Narratives of Outbreak and Survival in English-Language Cinema Prior to COVID-19

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Abstract
Efforts to curb the COVID-19 pandemic were hampered by the tendency of some Americans to disbelieve its seriousness, distrust social institutions, and defy public health recommendations. To contribute to understanding these responses, I look to one facet of the discursive environment faced by public health communicators: the last 25 years of commercially successful, English-language, epidemic-themed feature films. I coded a sample of 34 films for competing “outbreak narratives” and content related to evidence of serious disease, the trustworthiness of social institutions, and the prevention of infection. I find characters in films usually encounter diseases with alarming symptom profiles and infection and death rates nearing 100 percent. Social institutions are overwhelmingly portrayed as negligent or manifestly evil. And the primary method of protecting oneself and others from infection is murder. I conclude that the content of these films could influence public culture and sow disbelief, distrust, and defiance.

Keywords
film, public health, outbreak narratives, infectious disease, public culture

In the first months of the COVID-19 pandemic, I read SARS-CoV-2 news all day and watched outbreak-themed movies all night. During the day, I saw alarming maps and graphs, grim interviews with politicians and scientists, health care workers in improvised personal protective equipment (PPE), the exteriors of refrigerator trucks, and coffins being buried in tidy rows. At night, I saw sick people. I saw people with bulging veins, blackened eyes, and rotting teeth. I saw people hemorrhaging blood, people transformed by illness into something barely human, and dead people who kept on walking. I was struck by the comparison: a near-total absence of any images of sick people on the news (Lewis 2020; Sonnevend 2020) and lurid and gratuitous images of grotesquely sick people on the silver screen. The daily facts of COVID-19 and each evening’s fictions were, one might say, as different as night and day.

Meanwhile, some Americans were questioning whether SARS-CoV-2 was real, whether the United States was experiencing a significant outbreak, and whether the virus caused serious disease (Evans and Hargittai 2020; Graham et al. 2020; Ravenelle, Newell, and Kowalski 2021; Shepherd, MacKendrick, and Mora 2020; Whitehead and Perry 2020). To be frank, I could see why. Medical privacy laws forbid health care workers from releasing images of their patients, many of whom were too sick to release images of themselves. Photojournalists were stymied by the Trump administration, which exploited these laws to restrict the documentation of hospital conditions (Maass 2020). Family members who could document the progression of illness were not allowed at hospital bedsides because of fear of further contagion. For reasons unknown to me, there was little circulation of images or videos of sick people at home. The near invisibility of COVID-19 made denials of the existence or seriousness of the pandemic plausible (Sonnevend 2020).

This alarmed me. To mount an effective collective response to a public health crisis, officials must help the public understand the severity of the threat, feel personally vulnerable, and believe in the efficacy of protective behaviors (Floyd, Prentice-Dunn, and Rogers 2000). To achieve these goals, clear communication across multiple media channels is essential (Barrelet et al. 2013; Davis et al. 2014; Petts and Niemeyer 2004; Zhang, Kong, and Chang 2015). Among media, feature films are especially influential channels of public health information because they evoke emotion (Dahlstrom 2014; Davis and Lohm 2020; Freimuth, Linnan, and Potter 2000; Ostherr 2005). Accordingly, the stories told in film can shape public culture, impeding or enhancing public health experts’ efforts to reduce morbidity and mortality.
during a crisis (Collignon and Carnie 2006; Kleczkowski et al. 2015; Teasdale and Yardley 2011).

Circulating in public culture prior to the onset of the COVID-19 pandemic were a series of outbreak narratives, or socially constructed just-so stories about the emergence, spread, and response to novel pathogens. In 2008, Wald identified and detailed a single prevailing outbreak narrative—called simply, the “outbreak narrative”—in which zoonotic disease emerges from human-animal contact in non-Western countries and spreads quickly via globalization, causing epidemics that are resolved by epidemiologists in Western countries, who export their cures to the source.

Gerlach (2016) and Gerlach and Hamilton (2014) argue that an alternative narrative—the “pandemic narrative”—is vying for dominance. In this story, the source of the disease is neither zoonotic nor non-Western. Instead, Western science is itself a source of contamination and catastrophe. Novel pathogens emerge from the very scientific laboratories that are supposed to protect us. Epidemiologists fail to contain the outbreaks. And social breakdown ensues. If Wald’s (2008) outbreak narrative promises that scientific rationality will prevail, the pandemic narrative promises that it will fail.

Wald’s (2008) outbreak narrative’s lessons are reassuring: Trust the experts; they will save us. The pandemic narrative teaches us that experts are dangerous and the end is nigh. To contribute to an understanding of how these narratives may have shaped public culture prior to the COVID-19 pandemic, I ask: Which of these narratives predominated in Hollywood prior to 2020? And what stories do these films tell about the nature of epidemics?: How do characters know outbreaks are occurring? Are social institutions portrayed as trustworthy? What measures do characters adopt to reduce transmission?

To answer these questions, I content analyzed the last 25 years of commercially successful, English-language, epidemic-themed feature films. My sample of 34 films begins in 1995, the year the seminal film Outbreak (Peterson 1995) was released. It ends in 2019, the year that SARS-CoV-2 was unleashed. Films were coded for the central features of both the outbreak and the pandemic narratives and themes related to some of Americans’ more maladaptive responses to the crisis: indications of the presence and seriousness of an outbreak, storylines that portray social institutions as trustworthy or untrustworthy, and preventive health measures used by or recommended to laypersons.

My analysis reveals that films more often tell stories consistent with the pandemic narrative than the outbreak narrative. The majority also feature diseases with substantially higher infection and death rates than COVID-19 and more extreme symptom profiles; incompetent, if not evil social institutions; and few examples of characters adopting traditional public health measures. I conclude that a credulous viewer would be disinclined to believe the seriousness of the SARS-CoV-2 pandemic, consider distrust of social institutions warranted, and be skeptical of the value of hygienic behaviors for reducing the transmission of disease.

These findings are important. The last 25 years of feature films have produced a discourse about global threats from disease. These stories are part of the wider discourse that contextualizes the messages public health experts send. If experts’ goals were to help Americans understand the severity of COVID-19, feel personally vulnerable, and believe in the efficacy of protective behaviors, this analysis suggests that the stories told by Hollywood were more likely to impede than enhance their efforts.

### Film and Society

Differentiated from personal culture, or the cultural knowledges and practices individuals carry within themselves, the phrase public culture refers to cultural artifacts in the public sphere (Habermas 1989; Strauss and Quinn 1997), including radio and television, branding and advertising, art and music, and news programs and newspapers. In contemporary societies, public culture is distinct from the culture traditionally studied by anthropologists embedded in small communities (Appadurai & Breckenridge 1988). Public culture is distinctly modern, characterized by mediating communication technologies, and potentially global (Hariman 2016).

Public culture is important because it is an “envelope of meaning” that shapes perception and action (Hariman 2016). Its content, although polysemic and complex, is the substance through which new meanings are made, with the capacity to spur on or suppress various efforts for social change. In other words, public culture “equips people to do the social, political, and ethical work required to live together” (Hariman and Lucaites 2007:26). To live together, for instance, or survive together during a global pandemic.

Films influence public culture. Produced by a profitable industry (Jarvie 2013), these audiovisual narratives are rich multisensory experiences that may considerably contribute to the envelope of meaning within which individuals operate. The content of film can also silence, marginalize, or misrepresent ways of thinking, valuing, and being. Giroux (2011:689) writes that films “both entertain and educate,” and they do so all while being “[d]eeply imbricated within material and symbolic relations of power” (see also Beasley and Brook 2019).

Audiences can contest the meaning of film, as is demonstrated by the reception theory prompted by Hall ([1973] 2018), yet there is ample evidence that media impacts viewers’ thoughts and feelings and, to a lesser extent, behavior (Morgan and Shanahan 1997). These findings are evidenced by experimental and quasi-experimental research on topics as wide-ranging as family separation (Chong and La Ferrara 2009), acceptance of climate change (Low et al. 2006; McGreavey and Liendfield 2014), views of romance (Hefner 2019), and attitudes toward the elderly (Kubrak 2020).

Giroux (2011:691) argues, however, that whether films causally influence any individual is beside the point. Consistent with public culture literature, he is more interested in analyzing cinema as contributing to a broad set of
Outbreak Narratives

In her book, Contagious, Wald (2008) examines 100 years of scientific texts, journalism, and pop culture, extracting a culturally pervasive outbreak narrative. The narrative begins in a developing nation. Living conditions are portrayed as primitive and involve close contact between humans and animals. A pathogen that infects animals is transferred into a human host, sparking an outbreak of a new disease. Rapidly, this outbreak spreads to a global city and easily leaps to the human host, sparking an outbreak of a new disease. Rapidly, this outbreak spreads to a global city and easily leaps to the core of the world economic system. Western scientists mount a response. On one side of the battle is the most advanced science the world has to offer. On the other is Mother Nature herself. Anthropomorphized, the pathogen is attributed intelligence, creativity, and lethal intent. In fiction, the pathogen often transforms its victims into its living embodiment: microbe-human “hybrids.” In nonfiction, hybrids appear as “superspreaders”: irresponsible or even malevolent actors who are blamed for pandemic spread. Despite the presence of a dangerous foe, the outbreak narrative delivers a happy ending. Scientists develop a cure or vaccine to export around the world.

Scholars have built on Wald’s (2008) work, documenting elements of this outbreak narrative in news accounts of SARS (Joye 2010; Lasco 2020; Levina 2015), MERS (Tsang 2013), H1N1 (Leach and Tadros 2014; Mason 2010; Wagner-Egger et al. 2011), H5N1 (Egert 2019; Levina 2015; Lowe 2010), and hemorrhagic fevers (Hasian 2016; Leach and Hewlett 2010; McInnes 2016; Parmet and Sinha 2017). The outbreak narrative is also found in legal writings (Sinha and Parmet 2016), biomedical discourse (Caduff 2014. Lynteris 2020), and journalism (Lynteris 2020). Cultural studies scholars have also discussed its presence in films like Outbreak, Contagion, and World War Z (Baker 2013; Davis 2017; Fehrle 2016; Han and Curtis 2020a; Levina 2015; Lynteris 2016, 2020).

Arguably, however, faith in the outbreak narrative was increasingly fragile, even before the arrival of SARS-CoV-2. Although early stories about the HIV/AIDS pandemic resonated with the themes identified by Wald (2008), the protracted struggle to contain it disconfirmed the belief that modern science can always respond quickly and effectively to novel pathogens. In time, scientists’ efforts have transformed the disease; once fatal for most, it is now chronic for those with health care. Among that same population, access to preexposure prophylaxis now effectively suppresses transmission. Yet four decades since the disease first rose to national attention, there is still no FDA-approved vaccine. HIV remains of concern in the United States and is endemic in parts of Africa (World Health Organization 2020). In retrospect, wrote Wald (2008:217), “HIV/AIDS is not well suited to the formula of an outbreak narrative.”

Meanwhile, spillovers of novel pathogens in the past two decades have also undermined faith in the capacity of Western science to come to humanity’s rescue (Caduff 2015). Instead, a consumer of news media would have been well aware that we were living with the threat of pandemic disease long before SARS-CoV-2 made that risk a reality. This is because we now live in “risk societies,” ones organized around the self-conscious production, distribution, and management of risk (Beck 1992). This includes the risk of pandemic disease, given hyper-globalization, anthropogenic climate crisis, geopolitical provocations, and medical and military experimentation with pathogens.

In 2014, Gerlach and Hamilton suggested that Wald’s (2008) outbreak narrative was—as Gerlach (2016:615) puts it—“fraying around its edges.” They proposed a new storyline: the pandemic narrative. This narrative shares with the outbreak narrative an anxiety about globalization but does not assuage it with a faith in the capacity of modern medicine to resolve the global threat. In fact, dangerous pathogens emerge not from the rural landscapes of non-Western countries, but from the laboratories of scientists in the West. Those same scientists fail to contain the resulting epidemic. Under the strain of widespread death, social institutions crumble and societies collapse. The pandemic narrative, in other words, catastrophizes epidemic risk. Although Gerlach and Hamilton (2014) developed the pandemic narrative in an essay reviewing literature on zombies in pop culture, they contend that the narrative is not mere Hollywood hyperbole. In his analysis of English-language press coverage of the 2014 Ebola outbreak, for example, Gerlach (2016) finds anxiety as to the capacity of both nation-states and global humanitarianism to respond effectively to outbreaks. Similarly, Laidlaw (2019) found that some Canadian news coverage of the 2009 H1N1 outbreak portrayed it as a “harbinger of chaos,” emphasizing the potential worst-case scenario.
Also referencing the risk society, Lynteris (2020:29, 32) echoes Gerlach and Hamilton (2014) in arguing that Americans are troubled by a “pandemic imaginary,” an anticipation of a zoonotic outbreak that will usher in a future in which the “world is no longer ours.” In this imagined future, “humankind is not deprived of a livable environment . . . but of mastery” over that environment. Stripped of global dominance, humans will be subordinate to a newly revitalized nature. The real threat to humanity, then, is not extinction but demotion. In the face of this threat, the imagined role of epidemiology is not only to protect us from pandemics but also to “safeguard human mastery” for as long as is possible (Lynteris 2020:105).

Infectious Disease Narratives in Film

Acknowledging that the outbreak narrative is contradictory, Wald (2008) observes that fiction is especially likely to involve the counterthemes that Gerlach, Hamilton, and Lynteris later discussed. In fact, several film analyses have documented violations of the outbreak narrative. Albertini (2008), for example, explores moments when hygienic procedures fail, exposing the fallibility of modern medicine (see also Pappas et al. 2003). Han and Curtis (2020a) analyze 100 years of films about disease outbreaks, finding support for the outbreak narrative but also noting the frequency with which they portray the abuse of power by authorities. In another article (Han and Curtis 2020b), they analyze three films for themes of institutional, social, and interpersonal betrayal. Lynteris (2016) analyzes several films, finding epidemiological failures and heroes. Additionally, with the exception of World War Z, the zombie genre consistently dramatizes the failure of social institutions to deliver resolutions (Canavan 2010).

Only one content analysis of a carefully sampled set of recently released epidemic-themed films currently exists. The public health scholar Evie Kendal (2021) analyzed 19 films about specifically viral epidemics. She does not code for the presence of outbreak narratives. Still, echoing others, she finds that film viruses often evade epidemiological intervention, hygienic practices are often bungled, and scientists often engage in unethical practices. Likewise, the source of outbreaks is not primarily zoonotic, but often the result of “deliberate human action,” including bioterrorism and animal rights activism. She concludes that the messages sent by these films could promote distrust in scientific authorities.

To build on this literature, I collected 34 feature films released between 1995 and 2019. I subjected this sample to a qualitative but systematic content analysis, asking whether these films better reflect the outbreak or pandemic narrative. With Americans’ disbelief, distrust, and defiance during the COVID-19 pandemic in mind, I also ask: How do characters know outbreaks are occurring? Are social institutions portrayed as trustworthy? And what preventive health measures are used by or recommended to laypersons?

Research Method

Included in this analysis are all commercially successful, live-action, English-language, nondocumentary feature films released between 1995 and 2019, the 25 years preceding the COVID-19 pandemic. To identify these films, I searched the Internet Movie Database (imdb.com) and a top English-language movie review site (rottentomatoes.com) for “pandemic” or “epidemic” as keywords. These searches returned 195 unique films. From this population, I excluded films that were documentaries (n = 27), not English language (n = 56), or both (n = 2). I also excluded an animated film made for children (n = 1).

I doublechecked the relevance of the remaining 109 films by looking for inclusion of the words “pandemic” or “epidemic” or a related word (“virus,” “plague,” “disease,” “outbreak,” or “infection”) in their descriptions on either website. Films that did not include such a reference were excluded (n = 41). Exceptions to this rule were made for films in a series; if even one of the movies in a film series directly referenced an epidemic, all films in the series were included. This added four additional films to my preliminary sample (one each from the Resident Evil and Maze Runner series and two from the Planet of the Apes series). Using a film industry data website (the-numbers.com), I collected the earnings data for the remaining 72 films and selected those estimated to have earned at least $1,000,000 in box office and video sales. The final sample includes 34 films.¹

Included in my sample are 11 films—six in the Resident Evil series and five more—that fall within the zombie genre. I selected neither for nor against zombie films. Instead, I allowed my search strategy to guide whether films in that genre would be subject to analysis. On the one hand, the zombie genre is a unique kind of story, one that almost by definition portends apocalypse and is therefore more consistent with the pandemic narrative than the outbreak narrative. On the other hand, most zombie stories are also stories about contagion, so it would be wrong to suggest they are irrelevant to the analysis altogether. In fact, the power of zombies to inform publics about real-life infectious disease is why the U.S. Centers for Disease Control exploited the genre to encourage pandemic preparedness prior to the arrival of SARS-CoV-2 (Nasiruddin et al. 2013). With this logic, I decided to include films in the zombie genre when they were explicitly described as infectious epidemics (as per my search strategy), but not otherwise.

My research questions concern whether the sample of films reflects the outbreak narrative or the pandemic narrative and themes related to the discernment of outbreaks, trust in social institutions, and the efficacy of public health recommendations. To answer the first question, I coded for contrasting features of the outbreak and pandemic narratives. I

¹Films included in the sample but not specifically cited in the body of the article include Anderson (2010, 2017) and Ball (2015).
coded for whether the outbreak begins in a Western or non-Western country and for whether the source of the outbreak was zoonotic or anthropogenic. If anthropogenic, I coded for institutional culpability. I also coded for whether scientists or other experts succeed in controlling the outbreak and the degree of social disorder it introduces.

To discern how characters learn that an outbreak is occurring, I coded for clues as to the presence of serious and widespread illness: infection and fatality rates, the symptoms and progression of disease, and the presence or absence of pathogen-human hybrids. To measure distrust, I examined the films for their portrayals of four social institutions: media, government, science, and private industry. Institutions were coded as a force for good if they or their representatives told the truth, helped survivors or victims, contributed to bringing the pandemic to an end, or sacrificed for the good of others. Institutions were coded as a force for bad if their representatives lied, harmed survivors or victims, caused or exacerbated the outbreak, or exploited it for their own gain. In any given film, an institution could be coded as a force for good, bad, or both. Finally, I coded for which hygienic behaviors were recommended to or adopted by laypeople.

Films were viewed between May and August 2020. Coding was iterative: a mix of deductive and inductive. I brought a set of codes to the films but revised those codes (and recoded already coded films) when I identified more precise or additional codes.

Although others may have chosen to analyze these films for their “deeper” meaning, I chose to remain on the “surface.” That is, I engaged in a literal reading rather than a metaphorical one. Undoubtedly, a metaphorical analysis would reveal useful insights. However, given that we have found ourselves in an all-too-real pandemic, it is useful to take the films literally. Audiences certainly extract symbolic meaning from film, but they are also consuming the non-metaphorical content. In other words, the stories these films tell in plain terms are also part of public culture. Accordingly, addressing the manifest content being so broadly absorbed is worthwhile.

I also set aside production concerns, such as the demands of a visual medium (influencing, for example, how diseases are dramatized) and the incentive to feature the full faces of star actors. My intention is not to analyze why the films’ content is as it is or how it got that way. The purpose of the analysis is only to document the manifest features of the stories told on film to English-language audiences.

Findings

Producers of the film Contagion (Soderberg 2011) famously designed a fictional but plausible zoonotic paramyxovirus (Cohen 2011). “Somewhere in the world,” explains Dr. Erin Mears (Kate Winslet), “the wrong pig met up with the wrong bat” (Soderberg 2011). Incubated in nature, the virus spills into the human population when a butcher mishandles an infected pig. The disease causes flu-like symptoms (lethargy, fever, cough, and headache) and a loss of consciousness accompanied by seizures.

An international business traveler, Beth Emhoff (Gwyneth Paltrow), is the first victim. The paramyxovirus then spreads across the world. Scientists document a 20 percent to 30 percent chance of death, higher for patients with comorbidities, and a total death count of 26 million. The death rate is attenuated by widespread compliance with public health recommendations, as illustrated through the lives of Beth’s husband, Mitch (Matt Damon), and daughter. Ultimately, scientists develop a vaccine that ends the pandemic.

Contagion’s narrative follows Wald’s (2008) outbreak narrative more closely than any other film in the sample, but it was not alone in telling this story. In Mimic (del Toro 1997), Dr. Susan Tyler (Mira Sorvino) battles an epidemic in New York City. An etymologist, she genetically modifies and combines existing insects to successfully wipe out the host: cockroaches. Dr. Walter Fane (Edward Norton) makes substantial progress in curing an outbreak of cholera in a small Chinese village in The Painted Veil (Curran 2006) In The Invasion, scientists defeat the epidemic easily. “Once we isolated the vaccine,” explains Dr. Stephen Galeano (Jeffrey Wright), “the result . . . was inevitable” (Hirschbiegel 2007). Working for the U.S. military in World War Z (Foster 2013), Gerry Lane (Brad Pitt) rightly hypothesizes that infection with an alternative disease will protect people from the zombie hordes.

Such reassuring narratives, however, are atypical. Characteristic features of the pandemic narrative appear more frequently than the features of the outbreak narrative. The source of disease is more often anthropogenic than zoonotic, and the pathogen is more likely to emerge from scientific laboratories than animal-human contact. The infection and death rates far outpace that of the paramyxovirus in Contagion. There are few examples of laypersons using traditional public health measures. Social institutions—including science itself—are more likely to do harm than good. The result is catastrophic social collapse without the possibility of a return to “normal.”

The Source of Outbreaks

Table 1 indicates whether sources of novel pathogens in my sample of films are Western or non-Western and natural or scientific. It reveals that only 11 percent of films feature pathogens sourced to human-animal contact in non-Western countries (n = 4). In contrast, 74 percent feature epidemics that begin in Western countries (n = 25). In half, the source of the outbreak is traced to highly modernized scientific activity (n = 17). In the modal case, consistent with the pandemic narrative, pathogens emerge directly from a laboratory in a Western country (n = 16).

In Quarantine (Dowdle 2008) and Pulse (Sonzero 2006), the fault lays with amateur scientists, but professional
scientists employed by for-profit corporations or militaries are the usual culprit. In 28 Days Later (Boyle 2002), the epidemic begins after a group of animal rights activists break into a laboratory in which scientists are engaging in animal cruelty, releasing a group of chimpanzees infected with the Rage Virus. In I Am Legend (Lawrence 2014), a virus genetically engineered to cure cancer by Dr. Alice Krippin (Emma Thompson) mutates in the general population. In The Crazies (Eisner 2010), a plane carrying a military-manufactured biological weapon crashes into the source of drinking water for a small town.

In several instances, the pathogen is released negligently or even deliberately. In 12 Monkeys (Giilliam 1995), James Cole (Bruce Willis) travels back in time to discover that a pandemic was planted by a genocidal epidemiologist. In Rise of the Planet of the Apes (Wyatt 2011), a pharmaceutical company recklessly accelerates drug development when an experimental Alzheimer’s treatment proves to enhance brain function even in people without dementia. When the scientist who developed the drug, Dr. Will Rodman (James Franco), resists the speed up, the head of the company retorts: “We’re dealing with a drug that’s worth more than everything else we are developing combined!” (Wyatt 2011). In pursuit of these unprecedented profits, the pathogen escapes their lab.

In sum, few films feature epidemics that emerge out of human/non-human-animal contact in the periphery of the world economy, as the outbreak narrative expects. Likewise, few films feature heroic Western scientists who save the world. Instead, most epidemics begin in rich democracies, nearly half emerge from laboratories, and many are a consequence of corporate greed or military ambition, as predicted by the pandemic narrative.

**Portrayals of Morbidity and Mortality**

The majority of films (71 percent, n = 24) feature a disease that infects huge swaths, if not nearly all, of the population. By the third installment of Maze Runner, for instance, “the infected outnumber the healthy 3 to 1” (Ball 2018). Infectious vampirism is nearly universal in Daybreakers. Everyone succumbs to the White Sickness in Blindness (Meirelles 2008), except a humble housewife (Julianne Moore) who is mysteriously immune. In the six Resident Evil movies and four of the other five films in the zombie genre, the infected outnumber the uninfected. The contamination is inescapable in Pulse (Sonzero 2006), where no one is safe from the fatal sadness transmitted by a super wide band frequency.

In a strongly overlapping but not identical set of films (71 percent, n = 24), infection carries a very high likelihood of death. Nine films specify a precise death rate, with a mode of 100 percent and a mean of 87 percent. The Motaba Virus (Outbreak) kills everyone it infects; the CZT Virus (12 Monkeys), 99 percent; the Krippin Virus (I Am Legend), only 90 percent, but it turns another 9 percent into human-pathogen hybrids. The Simian Flu (the Planet of the Apes series) kills 499 out of every 500 people infected. The Flare Virus (Maze Runner) is “wiping out the human race” (Ball 2014). No one infected with the Necroambulis Virus (Maggie; Hobson 2015) fails to “turn.” Irritated by a fellow survivor who persists in hoping her parents are alive, Bobby (Piper Perabo) in Carriers says, “Everyone, everywhere, is dead… Soon you and I will be dead, too” (Pastor and Pastor 2009).

Similarly, in 74 percent of films (n = 25) a central character, or someone close to one, is infected, most commonly resulting in death. The titular character in Maggie kills herself as a final kindness to her father, Wade Vogel (Arnold Schwarzenegger), who would otherwise have had to do it himself. The Painted Veil is a romantic drama that ends with a man’s dying of cholera in the moments after he and his wife, Kitty Fane (Naomi Watts), reconcile. Best friends of central characters die of suicidogenic diseases in Pulse and The Happening (Shyamalan 2008). Scientists on the front lines die in Outbreak and Contagion. The tragic arc in I Am Legend peaks when Dr. Robert Neville (Will Smith) is forced to euthanize his only companion: his dog, Sam (Kona).

The path from infection to death is generally startling and usually stomach-turning. In Doomsday (Marshall 2008), infected people projectile vomit and leak blood from their ears, nose, and eyes. Bloody white growths emerge on their faces. The illness in Cabin Fever (Roth 2002) is caused by a “flesh-eating virus”: bloody boils reddens and then dissolve the skin. In Pulse, the bodies of victims are slowly devoured by an ink-black substance that spreads in fractals beneath the skin. The pathogen in The Happening kills by instilling a compulsive desire in people to die by suicide, regardless of how inefficient, painful, or grotesque the death. Upon exposure, Julian (John Leguizamo) rams his car into a tree and when that doesn’t work, sits in the street sawing at his wrists with a piece of windshield.

Table 1 lists all symptoms that appear in films according to their incidence, divided into two categories: physical symptoms and acquired traits/behavioral changes. The most notable finding is the incidence of interpersonal aggression. More often than not (59 percent, n = 19), infected people become violent. Sometimes these individuals also acquire extrahuman levels of speed (n = 4) or strength (n = 8) or the ability to tolerate injuries that humans normally cannot withstand (n = 11). They frequently develop a complete lack of self-preservation instinct (n = 16). Infected people are, in other words, often effective and relentless predators.

### Table 1. Source of the Novel Pathogen.

| Source      | Non-Western | Western | Unclear | Total |
|-------------|-------------|---------|---------|-------|
| Nature      | 4           | 5       | 0       | 9     |
| Science     | 1           | 16      | 0       | 17    |
| Unclear     | 0           | 4       | 4       | 8     |
| **Total**   | **5**       | **25**  | **4**   | **34**|
The infection-acquired trait of predation is not exclusive to the zombie genre. Eight movies outside this genre also feature diseases that manifest this way. The disease in The Crazies, for example, is caused by a biological weapon “designed to destabilize a population” (Eisner 2010). Infected people turn into homicidal maniacs. Likewise, the disease in Quarantine is modeled on the real-life rabies virus, and victims attack their fellow humans like rabid raccoons. The Invasion involves a mind-control pathogen that compels people forcibly to infect others. Victims sickened by the virus in the Maze Runner series become inexplicably and universally violent once the disease progresses past its early stages.

A consideration of the remaining symptoms reveals that Hollywood prefers to dramatize infections with noticeable changes in people’s appearance. In many films, a glance at a person’s eyes (n = 17), skin (n = 17), or teeth (n = 12) will reveal infection, as will a few seconds of watching them jerk, twitch, and adopt odd postures or strange gaits (n = 15). Especially grotesque symptoms are also favored, including vomiting (n = 12), hemorrhaging (n = 12), and rotting (n = 11; but excluding diarrhea). Largely invisible symptoms (e.g., nausea, headache, blindness, and fever) are relatively rare. No film acknowledged the possibility of asymptomatic infection and transmission.

In more than half of films (56 percent, n = 19), victims embody the disease as human-pathogen hybrids. In 14 cases, these hybrids are removed linguistically from the category of human. In I Am Legend, Dr. Neville calls victims of the Krippin Virus “dark seekers.” Reflecting on his scientific observations, he notes: “Typical human behavior is now entirely absent” (Lawrence 2014). In World War Z, victims are “zees” and “zekes”; in the 28 series, “infecteds”; in The Crazies, “crazies”; and in Resident Evil, “biohazards.” The standard description, of course, labels them “vampires” in Daybreakers and “zombies” in Pride and Prejudice and Zombies (Steers 2016). When a cure for the disease is finally discovered and distributed in The Invasion, a scientist proclaims: “For better or worse, we’re human again” (Hirschbiegel 2007).

In sum, characters in my sample of films are alerted to the presence of epidemic disease by widespread infection and death, including of central characters and of their friends and family; highly visible disease symptoms, including interpersonal violence; and neologisms naming new categories of nonhuman beings.

The Trustworthiness of Social Institutions

Blindness is a parable about institutional failure. When the White Sickness begins spreading, the U.S. government’s only response is to host an international conference. A man (Danny Glover) explains: “And so, for days and days, the helpless viewing public was subjected to seminars and endless roundtables with specialists from around the world proclaiming their general ignorance . . . how more research was needed, and more funding” (Meirelles 2008). In the absence of any help from government, people adapt to the epidemic. They are, Glover’s character explains, “bored back to work.” Helpless, the government allows the White Sickness to spread until entire cities collapse.

In Carriers, when a central character named Brian (Chris Pine) hears a rumor that a doctor has developed a cure, he mockingly expresses his disbelief: “This is a fairytale,” he barks. “It’s the Baltimore vaccine all over again. It’s a bunch

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**Table 2. Incidence of Symptoms in 34 Disease Outbreak Films.**

| Physical Symptoms              | Physical Symptoms (cont.) | Acquired Traits/Behavioral Changes |
|--------------------------------|---------------------------|-----------------------------------|
| Cardiac arrest                 | 1                         | Fever                             | Heightened abilities 2 |
| Chills                         | 1                         | Seizures                          | 6 Moaning, groaning    | 2 |
| Diarrhea                       | 1                         | Difficulty breathing              | 7 Suicide attempts     | 2 |
| Headache                       | 1                         | Dark circles under eyes           | 8 Inhuman speed        | 4 |
| Nausea                         | 1                         | Cough                             | 10 Inhuman strength    | 8 |
| Paralysis                      | 1                         | Darkening or bulging of veins     | 11 Immunity            | 9 |
| Rash                           | 1                         | Decomposition                     | 11 Inhuman capacity to survive | 11 |
| Sneezing                       | 1                         | Hemorrhaging                      | 12 Roaring, screaming, screeching | 15 |
| Sore throat                    | 1                         | Tooth rot, loss, or other changes | 12 Lack of self-preservation | 16 |
| Blindness                      | 2                         | Vomiting                          | 12 Loss of language    | 16 |
| Difficulty swallowing          | 2                         | Sweatiness                        | 14 Aggression against others | 19 |
| Loss of consciousness          | 2                         | Erratic or unnatural movement     | 15                      |
| Frothing at the mouth          | 4                         | Lethargy                          | 16                      |
| Hair loss                      | 4                         | Change in color of skin           | 16                      |
| Open sores                     | 4                         | Discoloration of eyes             | 17                      |
| Weight loss                    | 4                         |                                    |                        |

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of retrovirals that don’t work for shit” (Pastor and Pastor 2009). He follows the lead anyway, only to discover a physician euthanizing small children to kill them before the disease does.

In *Blindness* and *Carriers*, social institutions merely fail. In two-thirds of films (65 percent, n = 22), they are actively dangerous. Table 3 reveals whether four social institutions—science, media, government, and private industry—are portrayed as forces for good, bad, or both. Unsurprisingly, scientific institutions appear in this sample of films most often (n = 24). In 18 films, science is a force for bad; in 10, it is a force for good. Represented as a force in 17 films, the government is also nearly twice as likely to be portrayed as bad as it is good (12 times vs. 7 times). Private industry appears in only 12 films, but when it does, it is universally portrayed as a force for good. Only the portrayal of media leans toward the positive, although it is the social institution least likely to appear (n = 9).

To contain the outbreak in *The Crazies*, for example, the military murders people infected by its escaped biological weapon and then drops a nuclear bomb on the entire town. In *Outbreak*, Generals Ford (Morgan Freeman) and McClintock (Donald Sutherland) initiate the same protocol as in *The Crazies*. The central drama is between them and their subordinate, Colonel Daniels (Dustin Hoffman), who resists the plan. Likewise, the infected group of neighbors and TV news crew in *Quarantine* are sealed into the apartment building by the government. Their lives are sacrificed in a failed effort to contain

| Table 3. Valence of Portrayal of Four Social Institutions, by Films in Reverse Chronological Order. |
|---------------------------------------------------------------|
| **Government** | **Media** | **Private Industry** | **Science** | **Total** |
| Force for Good | Force for Bad | Force for Good | Force for Bad | Force for Good | Force for Bad | Force for Good | Force for Bad | Force for Good | Force for Bad |
| Maze Runner: The Death Cure | ■ | ■ | — | 2 |
| Resident Evil: The Final Chapter | ■ | ■ | — | 2 |
| War for the Planet of the Apes | — | — | — | — |
| Pride and Prejudice and Zombies | ■ | ■ | — | 1 |
| Maggie | ■ | ■ | ■ | 3 |
| Maze Runner: The Scorch Trials | ■ | ■ | — | 2 |
| Dawn of the Planet of the Apes | — | — | — | — |
| The Maze Runner | ■ | ■ | 0 | 2 |
| World War Z | ■ | — | — | 1 |
| Resident Evil: Retribution | ■ | ■ | 0 | 2 |
| Contagion | ■ | ■ | ■ | 2 |
| Rae of the Planet of the Apes | ■ | ■ | ■ | 1 |
| The Crazies | — | — | — | 1 |
| Resident Evil: Afterlife | ■ | ■ | — | 2 |
| Carriers | — | — | — | 1 |
| Daybreakers | ■ | ■ | ■ | 2 |
| Blindness | ■ | ■ | — | 2 |
| Doomsday | ■ | — | — | 2 |
| The Happening | ■ | — | — | 1 |
| Quarantine | ■ | — | 1 |
| 28 Weeks Later | ■ | ■ | 1 |
| I Am Legend | ■ | ■ | ■ | 1 |
| The Invasion | ■ | ■ | ■ | 2 |
| Resident Evil: Extinction | ■ | ■ | — | 2 |
| The Painted Veil | ■ | ■ | 2 |
| Pulse | — | — | — |
| Sahara | ■ | — | 1 |
| Resident Evil: Apocalypse | ■ | ■ | — | 3 |
| 28 Days Later | ■ | — | 2 |
| Cabin Fever | — | — | — |
| Resident Evil | ■ | ■ | — | 3 |
| Mimic | ■ | ■ | 2 |
| 12 Monkeys | ■ | ■ | — | 2 |
| Outbreak | ■ | ■ | 2 |
| **Total** | 7 | 12 | 6 | 4 | 0 | 12 | 10 | 18 | 23 | 46 |
the outbreak. Both infected and healthy people are also left to die in *28 Days Later, 28 Weeks Later* (Fresnadillo 2007), and *Doomsday*.

In some cases, institutions do harm for profit. In *Daybreakers*, the vampire-run U.S. government conspires with a wealthy corporation. Remaining humans are designated as “enemies of the state,” subject to capture by the military (Spierig and Spierig 2009). Human prisoners are drugged unconscious, stripped, naked, and installed in a “harvesting facility” that taps their blood. An employee, Edward Dalton (Ethan Hawke), is working on a blood substitute but discovers the company has no intention of using the product to save humans from torture. Instead, they hope to continue to sell real blood, but as a more expensive product. Wealthy vampires also own personal stashes of “human stock” that they keep for personal use or lend out to the harvesting facility for profit. When a cure for vampirism is discovered, it is violently resisted as a threat to both the harvesting facility’s business model and rich vampires’ personal wealth.

The harm done in the *Maze Runner* and *Resident Evil* series is genocidal. The plot in *Maze Runner* is a battle between scientists working for a corporation called WCKD (pronounced “wicked”) and a group of teenagers led by Thomas (Dylan O’Brien), a young man who is the secret to a cure. The scientists kidnap the teenagers, erase their memories, and place them into the titular maze. Filled with murderous monsters, the maze is a torture device intended to frighten the teenagers into producing an enzyme from which scientists believe they can derive a vaccine. As the director of the ominously named World Catastrophe Killzone Department, Dr. Ava Paige (Patricia Clarkson) explains: “The young would have to be tested, even sacrificed inside harsh environments where their brain activity could be studied” (Ball 2014).

In the *Resident Evil* series, Dr. Isaacs (Iain Glen) and Chairman Wesker (Shawn Roberts) run the Umbrella Corporation, “the largest and most powerful commercial entity in the world” (Witt 2004). Among other things, the company develops and sells biological weapons. Upon recognizing that humanity is destroying the earth, the corporation’s high-level administrators deliberately release a bioweapon in the hopes of saving the world for themselves. When their efforts result in a planet overrun by zombies, their plan develops an additional evil twist: an effort to “domesticate” and enslave these victims. “They’re animals, essentially,” explains Dr. Isaacs. “We can train them if we can take away their baser instincts. They’ll never be human, but would provide the basis for a docile workforce” (Mulcahy 2007).

In sum, with some notable exceptions, social institutions are portrayed as untrustworthy in Hollywood films featuring epidemics. Scientists and governments often cause outbreaks, sometimes deliberately. They are rarely its solution. They usually do more harm than good, creating obstacles for and threats to both the sick and the well.

Under these circumstances, how do people survive?

### Surviving Catastrophe

As one might imagine, extremely high rates of illness and death combined with institutional incompetence and malevolence is highly destabilizing to the social order. In the majority of films (59 percent, n = 20), whole regions, nations, or world-systems collapse. The plot of *Doomsday*, for instance, involves the loss of control over a viral epidemic in Scotland. This spurs government officials to build a weaponized wall across Great Britain, consigning everyone above it to die. In *28 Days Later*, the world’s nation-states decide to sacrifice Great Britain entirely. In *Pride and Prejudice and Zombies*, the uninfected live perilously in London behind a “Grand Barrier” made of both a 100-foot wall and a “vast moat thirty fathoms deep” (Steers 2016).

The disease in *I Am Legend*, explains a narrator, “burned through our civilization, pushing humankind to the edge of extinction” (Lawrence 2014). The central character scavenges food, grows crops, and hunts wild animals in the remains of New York City. In her narration at the beginning of the third *Resident Evil* film, Alice (Milla Jovovich) explains that the T-Virus “consumed” the world: “The virus didn’t just wipe out human life. Lakes and rivers dried up. Forests became deserts and whole continents were reduced to nothing more than barren wasteland” (Mulcahy 2007). In the *Maze Runner* series, massive sand dunes cover the earth. Abandoned cities are marked by broken bridges, fractured freeways, and crumbling skyscrapers.

Six films feature planetary breakdown consistent with the ex-human endgame anxiously predicted by Lynteris’s (2020) pandemic imaginary. In *Pulse*, humans are forced to permanently restrict themselves to the portions of the planet without broadband. “We can never go back. The cities are theirs. Our lives are different now,” says a survivor named Mattie (Kristen Bell; Sonzero 2006). In *12 Monkeys*, all surviving humans live underground in a state of “permanent emergency” (Gilliam 1995). References to a “planet of the apes” implies a world in which humans are no longer the apex species. In *The Happening*, nature attacks humans directly.

In the absence of functioning institutions, survivors are on their own to protect themselves and others from infection. In 11 films, PPE is not needed, useful, or yet called for. In *Blindness, I Am Legend, Doomsday, Dawn of the Planet of the Apes* (Reeves 2014) and *War for the Planet of the Apes* (Reeves 2017), all characters are immune or already infected. In 28 *Weeks Later, Daybreakers, Maggie*, and *Pride and Prejudice and Zombies*, violence is understood to be the only route of transmission, so traditional public health precautions are not useful. *Mimic* does not feature laypersons in the midst of the epidemic, and the source of illness in *Pulse* is supernatural.

PPE and hygienic behaviors, however, would be useful in the other 23 films. Yet Table 4, which lists the whole range of hygienic behaviors adopted by or recommended to laypersons in each film, reveals that only 39 percent (n = 9) of
those 23 films portray the adoption of even one preventive tool or behavior. Single scenes in both Resident Evil: Retribution (Anderson 2012) and Maze Runner: The Death Cure show people wearing face masks. In Cabin Fever, surgical gloves are used when cleaning blood projectile vomited by victims of a flesh-eating disease, but only some of the time. In Dawn of the Planet of the Apes, the introductory montage includes some depictions of use of PPE. Only Contagion portrays a range of measures. In fact, 35 percent of the total instances of traditional public health measures occur in this film alone.

It is as if in Hollywood, public health measures simply do not exist. Once Elliot and Alma Moore (Mark Wahlberg and Zoey Deschanel) deduce that plants are releasing a toxin into the air in The Happening, they do not cover their mouths and noses to try to avoid breathing it in. Likewise, when it is revealed that the disease is airborne in The Crazies, the characters do not respond to this information with any protective measure. When Dr. Eva Rojas (Penélope Cruz) and her international explorer friend, Dirk Pitt (Matthew McConaughey), visit villages to document fatalities in Sahara (Eisner 2005), she makes no recommendations to villagers regarding how to prevent infection. Although they are facing diseases they know almost nothing about, no one in World War Z, The Invasion, or 28 Days Later adopts any traditional public health measures. When a resident of the apartment building in Quarantine suggests they keep their distance from one another, he is accused of being drunk.

Ironically, in movies about disease outbreaks, contagion is rarely a theme. Many characters move through worlds riven with infectious disease as if there is no disease at all. When the teenagers in The Maze Runner are told a pandemic disease has produced apocalyptic conditions, no one asks a follow-up question about what happened or how to keep safe. In Resident Evil, characters saunter through a medical facility full of corpses. They show no concern they will be exposed to what killed them. This nonchalance remains even after they are informed that the disease is “protean, changing from liquid, to airborne, to blood transmission, depending on its environment” (Anderson 2002). A team in Doomsday enters the region previously abandoned to the epidemic. When their “combat model” “biosuits” fail, the team slough them off without care, expressing no concern for the presence of the virus that led their government to permanently abandon half of Great Britain (Marshall 2008).

How do characters in Hollywood avoid becoming infected with epidemic diseases? Mostly, they do so with murder. Reflecting the fact that interpersonal violence is the most common symptom of illness, weapons are the central way that characters reduce the transmission of disease. In just over half of movies (53 percent, n = 18), the behavior that proves most useful for reducing the contagion is homicide. Sick people are killed indiscriminately. They are often killed en masse. In only four films does the murder of a sick person cause a single character even a moment’s consternation. Accordingly, the most useful and admirable compatriots are those who can murder most quickly, and the most well adapted and experienced survivors are those who murder most remorselessly.

In sum, remarkably few examples of hygienic behaviors are featured in this sample of epidemic-themed films. In most, characters seem immune to the very idea of contagion. Even more remarkably, they are not only indifferent but hostile to the sick. Abject, often monstrous, and discursively excluded from the category of humanity, sick people are cast as our enemies. As a consequence, weapons are not only the most prevalent form of PPE, but the most applauded.

Discussion and Conclusion

The stories told by the past 25 years of successful, live-action, English-language feature films have more in common with Gerlach and Hamilton’s (2014) pandemic narrative than Wald’s (2008) outbreak narrative. Zoonotic outbreaks are rare compared to ones that emerge from scientific laboratories. These laboratories are operated by militaries or corporations located squarely in Western countries. Scientists are more often a force for bad than good. Social institutions collapse. Some films’ endings even portray the diminished human presence on earth indicated by Lynteris’s (2020) pandemic imaginary.

Given these themes, how do characters in Hollywood movies discern that an outbreak is afoot? Would they be smart to trust social institutions? And what preventive health measures are they most likely to take up?

Characters generally know that an outbreak is occurring because they personally encounter sick people—by the dozens, hundreds, or thousands—who are displaying striking and often stomach-turning symptoms. Some are monstrously ill and cast out of humanity (as per Wald 2008), transitioning into zekes, dark seekers, cranks, and crazies. Others are merely abject: repulsive and untouchable. Meanwhile, cities, societies, and world systems collapse.

Characters in these films are also taught to distrust authority, a finding that resonates with Kendal (2021). In some instances, this is because social institutions are merely hapless. More often, they are harmful. Pathogens escape their high-tech facilities, sometimes by accident and sometimes by design. Some representatives of social institutions actively engage in kidnapping, torture, enslavement, murder, and more.

Facing untrustworthy social institutions, characters in Hollywood films are forced to take their lives into their own hands. They do so not by adopting time-tested public health behaviors, but by taking up weapons. Americans watching epidemic-themed films over the last 25 years were exposed to woefully few examples of hygienic behaviors intended to protect public health. Instead, they were frequently shown examples of the life-saving value of using a lethal weapon against “others.” Empathy is portrayed as weak, to be replaced by exclusion and extermination.
SARS-CoV-2 is a deadly pathogen that is wreaking havoc on daily life and economies worldwide. Yet the real-life experience of this pandemic has not compared in scope or scale to the physical illness and social disruptions portrayed in Hollywood epidemics. Confined largely to health care workers, the experience of tending directly for people very sick with COVID-19 has been statistically rare. Meanwhile, little visual documentation of such victims of the disease has been available.

Even if ubiquitous visual documentation of people sick with COVID-19 were available, it would have paled in comparison to the images of the ill in this sample of film. Many people carry and transmit SARS-CoV-2 entirely asymptomatically. Fever, fatigue, headache, sore throat, aching muscles, and the loss of taste and smell are invisible symptoms. Other symptoms—like coughing, congestion, vomiting, and diarrhea—are familiar, giving credence to the idea that the disease is merely “flu-like.” Shortness of breath stands out as one of the disease’s most frightening symptoms, but this is arguably less viscerally repulsive than bleeding eyes and dissolving flesh.

Neither did our social institutions collapse. In pandemic United States, nonessential shopping and restaurant dining is allowed, grocery stores and gas stations remain largely supplied, politicians campaign and elections are held, K–12 schools and colleges reopened, and tourism industries came back. As much as life was disrupted by the pandemic, it is not true to say that society fell apart. Thus, this, too, contributes to a vision of what a truly serious pandemic looks like.

With an absence of visuals and in the face of largely functioning social institutions, authorities have asked us to take their word for the seriousness of the pandemic, but Hollywood

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**Table 4.** Incidence of Hygienic Behaviors Recommended to or Used by Laypersons, by Films in Reverse Chronological Order.

| Routine Testing | Hand Cleansing | Surgical Gloves | Physical Distancing | Contact Tracing | Face Covers | Staying Home | Isolate the Infected | Murder | Total |
|-----------------|----------------|-----------------|---------------------|----------------|-------------|--------------|--------------------|--------|-------|
| Maze Runner: The Death Cure | ■ | ■ | | | | | | | 2 |
| Resident Evil: The Final Chapter | | | | | | | | | 1 |
| War for the Planet of the Apes | | | | | | | | | 0 |
| Pride and Prejudice and Zombies | | | | | | | | | 1 |
| Maggie | | | | | | | | | 1 |
| Maze Runner: The Scorch Trials | | | | | | | | | 1 |
| Dawn of the Planet of the Apes | | | | | | | | | 3 |
| The Maze Runner | | | | | | | | | 1 |
| World War Z | | | | | | | | | 1 |
| Resident Evil: Retribution | | | | | | | | | 1 |
| Contagion | | | | | | | | | 8 |
| Rise of the Planet of the Apes | | | | | | | | | 0 |
| The Crazies | | | | | | | | | 1 |
| Resident Evil: Afterlife | | | | | | | | | 1 |
| Carriers | | | | | | | | | 3 |
| Daybreakers | | | | | | | | | 1 |
| Blindness | | | | | | | | | 1 |
| Doomsday | | | | | | | | | 2 |
| The Happening | | | | | | | | | 0 |
| Quarantine | | | | | | | | | 1 |
| 28 Weeks Later | | | | | | | | | 1 |
| I Am Legend | | | | | | | | | 0 |
| The Invasion | | | | | | | | | 1 |
| Resident Evil: Extinction | | | | | | | | | 1 |
| The Painted Veil | | | | | | | | | 0 |
| Pulse | | | | | | | | | 1 |
| Sahara | | | | | | | | | 0 |
| Resident Evil: Apocalypse | | | | | | | | | 1 |
| 28 Days Later | | | | | | | | | 1 |
| Cabin Fever | | | | | | | | | 2 |
| Resident Evil | | | | | | | | | 1 |
| Mimic | | | | | | | | | 0 |
| 12 Monkeys | | | | | | | | | 0 |
| Outbreak | | | | | | | | | 2 |
| Total | 1 | 1 | 3 | 3 | 2 | 4 | 5 | 4 | 18 |
COVID-19 pandemic, distrustful of social institutions, and Americans being unconvinced as to the seriousness of the virus escape from a scientific lab? This was the case in 12 Monkeys and 28 Days Later. Is the virus an artificially engineered biological weapon? It was in The Crazies. Is it the consequence of environmental imbalance caused by genetically modified crops? The humans in the Planet of the Apes series know something of an experiment gone wrong. Was the pandemic a plot by Big Pharma to create a lucrative market for its products? Such an opportunity was exploited in Daybreakers. Are some countries hiding the spread of disease to manipulate public opinion? Military officers intended to do just that in Outbreak. Are mask mandates and social distancing worthwhile? In Hollywood, no one seems to think so.

There is plenty of evidence, however, that people living through a pandemic must be prepared to fight. Record-breaking firearm purchases in 2020 are consistent with this messaging (Brauer 2020; Schleimer et al. 2021), with 71 percent of respondents reporting that they bought firearms to protect themselves from other people (Lyons et al. 2021). Meanwhile, gun violence rates rose 30 percent over 2019 (Ssentongo et al. 2021).

In conclusion, the lessons of the last 25 years of epidemic-themed films have shaped public culture. If one were to argue that the coronavirus was a hoax, that it was real but not widespread in the United States, or that it was no more dangerous than the flu, these films make these claims seem reasonable. If authority figures said otherwise, these films suggest it would be unwise to believe them. For people who are skeptical about the value of PPE and hygienic practices, Hollywood has little to offer to convince them otherwise. In other words, the last 25 years of outbreak narratives are public cultural artifacts that may have contributed to individual Americans being unconvinced as to the seriousness of the COVID-19 pandemic, distrustful of social institutions, and defiant in the face of public health recommendations.

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