people to find trustworthy sources and reliable guidance when they need it" (World Health Organization, 2020, para. 5). While this might be perceived as a contemporary issue (Eysenbach et al., 2002), pandemics throughout history have produced similar situations with false rumours and manipulated claims about the nature, risks and origin of the disease rapidly arising (Poos, 2020). Each epoch has had its characteristics, but one of the biggest differences of the COVID-19 pandemic is that it is the first data-driven epidemic occurring in a *post-truth* world during the social media era (Parmet & Paul, 2020). Along with the transmission of the epidemic pathogen, society is trying to survive a *twindemic*—the increasing spread of sometimes false, misleading and conspiratorially amplified (mis)information thriving simultaneously.

Researchers have found that false information spreads "farther, faster, deeper, and more broadly than the truth in all categories of information" (Vosoughi et al., 2018, p. 1146), eroding public trust, creating confusion, and putting lives at risk by discouraging appropriate behaviours, recommending ineffective treatments and cures, and questioning or interfering with public health measures (Saxena et al., 2022).

As epidemiologist Larry Brilliant, who helped eradicate smallpox, has said, "Outbreaks are inevitable. Pandemics are optional" (Matthewman, 2015, p. 27). Thus, the framework for evaluating the response during a pandemic depends on the preparedness, crisis management and recovery efforts of each country (OECD, 2022). Similarly, journalists and newsrooms that focus on enhancing their training, skills and overall preparedness to cover health emergencies increase their ability to positively impact both the outbreak outcomes and their personal and organisational resilience (Lowrey et al., 2007).

Unfortunately, this COVID-19 pandemic is neither the first nor the last global health threat, and as such, looking into the future, a thorough assessment of current and past emergency health coverage must be conducted to learn from the mistakes and missed lessons, understand the opportunities such crises pose, recognise the inequalities and gaps in public engagement, promote broader research in science journalism, and expand the acquired knowledge to better prepare science communicators, editors, health journalists, researchers and the public for more robust responses amidst new and probably more frequent epidemics as climate change threatens (Mora et al., 2022).

CONTEXT

As Philip Strong from the London School of Hygiene and Tropical Medicine stated, an epidemic is not only biological, but also creates the potential for three psycho-social epidemics, including (1) *fear* of illness, (2) *moralisation*, and (3) *action* or change in habits (Strong, 1990). Strong proposed his ideas in the context of the AIDS/HIV crisis; however, he based his model on studies of the fourteenth-century Black Death pandemic in Europe. Strong showed that these psycho-social epidemics not only evolve over time but are mainly driven and fed by language: transmitting *fear* of infection as a threat to humanity, depicting the epidemic as a human failure and *morally* judging minorities, and shaping the ways people collectively choose to *act* against the threat (Aiello et al., 2011).

At the beginning of the COVID-19 pandemic, scholars searched for a psycho-social epidemic model, categorising Twitter trends to identify three phases: *refusal*, then *anger*, and finally, *acceptance*. First, despite death rates increasing in other countries, the initial phase in less affected countries was marked by a refusal to accept reality, with sentiments of anxiety, fear, disorientation, the blaming of foreigners, and no change in behaviour or mobility patterns being recorded. The focus was on *them*—those who are infected and who are spreading the infection. Then, soon after officials announced the first death in a country, the second phase began, and fear transformed into anger about everything that was about to change; public discourse revealed an increase in the frequency of words associated with physical health, risk, authority, power, and worry about the economy. Behaviour started to shift, with alcohol consumption peaking shortly after that. The focus during this phase was on *I/me*. Lastly, when authorities started imposing public health measures, the acceptance phase began, in which users settled into and tried to adapt to a *new normal* in their everyday lives. The use of positive words, expressing togetherness, sadness, support, and empathy, emerged, while interactions related to exercising and mental health concerns increased; in this phase, the focus was on *we/us* (Aslam et al., 2020) (Fig. 16.1).

Keeping in mind the framework presented in Fig. 16.1, which to some extent shares a resemblance with the Kübler-Ross stages of grief, in the next section of this chapter we will explore the main characteristics of the coverage of every major epidemic/pandemic since 1980. To do so, we will consider the narratives in the journalistic coverage, audience interest and changes in behaviour, the challenges posed by increased access to and use of online platforms and devices, and the main takeaways for each health crisis coverage. The main findings are summarised in Table 16.1.

HIV/AIDS Pandemic (1981–Ongoing)

Since its beginning, the Human Immunodeficiency Virus (HIV) epidemic has resulted in more than 84.2 million people being infected and more than
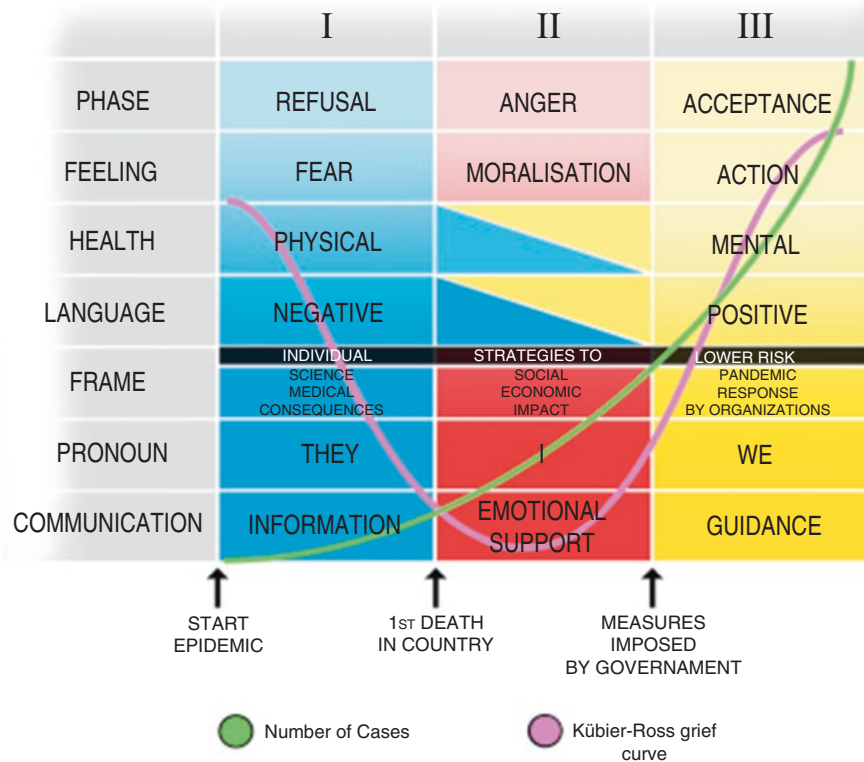
	I	II	III
PHASE	REFUSAL	ANGER	ACCEPTANCE
FEELING	FEAR	MORALISATION	ACTION
HEALTH	PHYSICAL		MENTAL
LANGUAGE	NEGATIVE		POSITIVE
FRAME	INDIVIDUAL SCIENCE MEDICAL CONSEQUENCES	STRATEGIES TO SOCIAL ECONOMIC IMPACT	LOWER RISK PANDEMIC RESPONSE BY ORGANIZATIONS
PRONOUN	THEY	I	WE
COMMUNICATION	INFORMATION	EMOTIONAL SUPPORT	GUIDANCE

START EPIDEMIC   1ST DEATH IN COUNTRY   MEASURES IMPOSED BY GOVERNMENT

● Number of Cases   ● Kübier-Ross grief curve

Fig. 16.1 Phases of the psycho-social epidemic and stages of communication

40.1 million fatalities (UNAIDS, 2022). On June 5, 1981, researchers published the first report about five young men diagnosed with what would soon become known as Acquired Immunodeficiency Syndrome (AIDS). Initially, because the virus was first detected among homosexual men, it was colloquially referred to as *gay cancer*. In 1982, the term AIDS was coined, and within a few years, HIV/AIDS had become the most significant public health crisis of the late twentieth century (Bouza et al., 2022). Even so, not until May 25, 1983, with 1450 confirmed cases and 558 deaths, did the *New York Times* publish its first front-page article about the disease; largely because journalists believed HIV only affected homosexuals (Dunlap, 2014). "Though it took several years for major newspapers to begin covering HIV/AIDS, the initial reporting focused heavily on infections among gays and on modes of transmission, largely ignoring the growing epidemic among African Americans and Latinos in many urban areas" (Stevens & Hornik, 2014, p. 2). Cohen's (1999) analysis of HIV/AIDS coverage in the *New York Times* from 1981 to 1993 revealed that, although African Americans accounted for nearly one-third of all cumulative AIDS cases to that point, *Times* journalists specifically mentioned African

Table 16.1 Summary of the coverage of pandemics from the 1980s to 2022

Summary covering recent major epidemics

Years	HIV/AIDS	SARS	H1N1 Flu	MERS	Ebola	Zika	COVID-19
	1980–	2002–2004	2009–2010	2012	2014–2016	2015–2016	2019–
Public got information from:	ONLY mainstream media	ONLY mainstream media SECONDARY search engines	MAINLY mainstream media FEW received news online	MAINLY mainstream media SOME news online/FEW from social media	ALSO mainstream media SOME news online/SOME from social media	ALSO mainstream media MOST news online/SOME from social media	ALSO mainstream media MOST from online/social media Scientists' blog/posts
Online device/platform used	N/A	E-mail, websites, chat rooms	Tablets, laptop, 1st smartphone	Proliferation of smartphones, FB, Twitter, blogs	FB, Twitter, blogs, social media platforms	FB, Twitter, blogs, social media platforms	FB, Twitter, blogs, social media, IG, TikTok, etc.
Coverage assessment	Initially neglected and stigmatised	Wide discrepancy in coverage: outside versus inside China	Well-delivered, evidence-based information, fluctuated intensity as needed	Poor coverage was eclipsed by the growth of conspiracy/fake information	Alarming coverage created panic and fear not proportional of real health risk	Different public engagement and content in local high risk versus national news	Coverage initially minimised risk and focused on social/economic versus health crisis
Takeaways	Most people at risk distrusted mass media information	Communication affected risk perception	Mass media helped control the epidemic	Information delivered in smaller, rapid doses	Break in the information consensus: polarisation	Asynchronous epidemic dynamic and media information	First health crisis in 'post-truth' era; Twitter as a source
Mis (dis) information	–	+	+	++	+++	++++	+++++ Twindemic: infodemic + COVID19

Americans in only 5% of the stories. *New York Times* coverage of HIV declined, even as the number of African Americans suffering from HIV/AIDS increased.

Most scholars who have assessed early reporting on the HIV/AIDS epidemic have criticised the media's coverage, generally claiming that news organisations did a poor job of educating the public and that they protected health professionals' positions instead of using their agenda-setting power to influence decision-maker's decisions about what issues to address (Backstrom & Robins, 1997). One study comparing HIV/AIDS coverage during the early 2000s by Uganda's major private newspaper vs. a government-owned newspaper showed that the government's stories employed a solutions frame, while the private stories were more likely to focus on HIV 'prevention', 'action', and 'victim' frames (Kiwanuka-Tondo et al., 2012); the researchers suggest that the government newspaper's coverage favoured stories about policy and medical treatment, rather than addressing the challenges faced by people living with HIV/AIDS.

Nelkin (1991) noted that reporting on AIDS illustrates the interaction of social factors, such as communicators' "economic and personal stakes, professional ideologies, administrative responsibilities, controversies, cultural stigmatisation, and moral beliefs" (p. 294) with the constraints of journalism. Journalists participating in the 10th International Conference on AIDS in 1994 acknowledged that, early on, journalists paid little attention to the emerging epidemic, despite the exponential growth of the number infected and widespread recognition within the public health community that the virus constituted a health crisis (Morton, 1994). News depictions of HIV/AIDS shaped the meaning of the epidemic for audiences, influencing public knowledge, attitudes and behaviours about the disease and ultimately having an impact on policy responses to the epidemic (Colby & Cook, 1991).

Colby and Cook's (1991) examination of nightly news coverage of the HIV/AIDS epidemic from 1982 to 1989 in the three major US networks showed that the networks varied considerably in their coverage. "Saturation coverage" of HIV/AIDS occurred only during three short periods in 1983, 1985, and 1987, when the epidemic seemed likely to affect the general population. "Only at such moments did public opinion shift and discussion and debate in government begin" (p. 215). Overall, the researchers concluded that coverage "was more inclined to reassure than to criticize" (p. 244) public officials' handling of the health crisis, largely because journalists depended upon government officials and "authoritative sources" to present them with evidence of news.

Moreover, research has shown that at the beginning of this ongoing epidemic, people at greatest risk of contracting and spreading HIV/AIDS, including African Americans, distrusted the accuracy and objectivity of mainstream newspapers and mass media. A consensus was required for a concerted fight against HIV/AIDS, later coming from mass social activism, while outlets had to regain confidence among high-risk groups to deliver effective guidance through their coverage (Stevens & Hornik, 2014).

However, other findings suggest a shift in HIV/AIDS coverage later in the epidemic. A 2009 macro-level study of 1990s HIV/AIDS coverage by five transnational wire services, including the Associated Press and Reuters, found that the framing of AIDS stories shifted away from the biomedical discourse that characterised the 1980s coverage to focus more on socioeconomic, public policy and human rights themes, while prevention and education were left behind as peripheral topics. By the late 1990s, the volume of HIV/AIDS stories had started to decline, and the "ideation of AIDS as a moral tale" diminished (Bardhan, 2009, p. 283).

An even more extensive study of the HIV/AIDS news coverage from 1981 through 2001 concluded that coverage in the United States peaked in 1987, with both print and broadcast media coverage preceding the decline in new AIDS cases. Once the novelty of HIV/AIDS had diminished, only specific news events drove peaks in coverage (Brodie et al., 2004).

SARS (2002–2004)

The Severe Acute Respiratory Syndrome outbreak, caused by the SARS coronavirus 1 strain (SARS-CoV), infected a little more than 8000 people and resulted in at least 800 deaths worldwide; first identified in the Chinese Province of Guangdong, it was transmitted by airborne particles (Zhao et al., 2005). Beyond the East Asian region, Canada was the hardest-hit country in the West, with 251 cases and 43 confirmed deaths (Ali & Keil, 2006).

As Mari (2020) notes, during the early 2000s, news stories about outbreaks, epidemics and pandemics mostly appeared in traditional rather than online media. News consumers who sought information online typically already had heard about a story from a newspaper, radio talk show or TV newscast, while less than a third of Americans had access to broadband connections. Nonetheless, data from a 2003 Pew Research Center survey provided some indications that Internet users increasingly were going online to look for health information and news (Madden & Rainie, 2003). Still, the average American's awareness of health news came via traditional media (Mari, 2020).

When it first appeared in China in 2002, the SARS outbreak quickly became a major international news topic. Although research has documented some similarities in news framing of SARS within US and Chinese media, US journalists more often used a responsibility frame blaming China for spreading SARS. In contrast, Chinese journalists credited China with containing the disease (Luther & Zhou, 2005). Internet communication, primarily through email, played an important role in raising the alarm during the SARS outbreak. Chinese authorities initially attempted to ban news coverage of the outbreak, including its lethality and likelihood to spread, allowing the disease to silently reach other countries, including Hong Kong, Singapore, Canada and Vietnam (Fidler, 2004).

However, a study on the effect of local Chinese information spread thru television, radio, newspapers, magazines, and the distribution of specific official

printed materials showed that almost all subjects interviewed gave correct answers on the epidemic, and most held an optimistic and scientific attitude, felt happy about their government's actions, believed hospitals and healthcare workers should be respected and honoured, and had taken health protective measures recommended by public officials (Zhang et al., 2004). In contrast, a few months after the 2003 SARS outbreak, a questionnaire completed by undergraduate university students in Canada found little anxiety about acquiring SARS; few correctly completed a SARS-specific knowledge section, and most considered news media coverage of the outbreak excessive (Bergeron & Sanchez, 2005). The different approaches to local coverage and government communication of the SARS disease in China vs. Canada had widely different impacts.

Meanwhile, in other countries like the United Kingdom (UK), newspapers presented stories addressing strategies to prevent SARS from reaching the UK; the coverage was proportional to the perceived local threat and alternated between framing the disease as a major hazard and minimising it to avoid alarm. As expected from Strong's model (Fig. 16.1), the only four confirmed cases of SARS in the UK and the imposed school quarantines that followed a few suspected cases received overwhelming coverage. Nonetheless, analysis found that the language used for the UK coverage of SARS contrasted with the framing of the UK coverage of the HIV/AIDS pandemic; metaphors used in the national newspapers shifted from the militaristic language of *war* and the judgmental discourse of *plague* and *sin* used in AIDS coverage to presenting SARS as a *killer* to be *controlled* (Wallis & Nerlich, 2005).

H1N1 (2009–2010)

The H1N1 swine flu, which was initially detected in Mexico and spread to the United States in 2009, was the most recent pandemic caused by an influenza virus. Initially, controversy arose regarding the terms journalists were using to cover the outbreak: the "H1N1" label was criticised as very technical, the "Mexican flu" nickname was stigmatising, and calling it the "swine flu" gave the incorrect impression that people could get infected by consuming or being in contact with pigs or pork products (McCauley et al., 2013), leading to protests by the pork industry and some religious groups for whom pork consumption is forbidden. As a result, a May 2009 *Science* article argued that the proposed names were evolving more quickly than the H1N1 virus itself (Enserink, 2009).

Historically, traditional mass media is regarded as a guide to the public's risk; thus, when individuals lack knowledge or first-hand experience of a novel threat, like an emerging disease, they typically consult news media (Snyder & Rouse, 1995). However, the 2009 H1N1 outbreak was first reported not via traditional mass media but via social media (Ding & Zhang, 2010). As a result, official agencies and government institutions like the CDC now understand

social media's relevance and integrate it into their communication channels to better inform and engage with the public on diverse health issues.

Although by the late 2000s, more Americans were using tablets, first-generation smartphones, and laptops to access the news, most were still receiving their information via traditional media outlets: newspapers and local and national TV networks. According to a Pew Research Center survey conducted in mid-2010, 9% of Americans received their news only through mobile technology and the Internet, 39% got their news delivered solely via traditional outlets, and 36% reported relying on both sources to get information (Kohut et al., 2010); their sources included Facebook and the recently launched Twitter (Briggs & Hallin, 2016). Interestingly, a thorough analysis of more than 5000 tweets on the H1N1 flu epidemic showed that six of ten contained links, and of those, about 25% directed the public to news pages, while less than 5% were linked to official government websites (Chew & Eysenbach, 2010).

During the 2009 H1N1 pandemic, news reporting incorporated a diverse range of sources other than public health authorities, with a tendency toward quoting politicians. The reporting displayed similarities to prior epidemics in terms of certain patterns, but with concerning and rapidly increasing tendencies such as the emergence of alternative news sources, conspiracy websites, and a blogosphere that became increasingly divided and politicised, gaining popularity on the fringes of the Internet. At this juncture, falsehoods about health topics were already posing a significant challenge for social media platforms to regulate, impacting people's confidence in mainstream media (Wang et al., 2019). Still, the general assessment of swine flu communication and epidemic management are positive, although the sparks of future tensions and complexities were starting to emerge.

News coverage of the H1N1 pandemic was effective because it seemed to postpone the height of the outbreak, reduce its intensity, and bring together scientific expertise through a partnership between health authorities and mainstream media reporters (Briggs & Hallin, 2016). The news media reached their maximum coverage levels, with the greatest impact, during the early stages of the epidemic. However, while the risk of infection remained, use of protective measures later declined as the media's focus on H1N1 decreased well before the epidemic reached its peak, indicating that people's perceptions of risk and their actions may have been influenced more by media coverage than by the epidemiological situation. Research suggests that switching the intensity of reporting on and off in a non-linear fashion, especially before the peak of the epidemic, and providing information to the public on the 'rate of increase' in cases, rather than the actual number of cases reported each day, resulted in effective communication, leading to positive changes in behaviour because the public could easily understand the context and perceive how quickly cases were rising over time (Xiao et al., 2015).

MERS (2012)

First identified in Saudi Arabia, MERS was the second epidemic in only a decade caused by a previously unknown coronavirus. Although MERS has a high fatality rate of about 40%, people are infected primarily from contact with camels and very rarely through transmission between humans, thus limiting the virus' spread. In total, up to 2021, the outbreak, which mainly affected the Arabian Peninsula, had accounted for slightly more than 2500 cases and 880 deaths (Balkhy et al., 2016).

Although MERS emerged only a couple of years after the H1N1 pandemic, its coverage and its control were significantly poorer and more challenging than for SARS and H1N1. One of the challenges MERS coverage faced was that the virus' emergence coincided with the birth of the current polarised media environment (Mari, 2020); recent studies have determined that the early 2010s marked a turning point in the dissemination of medical *fake news*, rooted in the breakdown of political consensus that allowed a modern populist and authoritarian discourse. Also, the MERS epidemic period saw the growth of online vocal extremist movements (Phillips & Yi, 2018) and the decline of reliance on scientific experts, with the prominence of conspiracy theories in certain news reporting becoming more apparent (Konkes & Lester, 2015).

Initially, it was believed that MERS was restricted to the Middle East because the contagion mainly occurred directly from camels to humans and with negligible human-to-human transmission. However, in 2015, an outbreak of MERS in South Korea hit that society hard, with 36 of the 186 confirmed cases dying within two months and confirmed human-to-human transmission. This event challenged scientists' understanding of MERS and triggered a panic epidemic in South Korea that adversely affected the economy and disrupted daily activities, as expected from the model (Fig. 16.1). Important to note is that the consistent dissemination of risk-prevention guidelines through various channels during the outbreak was positively linked to the adoption of MERS-preventive behaviour and effective control of the outbreak (Jang & Park, 2018).

Nonetheless, a study investigating the impact of traditional and social media usage during the outbreak revealed that traditional media in South Korea increased awareness about MERS but did not encourage preventive actions. Conversely, frequent use of social media resulted in unfavourable emotional reactions, but it did encourage desirable behaviours (Seo, 2021). Perhaps the chief underlying factor disrupting the coverage of MERS was the proliferation of mobile devices, as for the first time in the coverage of health crises, news consumers in 2012 were receiving their news in smaller and more rapid doses on smartphones, tablets, desktops and laptops (Rosentiel, 2012). Alternatively, a Korean investigation found that during a public health crisis, if public health officials, who are expected to provide reliable information, were viewed as less trustworthy sources, the public tended to rely more on online news, social media, and personal networks to obtain information related to MERS, without

any significant shift in the use of TV news or print newspapers (Jang & Baek, 2019).

Ebola (2014–2016)

The 2014–2016 Ebola outbreak, which originated in Guinea and spread to Liberia, Sierra Leone, and later to several European countries and the United States, has been, to date, the most widespread outbreak of this disease since it was first described in 1976. According to official figures, there were more than 28,000 cases and 11,300 deaths during the outbreak, but estimates suggest that many cases went unreported (Christian et al., 2017). The WHO was criticised for its delay in addressing the epidemic; however, it did promote the development of an effective vaccine (Wenham, 2017). Furthermore, the outbreak prompted an unparalleled international response.

Though some negative trends emerged before the Ebola epidemic, misinformation and xenophobia were widely present during the Ebola outbreak, aiding in the establishment of polarised views and accelerating the decline of the centrist news culture. Abeysinghe (2016) argues that Western media discourse about the Ebola pandemic displaced the disease as affecting "distant" West African communities to instead focus on Ebola's effects on the "domestic" West; in addition, the coverage provided a framework for discussion of political concerns, obscuring global health debates. Coverage of pandemics was becoming increasingly politicised and was starting to be driven by partisan beliefs in the United States, Australia and the UK, but also in East Asia (Abeysinghe, 2016). The disruption of coverage driven by consensus and reliance on experts, along with waning belief in government-led solutions, contributed to the problem (You & Ju, 2018). Building trust in authorities is an important factor in encouraging people to change their behaviour. One recent study suggests that the level of trust in Liberian authorities played a significant role in determining whether citizens would follow policies aimed at limiting the spread of Ebola during the epidemic (Tsai et al., 2020).

Simultaneously, alarming and excessive Ebola coverage, both in terms of content and volume, resulted in widely perceived risk, panic, and increased public interest and attention (Wirz et al., 2021). In the month following the confirmation of the first Ebola case in the United States, there were millions of online searches and tweets related to the disease (See Fig. 16.1). However, the high levels of concern expressed in these online activities were not in proportion to the actual threat posed to public health on a national level (Towers et al., 2015).

Similarly, Pieri (2019) notes that, during the Ebola outbreak, the risk of actual infection in the UK was very low, but "(p)anic and frenzy about impending UK contagion continue(d) to frame stories in the media" (p. 84), leading to anxiety, economic hardship and social isolation. An examination of newspaper coverage found that the crisis was framed as a security threat; a narrative that portrayed the pandemic as having originated "outside" of Western

countries (Pieri, 2019). Moreover, after the report of the death of the first Ebola patient in the United States, the UK coverage intensified, questioning the government's preparedness, its proposed preventive measures and the readiness of the medical system. As seen in other analyses, often the coverage of the Ebola outbreak in national news outlets of countries affected (aka Nigeria) versus not affected (aka Canada) significantly differ, both in topic and content (Humphries et al., 2017). Despite previous health threats being framed with war-like language (Wallis & Nerlich, 2005), evidence shows that the Ebola coverage in the UK did not employ this approach; still, it played a decisive role in the perception of the risk of contagion by amplifying fear (Pieri, 2019).

On the other hand, researchers have found that traditional newspaper coverage in the United States included significantly less panic-inducing coverage and uncertainty-amplifying stories surrounding Ebola compared to social news platforms like Reddit (Kilgo et al., 2019). When examining different mainstream media outlets, researchers found that diverse contexts and situations shaped reporting of the same events (Keirns, 2015), suggesting that further investigation would be necessary to understand how the specific political, social, and economic situations shaped the country's news media, influencing public actions to control the epidemic.

Zika (2015–2016)

The Zika virus epidemic, which began in Brazil and affected more than 170,000 people in 86 countries, was mainly spread by the *Aedes aegypti* mosquito; however, people infected with the virus can transmit it through blood donation and organ transplants, to their sexual partners, and, in the case of pregnant women, to their foetuses (Christian et al., 2017). Although the Zika virus has been known since 1947, WHO decided in February 2016 to declare it a Public Health Emergency of International Concern (PHEIC) because of the newly identified cases of Zika-associated neurological disease and microcephaly in approximately 2000 babies born in Brazil (Fauci & Morens, 2016).

At the onset of the epidemic, when public health organisations triggered the international alert that generated widespread media coverage, public interest in Zika, measured as Zika-related Wikipedia-page views, was high. However, contrary to predictions, the public's attention did not correlate with the timing, scope, and magnitude of the Zika outbreak, suggesting that more research should be performed to better assess the relationship between media exposure, public attention, and disease spread (Tizzoni et al., 2020). According to research on public communication patterns during the Zika epidemic, sensationalist media coverage and conspiracy theories had the power to discursively construct the contagious disease, misguiding public perceptions and impacting health policy (Mitchell, 2019). Official communication to the public revolved around the risk of travelling to affected countries, debates about delaying

pregnancies, and the safety concerns of athletes participating in the 2016 Summer Olympics in Rio, Brazil.

Studies comparing Zika-related information in different types of media have shown that major print newspapers, digital media, and user-generated platforms such as Twitter provided similar content. Notably, newspapers have been found to influence the topics that people discuss on Twitter through their agenda-setting function. However, when comparing how a national newspaper, like *The New York Times*, and a well-regarded local newspaper in a high-risk Zika area, like the *Tampa Bay Times*, covered the same threat, researchers found that the local newspaper provided better coverage, especially in terms of addressing ways to avoid infection. Both the local and national news outlets encountered comparable difficulties in accurately conveying risk, as features like sensational language and imprecise risk information were present in both. This shows that journalists at all levels face comparable challenges in reporting accurately (Jerit et al., 2019). As anticipated, individuals residing in regions with a high risk of Zika were more likely to pay attention to news related to the disease and expressed greater intentions to take protective measures. This confirms that people's behaviour and interest vary as the danger is perceived as more immediate and emphasises the importance of news coverage of local vulnerabilities (Haglin et al., 2019).

COVID-19 (2019–Ongoing)

In late December of 2019, COVID-19 caused by the Severe Acute Respiratory Syndrome coronavirus 2 (SARS-CoV-2), was identified in an outbreak in the city of Wuhan, China (Medina-Enríquez et al., 2020). The fast and mainly asymptomatic and pre-symptomatic airborne transmission exacerbated the rapid worldwide spread of the virus. Although confirmation of person-to-person transmission sounded the alarm, many countries were late to prepare, and organisations like WHO "acted too cautiously and too slowly on several important matters," including warning about human and airborne transmission, endorsing the use of masks, encouraging the adoption of international travel restrictions and declaring COVID-19 a Public Health Emergency of International Concern (Sachs et al., 2022, p. 2). By early February 2020, cases already had been confirmed in every continent, and medical doctors and scientists were working at full speed to understand, monitor, diagnose, treat and prevent the new disease. A widely interconnected world was entering the first major pandemic in a hundred years, with 5.94 million worldwide-confirmed deaths by the end of 2022 and an estimated excess mortality of about 18 million (Wang et al., 2022).

Analysis of the early news coverage of COVID-19 in the United States has shown that it mainly focused on two aspects: the virus' spread from China to the rest of the world and the resulting negative social and economic effects; the coverage provided less information about how to prevent contagion in the community. This was, in part, because scientists still knew relatively little about

transmission of the novel virus and the best practices for clinical management of the sick. WHO hesitated to take swift action on COVID-19 due to concerns about creating upheaval and inducing fear in the general population, and by the time WHO declared the pandemic, it was too late to stop its global spread (Horton, 2020). As a result, the initial attention given to COVID-19 by traditional media and public health organisations may have emphasised its impact on people's daily activities, such as work, school, and social life, rather than highlighting its severity as a health threat, despite the high fatality rates in Wuhan, China, and later in Italy (Hubner, 2021). In addition, erroneous early comparisons to the influenza virus minimised the threat, lowering the publics' risk perception. Furthermore, this unfortunate pattern was especially cemented in the first months in the United States as the media quoted politicians more frequently than scientists (Horton, 2020).

As suggested by the model on Fig. 16.1, on March 11, 2020, when media outlets worldwide reported that Tom Hanks and his wife, Rita Wilson, had contracted COVID-19, there was a noticeable surge in public interest and discourse regarding their illnesses. This led to an increase in people seeking information about the virus and considering taking preventative measures to avoid infection. This trend has been observed before with other celebrity illness announcements (e.g., Angelina Jolie's prophylactic mastectomy, raising breast cancer awareness that increased preventive screenings) (Noar et al., 2014). Unfortunately, with the overwhelming number of messages about COVID-19 being circulated through various communication channels, the news media had limited chances to overcome audience wariness and indifference. Thus, celebrity disclosures about COVID-19 provided a unique opportunity for the media to capture the attention of a broad audience, positively influencing their attitudes and behaviour toward the outbreak (Myrick & Willoughby, 2021).

According to a study conducted in Italy in 2021, the major newspapers addressed the health emergency mainly in terms of political issues, giving little attention to it as a scientific matter. As a result, the media narratives focused more on politics and gave political concerns and politicians moral and regulatory authority over science and scientists. Scientific topics and experts were not ignored but were presented as a secondary body of knowledge and expertise that could be used to support the expansion of political jurisdiction over health, economic and social emergency measures (Crabu et al., 2021).

On the other hand, a study of East Asian newspaper coverage during the initial period of the COVID-19 pandemic showed that even though newspapers were slow to address the pandemic, their early editorials had an alarming tone, which persisted even when new infections decreased significantly. This unexpected level of concern persisted because the focus shifted from health concerns to more ideological issues. Editors from China and Taiwan politicised the pandemic by using it to attack international adversaries, whereas Korean editors used the pandemic's economic impact to push for pro-business economic reforms from the government. However, Hong Kong editors remained cautious and neutral, largely avoiding any politicisation of the pandemic; Fox

(2021) argued that the results show how some media in East Asia are biased toward a particular political stance, influenced by economic and political factors.

Even with the rise of alternative platforms such as social media, before the outbreak of COVID-19, the general public still had relied heavily on traditional mass communication outlets as their main source of information during epidemics (Reynolds & Seeger, 2007). During the COVID-19 pandemic, however, for the first time in the history of emerging diseases, a low-entry-barrier platform like Twitter became a primary source through which the public—and journalists—could track the pandemic. With more than 200 million users a day, Twitter also prompted many scientists, medical doctors and the public to share and learn about new findings, changing the game in the resources to access new scientific research and (mis)information in real-time (Brainard, 2022).

In this context, social media like Twitter represented a double-edged sword. Social media offered the perfect terrain for the dissemination of misleading content but also functioned as a good platform for criticising and debunking papers that had poor study designs or had been published online without peer review. This "Twitter peer review" allowed scientists and other science "watchdogs" to respond rapidly to questionable preprints that might never have been submitted for peer review, ultimately leading to the withdrawal of some problematic papers (Brainard, 2022).

Regardless of whether people access news through traditional sources or through links in social media, journalists' reporting on COVID-19 had an impact on audiences. For instance, a survey carried out in the United States at the beginning of the pandemic demonstrated that there was a notable impact of news exposure on different precautionary measures, such as wearing face masks and maintaining sufficient physical distance (Tukachinsky Forster & Vendemia, 2021). Similarly, Jiang et al. (2021) found that attention to news content was associated with social distancing behaviours, although the relationship was mediated by perceived effectiveness of social distancing for preventing infection. In turn, trust in media moderated the effect of news attention on people's belief in the effectiveness of social distancing.

Research conducted in Italy during the onset of the COVID-19 pandemic showed that the content of TV news stories about COVID-19 influenced audiences' adoption of health-protective behaviours. Exposure to "calming information"—such as stories emphasising that even in Italy's high-risk "red zones," most people had no symptoms—was correlated with healthier behaviour in terms of use of public spaces; similarly, exposure to information explaining how individuals could protect themselves and suggesting that government measures would be effective in managing the pandemic also contributed to greater social distancing (Scopelliti et al., 2021). Researchers in Lebanon found similar results. A study analysing the impact of coverage of the first months of the pandemic in Lebanon showed that the more people were exposed to news about COVID-19 through the media, the more likely they were to follow

prevention measures. This relationship was influenced by the perceived level of knowledge and fear (Melki et al., 2020).

During the COVID-19 pandemic, the demand for reliable health information from the public created difficulties for journalists, who typically rely on peer-reviewed research for their reporting. To address this gap, researchers began publishing preprints—scientific papers that have not yet been validated by the scientific community through peer review. Although journalists have been hesitant to report on preprints in the past, the urgency of the pandemic led to increased reporting on these papers (Majumder & Mandl, 2020). The recent increase in media coverage of preprints may have potential benefits for the public, as it allows them to access up-to-date information related to public health. However, if journalists do not clarify the uncertain nature of the research, this could pose a problem. Researchers have found that some outlets (e.g., Medscape, Wired) in the early stages of the pandemic consistently identified the preprints as preliminary or having not gone through peer review, while others (e.g., The Conversation, *The New York Times*) included this clarification in less than half of the stories analysed (Fleerackers et al., 2021). Further investigation is required in this domain, but ideally, the media will be more inclined to acknowledge scientific uncertainties when such transparency is critical for public health, such as in the case of the COVID-19 outbreak.

The COVID-19 pandemic also has had and is still having untold impact, with more than 15 million lives lost, according to the WHO; in addition, millions of patients still suffer with long COVID, billions of dollars have been lost due to lockdowns, thousands of children have been orphaned, and more than two years were filled with disruptions and uncertainties, resulting in deep social and mental health consequences yet to be comprehended (Piltch-Loeb et al., 2021).

As such, future research on coverage of major health crises like epidemics/pandemics must assess the limitations, understand the complexities, acknowledge past errors and identify the opportunities to enhance news organisations' and science journalists' preparedness to better respond in the future.

Looking Ahead

As discussed in this chapter, historically, substantial evidence has indicated that news reporting on health-related matters can have an impact on people's actions (Peters & Dunwoody, 2016; Yanovitzky & Bennett, 2016), that the effect of the news coverage relies heavily on how it is presented, and that this impact can vary depending on demographic variables such as one's socio-economic status and proximity to the outbreak (Tichenor et al., 1970). However, this review of the coverage of the most recent major epidemics/pandemics has revealed gaps in the literature, room for new knowledge, trends to be discussed, challenges to be addressed, and issues that must be understood to enhance our preparedness for the coverage of future health crises. As a result,

Fig. 16.2 Topics to address in future research on the coverage of epidemics/pandemics

we propose ten topics to be included in the agenda for future research summarised in Fig. 16.2.

Social Media: Unavoidable Reality and a Potential Partner

Social media allows active and multidirectional communication through which people can ask questions, share their experiences and read information offered by others. Future research should be designed to help us better understand the new information ecosystem as well as each platform's impact as the public's consumption of news has dramatically changed. It is important to assess the current environment diversity, evolution, limitations, players, languages, risks, and audiences for health and science journalists to channel more personalised

information and better communicate—and engage—with their audiences during health crises to provide crucial useful information to prevent or at least better control epidemics.

Information Rhythm: Attention Span

As described earlier in the chapter, the H1N1 flu coverage was successful in helping control the virus' spread with prompt and scientific-based information; however, the sensational tone used in coverage of Ebola and the poor timing with Zika created panic and misinformation, respectively. It is important for future research to investigate the best type, quantity, and tone needed for coverage during each psycho-social pandemic stage (Fig. 16.1) and to understand how to better coordinate the information flow and framing to synchronise with the epidemic's dynamic; such research could help journalists understand how to deliver useful and relevant content at the right moment for the public to minimise their risk when that information is most needed—and interesting to audiences—without creating news-fatigue.

News Coverage and Politics: Two to Tango

As seen during the COVID-19 pandemic, science can show us the way out of the pandemic with safe and effective vaccines, but for vaccines to have any effect in reducing illness, hospitalisation, and death, public policy needs to make them available by maximising access and coverage, and people need to be informed and confident to roll up their sleeves. With this in mind, science and health journalists must rely on scientific evidence to address issues with no political agenda and build trust amongst audiences to save lives. Scholars and academics can pave the path to future pandemic coverage that creates smoother communication amongst scientists, policy- and decision-makers and the public by understanding the underlying causes and biases resulting in current conflicts.

Negative Discourse: Sensationalism vs. Solutions

The H1N1 flu coverage is a good example of a successful effort by journalists to provide scientific information to curb the transmission of the disease. As such, future research should investigate how journalists could ensure that they are providing fact-based content (high in scientific quality) for curbing contagion and building loyal and trusting audiences, instead of offering sensationalism to create high traffic but that amplifies fear and panic with little impact on the epidemic curve (Toppenberg-Pejcic et al., 2019). Journalists covering future pandemics must find ways to minimise the use of sensationalist and fatalistic content and instead include the use of more positive language and content. One approach might include partnering with initiatives like the Solutions Journalists Network goal to ensure that by 2025, the majority of US news consumers will have access to solutions journalism. Similar efforts in other

countries (e.g., SJN's Africa initiative, the Constructive Journalism Project in Europe) could help bring these more positive approaches to the rest of the world.

Trust in Media: Collaboration Is the New Trend

As seen in relation to vaccine uptake during the COVID-19 pandemic, in any health crisis, trust in media is essential for public health measures to permeate and positively influence individual decision-making to mitigate the spread (Rouamba et al., 2022). In addition, there is a correlation between trust in frequently consulted experts and the willingness to be vaccinated against COVID-19 in the United States. On the other hand, being exposed to misinformation that sounds "scientific" is more strongly linked to decreases in the intention to be vaccinated (Loomba et al., 2021). In Brazil, individuals who identify as right-wing or centrist and score high on authoritarianism or conservatism tend to place greater faith in COVID-19 information shared through WhatsApp and less trust in information shared through traditional media, compared to those who identify as left-wing or score lower on these factors (de Ramos et al., 2022). With this in mind, future research should address the key elements needed to enhance and strengthen public trust in media, as well as identifying issues that could threaten media trust.

Gender and Minority Gaps: The Inclusion Perspective

Although women and minorities were being disproportionately affected by the COVID-19 pandemic (Yavorsky et al., 2021), stories in the beginning ignored the relevance of an inclusive perspective and unbiased framing. Over time, newspapers' focus on the health of minority groups increased; nonetheless, journalists often overlooked issues affecting these vulnerable groups (Xu, 2022). Moreover, the proportion of female experts quoted by newspaper journalists underrepresented women's work in the sciences. In articles citing just one expert, only three of ten sources were women, and in articles with multiple experts referenced, only one in ten pieces cited only women experts, while three of ten sourced all male experts (Fletcher et al., 2021). Newsrooms have been working towards narrowing diversity and gender gap, but opportunities remain to bring a broader view of news and to provide more inclusive coverage (Craft & Wanta, 2016). To enhance future health crisis coverage, researchers should assess the best ways for journalists to reach and communicate with diverse audiences, as well as with targeted groups, for more personalised delivery of content, which could contribute to more positive impacts on behaviour.

Misinformation: Journalists as Fact-checkers

To successfully combat and prevent *infodemics*, described as exposure to an avalanche of (un)reliable news, researchers must study them. On June 2020,

the WHO presented a framework for managing the COVID-19 *infodemic*, positing four pillars: monitoring or "*infoveillance*," building scientific and health literacy among audiences, encouraging fact-checking and peer-reviewing processes, and minimising political and commercial influences on information (Eysenbach, 2020). However, broader research should focus on the media and journalists' role in these processes. One review of the challenges and failures of the pandemic found that COVID-19 *infodemic* risk among countries depended on the quality of information delivered by each government, with greater risk in those countries whose leaders promoted misleading and confusing messaging (Gallotti et al., 2020). Interestingly, researchers found that, in comparison to people 55 or older, younger adults aged 18–54 in countries as different as the UK and Brazil had stronger misinformation beliefs and perceived WhatsApp as a more credible source than traditional news media. However, when presented with corrective information, the younger adults—more than the older adults—reported intentions to interact with and share the corrective information provided by the WHO to counteract misinformation (Vijaykumar et al., 2021), suggesting a process for successfully debunking false news. Nevertheless, urgent research in this area should be conducted to better identify misinformation, design robust strategies to debunk it, establish an efficient means to correct damage already done by such misinformation, mitigate its production and consumption, and set a framework to address this harmful and growing challenge.

Media Framing: Want to Hear vs. Need to Know

As Brandel (2016) argues, two conflicting questions sometimes haunt editors in newsrooms: "Should journalists give the audience what they *want* to know?" or "Should journalists give the audience what they *need* to know?" (para.1) Some can argue that this common dichotomy is based on flawed assumptions, especially during health emergencies, and they could have dire consequences. Scholars should help journalists identify the key structure for a health crisis story, article, essay and report to ensure that reporting always conveys the information audiences need to avoid transmission without losing the story's purpose, engagement, structure, and flow. Also, academics must assess how story rhythm, volume and framing can be varied to communicate most effectively during each stage of a pandemic (Strong, 1990).

Managing Uncertainty in Times of Crisis

The increase in news coverage of research preprints can potentially provide the public with useful and up-to-date information regarding public health issues. However, it could also become an issue if journalists do not make clear the uncertainties surrounding this research. Previous researchers have found that the media tend to downplay unknown or uncertain aspects of the science while reporting on health issues, potentially to avoid confusing audiences who may

not have a strong grasp of scientific concepts (Fleerackers et al., 2021). Yet, it can be advantageous to convey scientific uncertainty. Further investigation is needed to explore this matter, including a comparison of media coverage of peer-reviewed and unreviewed research findings, as well as the depiction of preprints on various topics, in different communication contexts, and across media platforms (Fleerackers et al., 2021).

Preparedness: Future Pandemics and Planetary Health

Recently, emerging diseases and epidemics have been increasing in frequency, and along with the importance of guarding public health, humankind needs to understand the relevance of concepts like *One Health* (Mackenzie & Jeggo, 2019) or *Planetary Health* (Pongsiri et al., 2017)—which acknowledge that human health is intertwined with the health of animals and the broader environment. For these concepts to permeate, future research should seek to identify how science and health journalists can broaden the coverage of sustainability and the interaction between the planet's health (e.g., loss of biodiversity, climate change) and humanity's well-being and how new approaches to coverage may induce changes in audience perspectives regarding health and science policies and health behaviours. Such research must be interdisciplinary, addressing planetary health in a multi-layered fashion, as *The Lancet*'s Planetary Health Commission proposes (Whitmee et al., 2015).

Conclusion

Since the 1980s, the world has encountered at least eight major epidemics, including COVID-19, the largest in the past 100 years. Some experts argue that these global health threats will only increase in frequency and probably in intensity. Moreover, the tools (e.g., social media) now available for covering emerging pathogens and epidemics, with the described opportunities and challenges, have rapidly evolved, contributing to a faster, wider, more personalised flow of (mis)information to often overwhelmed and vulnerable audiences. The underlying and essential journalistic objective of keeping the public engaged and informed with evidence-based, appropriately framed stories that can help curb these epidemics will not change. Given these realities, scholars should embark on urgent research to understand and potentially help science/health journalists cover future crises in ways that will improve the public's preparedness and response—despite negative political discourse, unavoidable uncertainty, damaging polarisation and the public's low attention span. In commenting on the COVID-19 pandemic, Dr. Anthony Fauci—the former chief medical advisor to the US president and one of the key players in US efforts to control all health crises since the emergence of HIV/AIDS—quoted legendary baseball catcher, manager and coach Yogi Berra: "It ain't over till it's over." However, Fauci added, "Clearly, we can now extend that axiom: when it comes to emerging infectious diseases, *it's never over*. As infectious-disease

specialists, we must be perpetually prepared and able to respond to perpetual change" (Fauci, 2022, para. 11). The same will be true for journalists, and therefore, future research must be done to ensure better science and health journalism for the benefit of humankind.

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