

# Psychological Trauma: Theory, Research, Practice, and Policy

## **Viruisms: The Need for a New Term Describing COVID-19 Impact in Context of Viral Victimization**

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## COMMENTARY

Viruism: The Need for a New Term Describing COVID-19 Impact in  
Context of Viral VictimizationKeren Cohen-Louck<sup>1</sup> and Inna Levy<sup>1,2</sup><sup>1</sup> Department of Criminology, Ariel University<sup>2</sup> Department of Interdisciplinary Studies, Zefat Academic College

**Objective:** COVID-19 is the current viral pandemic. Its consequences are multifaceted and refer to individual and public physical, mental, and economic states. Therefore, viral outbreaks raise many fears and concerns, both among policymakers and individuals. In light of these fears, we explore the central aspects of viral victimization, compared to another significant threat of this century: terrorism. **Analysis:** There are many similarities between terrorism and the current pandemic which manifest within the physical, economic, social, and psychological aspects of victimization. To address the multidimensional nature of the pandemic's impact we coined the term *viruism*. Though terrorism and viruism are not the deadliest of threats, they evoke high levels of fear and cause enormous financial, social, and psychological effects. **Conclusion:** We recommend exploring the psychosocial mechanisms that account for public reaction to viruism. Identifying such mechanisms will contribute to developing more effective practices in managing the fear of viruism and in decreasing its emotional toll.

**Clinical Impact Statement**

Viruism is a new term that represents pandemic related victimization. The article presents viruism by comparing it to terrorism. Viruism, similar to terrorism, includes physical, economic, social, and psychological aspects. Although both phenomena manifest severe physical consequences, these consequences are more limited than those of other much more "effective killers" as smoking, obesity, or air pollution. The comparison indicates that in the case of terrorism and viruism there is a gap between the objective risk and subjective fears. Effective coping mechanisms dealing with the fear of viruism should be a significant aspect in research on and response to future pandemics.

**Keywords:** COVID-19, pandemic, victimization, terrorism, viruism

Since December 2019, the global community as a whole and every country individually have been preoccupied with the ramifications of the COVID-19 pandemic. The current COVID-19 pandemic was caused by a new viral strain of the corona family of viruses (Gorbalenya et al., 2020), but pandemics are a reoccurring phenomenon in human history (e.g., Moghadami, 2017). The term "pandemic" refers to such aspects of viral diseases as explosiveness, transmissibility, and the infection severity (Morens et al., 2009). However, the effects of pandemics are not limited to their physical consequences (e.g., Bloom et al., 2005; Brooks et al.,

2020; Kumar et al., 2015; Page et al., 2012; Qiu et al., 2020; Reardon, 2015; Wang et al., 2020). Therefore, there is a need for a new term that will address the multidimensional nature of viral pandemic victimization. We suggest calling this term *viruism* and to define it as an array of "physical, economic, social, and psychological effects caused by viral pandemics."

Furthermore, considering that viruism (Mnookin, 2011; Ren et al., 2020; Shwartz Altshuler, 2020) is related to high levels of public fears, we propose to compare viruism to terrorism, that before the COVID-19 outbreak dominated the academic and public discussion on fears and threats (Nellis & Savage, 2012; Pain, 2009). On the surface, these are two different threats. Terrorism is considered as a geopolitical threat (Pain, 2009), while viruism is a health threat. Terror and terrorism are mostly associated with man-made, politically motivated violence against noncombatants, with an aim to create a general state of fear (Ruby, 2002). Contrary to terrorist acts (Fullerton et al., 2003), viruism is not caused by people, and there are no political causes and gains behind viral outbreaks. In spite of these differences, there are similarities be-

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tween the two concepts. The effects of terrorism and viruism represent the fundamental aspects of victimization, including physical and mental injury, emotional suffering, economic loss, and substantial impairments of fundamental rights (General Assembly Resolution 40/34; United Nations, 1985). Furthermore, in both cases of terrorism and viruism, the ramifications are not necessarily the direct results of these phenomena, but the byproduct of the fears they evoke in the general public. By discussing the multidimensional nature of viruism and comparing it to terrorism, we can provide practitioners and policymakers a broader, more complex perspective on the current viral outbreak and facilitate more effective coping mechanisms.

**Terrorism Versus Viruism: Central Aspects**

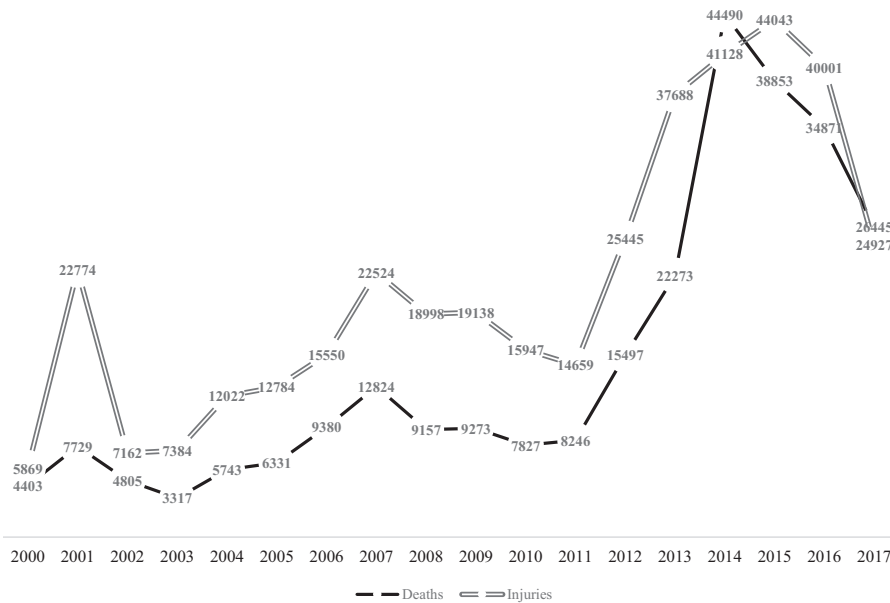
One of the inherent aspects of terrorism is severe physical injuries and fatalities to the direct victims of terrorist attacks. The September 11, 2001 attacks that resulted in 2,996 fatalities (National Consortium for the Study of Terrorism and Responses to Terrorism, 2012) were the most deadly attacks on United States soil in the 21st century (Ritchie et al., 2020). However, except for 2001, the annual death rate caused by terrorism in the United States is less than 0.01% (Ritchie et al., 2020). The global number of terrorist caused deaths and injuries varies from year to year (Figure 1), but on average, 15,081 people die and 21,557 are annually injured due to terrorist attacks (based on Global Terrorism Database [GTD], 2018). Overall, the direct victimization due to terrorism, both globally and regionally, is relatively rare, and terrorism is not the most deadly risk (Ritchie et al., 2020). For instance, in 2017, 26,445 people died worldwide due to terrorism (GTD, 2018). In the same year, roughly 10.44 million died from high blood pressure, 7 million from smoking, 6.53 million from high blood sugar, and 4.9 million from air pollution, worldwide

(Global Burden of Disease Collaborative Network, 2017; Our World in Data, 2017). On the national level, some countries such as Israel, experience chronic terrorism (Cohen-Louck & Levy, 2020). However, in most countries, the frequency of terrorist attacks is relatively low and characterized by inconsistency. There can be many years without any terrorist attack, and then suddenly, there is an unexpected rise (Ritchie et al., 2020).

Similar to terrorism, viruism is not a constant factor in our lives, tending to appear from time to time. Although coronavirus (COVID-19) is the current case of viruism, since the beginning of the 21st century, the world has experienced several major viral outbreaks (for a review, see Moghadami, 2017), including avian influenza (avian flu) and SARS in 2003 (H5N1 virus; Bloom et al., 2005), swine flu in 2009 (A/H1N1 influenza virus; Rubin et al., 2009), and the 2013–2016 Ebola outbreak (Richardson et al., 2016). The comparison (Table 1) between these pandemics and the regular seasonal flu allows us to identify the relative gravity of these viruses. There are different aspects of gravity or dangerousness. For example, Ebola has the highest mortality rates among the infected, whereas, until recently, the typical seasonal flu had the highest number of infected. Though the mortality rates due to seasonal flu are much lower than those of Ebola, the high infection rate leads to a higher number of deaths, as high as those of the swine flu (Belongia et al., 2010; Simonsen et al., 2013).

In comparison to these recent past pandemics, the current COVID-19 outbreak has the highest number of confirmed cases (see Table 1). Within roughly 10 months, the number of confirmed cases is already higher than the high estimations for the seasonal flu. According to Ferguson et al. (2020), COVID-19 represents the most significant respiratory threat since the 1918 Spanish flu. However, the COVID-19 outbreak is not over yet, and we do not know how many more people will be infected and how many more

**Figure 1**  
*The global number of annual deaths and injuries due to terrorism between 2000-2017, based on the Global Terrorism Database (GTD, 2018)*



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**Table 1**  
*Comparison Between COVID-19 and a Partial List of Viral Pandemics by the Number of Confirmed Cases and Deaths, Mortality Rates, and an Extent of the Global Spread*

Type of viral outbreak	Year(s)	Confirmed cases <sup>a</sup>	No. of deaths	Mortality rates (%)	No. of countries (with widespread transmission or affected)
COVID-19 (Coronavirus Research Center, 2020) <sup>b</sup>	12.2019–9.2020	28,174,590	909,679	3.22 <sup>c</sup>	188
Seasonal influenza (World Health Organization [WHO], 2018)	Annual	3–5 million	290,000–650,000	9.7–13	All
Swine flu (Centers for Disease Control and Prevention [CDC], 2019b) <sup>d</sup>	2009–2010	43.3–89.3 million	151,700–575,400	0.0002	214
Ebola (CDC, 2019a)	2013–2016	15,261	11,325	74.2	10
SARS 2003 (WHO, 2004)	2002–2004	8096	774	9.6	30
Avian influenza (WHO, 2020)	2003–2020	861	454	52.7	17

<sup>a</sup> The number of confirmed cases depends on the detection and test method. In some cases (e.g., swine flu) some countries started treating people without testing. Therefore, the data in this table represent estimations based on the tests performed and reported, and not exact numbers. <sup>b</sup> The COVID-19 outbreak is still not over and the data shown is updated to September 11, 2020. <sup>c</sup> COVID-19 mortality rates were calculated by the authors by dividing the *N* of COVID-19 deaths by *N* of confirmed cases. <sup>d</sup> The numbers represent the estimations on Swine flu outbreak in the United States. Worldwide, according to WHO (2010) the confirmed number of deaths is 18,500.

will die. For now, the mortality rate due to COVID-19 is lower than seasonal flu mortality rates. Moreover, the current COVID-19 death toll is much lower than the death toll of the other aforementioned life-threatening risks: high blood pressure, smoking, blood sugar, and air pollution. Thus, it is not clear how dangerous this pandemic is in relative terms.

Another salient aspect of terrorism and viruism is the negative effect on the economy. According to the Institute for Economics and Peace (IEP, 2017) analysis, terrorism has a significant impact on the global economy. The financial ramifications of terrorism include direct and indirect costs of death and injuries, property destruction (IEP, 2017), changes in consumption behavior (e.g., Herzenstein et al., 2015), and reductions in airline demands (e.g., Corbet et al., 2019) and tourism (e.g., Bassil et al., 2019; Samitas et al., 2018). The IEP estimates that the direct costs of the September 11 attacks in 2001 to the United States economy were USD 65 billion, whereas the indirect costs were up to 190 billion dollars (IEP, 2017). The subsequent antiterrorist United States initiatives were more costly than the direct damages caused by the attack (Rose & Blomberg, 2010). As for the global economy, the estimated annual average cost of terrorism is USD 42.53 billion (ranging from 9 to 104 billion), which accumulated during 2000–2016 to up to 724 billion dollars (IEP, 2017). Studies that focused on specific countries also indicate that terrorism significantly impacts the economy. Thus, terrorism decreased the economic growth in the Basque region of Spain in the late 1960s (Abadie & Gardeazabal, 2003) and Pakistan between 1981 and 2012 (Hyder et al., 2015). Studies on the terrorism-economy nexus in Israel (Eckstein & Tsiddon, 2004) and Turkey (Bilgel & Karahasan, 2019) indicate that if these countries had not been exposed to chronic terrorism, their economies would have been in much better shape: 10% higher per capita income in Israel and 21.4% higher per capita GDP in Turkey. Another adverse effect of terrorism on the economy refers to a decline in aviation demands and tourism. The Corbet et al. (2019) study indicates that European terrorism caused a significant decline in air traffic flow despite substantial fare reductions. The negative impact of terrorism on tourism is evident both for the short term and for the long term (Samitas et al., 2018). However, it is not the severity, but the frequency and chronic occurrences of terrorism that cause a more substantial decline in international tourism (Pizam & Fleischer, 2002).

Viruism also has direct and indirect financial consequences. For example, in India, the swine flu outbreak created an economic slowdown due to a decreased workforce, decreased supply and demand, and loss of working days due to isolation (Kumar et al., 2015). The economic consequences of viruism appear to be high even when a pandemic has a relatively small health impact (e.g., SARS in 2003; Bloom et al., 2005). According to the Asian Development Bank estimation, the SARS outbreak’s economic aftermath in East Asia was around USD 18 billion, 0.6% of the GDP (Fan, 2003). An analysis of the economic impact of 15 major pandemics in Europe between 1347 and 2009 show that pandemics have a prolonged negative effect on the economy. They further suggest that the precautionary saving or rebuilding of depleted wealth following pandemics cause a depression in investment opportunities for many decades (Jordà et al., 2020). Furthermore, recent research on COVID-19 estimates that quarantines generate high levels of unemployment, enhance inflation, and reduce purchasing power, thus leading to the expansion of poverty (Estrada,

2020). Finally, similar to terrorism (Bassil et al., 2019; Samitas et al., 2018), some of the long-term economic effects of viruism, are associated with damage to the tourism industry. Thus, even when the short-term costs of a pandemic are relatively low, the long-term effects include a reduction in travel volume leading to possible long-term negative effects on the economy (Economic Outlook, 2009). For example, Page et al. (2012) estimated that the impact of the swine flu pandemic in 2008–2009 on the United Kingdom accounted for a loss of 1.6 million visitors and 20% reduction in total direct revenue from tourism.

The physical and financial aspects of terrorism and viruism are interrelated with social and emotional damages. Research indicates that terrorism affects not just the direct victims and their families, but also society as a whole (Canetti et al., 2013). Terrorist acts create fear, anxiety, personal lack of security, uncertainty, and helplessness (Romanov et al., 2012; Wolf & Frankel, 2007), and interfere with normal daily life routines and disrupt the social fabric of life (Ganor, 2004; Zemishlany, 2012). Even citizens who are not directly exposed to the attacks report a sense of danger and display a wide range of symptoms associated with stress and trauma such as depression, anxiety, posttraumatic stress disorder (PTSD), and general dysfunction (Bensimon et al., 2013; Chipman et al., 2011; Gidron et al., 2004; Somer et al., 2009).

Additionally, in times of terror, people tend to reduce recreational activities. They avoid crowded places such as malls, coffee shops and busses, and other potential terror targets (Cohen-Louck & Saka, 2017; Herzenstein et al., 2015; Lee & Lemyre, 2009). People also tend to avoid all consumer settings that may be a target for terrorists (Herzenstein et al., 2015). This avoidance is mostly by choice. However, there are also cases of government-issued shutdowns, such as in times of incessant missile attacks on Israeli towns near the southern border with Gaza, the Israeli government issues shutdowns to prevent casualties. These temporary shutdowns included kindergartens and schools (“Palestinian Rocket Attacks on Israel,” 2017). Furthermore, people hardly went out to the streets, malls, and shops (Herzenstein et al., 2015).

In a similar vein, viruism harms not only the infected and sick, but also disrupts the public’s routine, and paralyzes society. Those who experienced a life-threatening course of the disease during the COVID-19 and Ebola outbreaks or have experienced the loss of loved ones suffer from anxiety, traumatic memories (Reardon, 2015), depressive symptoms, stress symptoms (Sun et al., 2020; Wang et al., 2020), and panic disorder (Qiu et al., 2020). The indirect victims, which are the majority of the population, suffer from similar symptoms as well. In addition, during previous virus outbreaks, such as SARS, Ebola, and swine flu, people found themselves in social isolation and quarantine (Brooks et al., 2020; Hawryluck et al., 2004; Qiu et al., 2020; Wang et al., 2020). Currently, as a result of the absence of medication and vaccines against COVID-19, the most effective protective measure is social distancing. Therefore, in the past few months since the outbreak, many people are adhering to social distancing, self-isolation, and follow the governments’ quarantine instructions (Qiu et al., 2020). Although the scope of restrictions varies by country, and in their severity and swiftness (Lee et al., 2020; Watkins, 2020), the majority of the world population has been or remains quarantined for lengthy periods (Kaplan et al., 2020). People were not allowed to leave their homes even to go to work, and kindergartens and schools, public parks, restaurants, and shopping malls were shut

down for several months. In some countries, the lockdown continued for a few months (Day, 2020). These isolation and quarantine measures are not by choice of individuals or groups, such as after a terrorist attack, but these restrictions are part of government orders and noncompliance could lead to punishments and fines.

The implementation of unprecedented strict quarantine measures affect many aspects of people’s lives (Qiu et al., 2020). The possible emotional aftermath of these strict quarantine measures may manifest in significant psychological maladies since research indicates that the length of quarantine is associated with an increased prevalence of PTSD and depressive symptoms (Hawryluck et al., 2004). In addition to the adverse psychological effects of social distancing and quarantine, viruism raises fears about contracting the disease (Mnookin, 2011), while the quarantines cause financial losses and, in some businesses, financial ruin. The combined effects of social distancing, quarantine and fears increase stress and enhance levels of PTSD, depression, and suicidal tendencies (Barbisch et al., 2015; Braunack-Mayer et al., 2013; Brooks et al., 2020; Galea et al., 2008; Goodwin et al., 2011; Hawryluck et al., 2004; Wong & Sam, 2011). Finally, some of the COVID-19 quarantine measures represent a restriction of liberties and an invasion of privacy (Amat et al., 2020). For example, to ensure that infected individuals adhere to the isolation, the Israeli government mobilized Israeli intelligence agencies to use antiterrorism phone-tracking technology to map infections and surveil infected citizens (Lieber, 2020). These measures were criticized for their antidemocratic essences (Shwartz Altshuler, 2020) but did not cause a significant social protest. Thus, it seems that similar to terrorism (Amat et al., 2020; Gross, 2004; Viscusi & Zeckhauser, 2003), viruism threatens the balance between protection of human rights and the protection of security and public health.

### **Viruism, Terrorism, and Fear**

It seems that the current COVID-19 outbreak will not be the last case of viral victimization or viruism, as we suggest to call it. The history of pandemics indicates (Jordà et al., 2020) that the question is not “whether” there will be another outbreak of a deadly virus, but “when?” Thus, like terrorist attacks, a known or unknown virus will appear unexpectedly and cause a spike in the infected, sick, and dead. In absolute terms, the physical harms and damages of terrorism and viruism are severe, and every life is precious. In relative terms, terrorism is not the most deadly threat (Ritchie et al., 2020), yet it is considered a major geopolitical threat (Pain, 2009). The gap between the objective risk and subjective fears has created considerable amount of research on fear of terrorism (Pain, 2009). We suggest that a similar gap exists regarding fear of viruism. In fear of viruism, the risk perception may vary depending on the criteria one uses to assess the threat: number of confirmed cases, number of deaths, mortality rates, and availability of medicine and existence of a vaccine. Thus, the choice to focus on number of deaths due to COVID-19 labels this virus as one the deadliest viruses of this century, while the focus on mortality rates suggests that it is less dangerous than a seasonal flu. Though each criterion is based on facts, the choice of a specific criterion seems to be subjective.

It is possible that the complexity of estimating the risk and dangerousness of different cases of viruism and the conflicting data regarding various risk criteria, creates such a confusion about

COVID-19 and disagreements about the appropriate actions and policies. Be that as it may, this complexity warrants the exploration of psychosocial mechanism associated with fear of viruism. Such mechanism may explain why viruism is considered as more dreadful than other much deadlier “killers” such as smoking, obesity, and seasonal influenza (Global Burden of Disease Collaborative Network, 2017). This research avenue is significant both from the global and individual perspectives. From a global perspective, it is essential to understand why governments invest less in developing solutions for the factors that cause many more deaths than viruism. From the individual point of view, by identifying the inner workings of the mechanisms that trigger public fears of viruism, we will be able to assist practitioners and policymakers in developing more effective measures to manage these fears and thus reduce the emotional toll.

Prior research on public and individual fears indicates that there are several factors that contribute to the public’s worries about viruism. Thus, the perception of fear depends not only on the seriousness of victimization, but also on the people’s perceived ability to control whether they will be victimized (Jackson, 2011). The very limited ability to prevent COVID-19 spread and infection may have contributed to the high levels of fear it evoked. Another fear-inducing element is the arbitrariness of victimization (Kumar & Mandal, 2015). Although viruses cause more deaths in specific groups (e.g., elderly; Sun et al., 2020), it may be that people perceive the general chance of infection as random. Thus, contrary to smoking and obesity, which endanger specific identifiable groups, terrorist acts (Kumar & Mandal, 2015) and viruses are associated with random and indiscriminate harm. Additionally, it is possible that chronic threats that are considered an integral part of life cause less concern and fear than unexpected threats (Mobbs et al., 2015) such as terrorism and viruism. Chronic threats are more predictable and, therefore, relatively more controllable (Cohen-Louck & Levy, 2020).

Furthermore, terrorism and viruism are not just “out-of-the-ordinary” life-threatening events, but contrary to other possible nonordinary threats, both terrorism and viruism get a lot of media attention (Horesh & Brown, 2020; Jetter, 2017; Tang et al., 2018). The media attention enhances public fears, creates panic, and causes governments to use extraordinary measures (Horesh & Brown, 2020). The possible media overreaction may cause a spiral effect on public perceptions of risks. We wonder what would have happened and how governments and the public would react if all news programs and media outlets would report the number of sick and dead due to such health risks as smoking or typical seasonal flu with the same veracity as they report the number of infected, sick, and dead due to COVID-19. Moreover, though media is an essential source of information for the public, studies show that there is a positive association between disaster media consumption and PTSD, depression, stress, anger, and acute grief reactions (Pfefferbaum et al., 2014; Wormwood et al., 2019). In light of the media’s role in broadcasting acute stress following terrorist attacks (Holman et al., 2014), media outlets should consider their role in increasing public fears during viral outbreaks. Instead of increased coverage of pandemics, media outlets may consider limited coverage. Alternatively, citizens should be advised to reduce their news consumption. Finally, in light of the reciprocity between media coverage, government actions, and public fears, future studies should consider exploring the discourse on COVID-19 and

other viruses within the “moral panic” framework (Goode & Ben-Yehuda, 1994; Pain, 2009).

## Conclusion

In conclusion, the term viruism enables us to see COVID-19 as part of a bigger picture and within the existing knowledge of prior pandemics. Also, this new term addresses the multidimensional effects of COVID-19 and other viruses. Viruism is not just a health threat. Similar to terrorism, viruism endangers economic stability, mental health, and civil rights. The comparison to terrorism underlines the possible significance of subjective factors in understanding and managing responses to viruism. The final toll of COVID-19 is unclear yet. We do not know enough about COVID-19 in terms of its medical impact and the best ways to treat it, nor do we currently have a vaccine to prevent it. Therefore, it is hard to identify how much of or whether the fears (Hoh Teck Ling & Mee Chyong Ho, 2020) in the current case of viruism can be framed as overreaction or fear-based responses (Shultz et al., 2016). We propose that effective coping mechanisms dealing with the fear of viruism should be a significant aspect in research on and response to future pandemics (Bavel et al., 2020). Although fear helps us to identify dangers, it also may have a negative impact on judgments, behaviors (Hoh Teck Ling & Mee Chyong Ho, 2020; Shultz et al., 2016), and individual and public approaches in dealing with pandemics. Therefore, we suggest that in addition to the urgent research of the physical/medical aspects of COVID-19, the scientific community should also explore the subjective social and psychological aspects of viruism in general and of COVID-19 in particular. Such research directions may shed light on the factors that induce fear of viruses and differentiate between individuals who express high levels of fears and those who consider COVID-19 a hoax that poses no threat at all.

## References

- Abadie, A., & Gardeazabal, J. (2003). The Economic costs of conflict: A case study of the Basque Country. *The American Economic Review*, 93(1), 113–132. <https://doi.org/10.1257/000282803321455188>
- Amat, F., Arenas, A., Falcó-Gimeno, A., & Muñoz, J. (2020). Pandemics meet democracy. Experimental evidence from the COVID-19 crisis in Spain [Preprint]. *SocArXiv*. Advance online publication. <https://doi.org/10.31235/osf.io/dkusw>
- Barbisch, D., Koenig, K. L., & Shih, F.-Y. (2015). Is there a case for quarantine? Perspectives from SARS to Ebola. *Disaster Medicine and Public Health Preparedness*, 9(5), 547–553. <https://doi.org/10.1017/dmp.2015.38>
- Bassil, C., Saleh, A. S., & Anwar, S. (2019). Terrorism and tourism demand: A case study of Lebanon, Turkey and Israel. *Current Issues in Tourism*, 22(1), 50–70. <https://doi.org/10.1080/13683500.2017.1397609>
- Bavel, J. J. V., Baicker, K., Boggio, P. S., Capraro, V., Cichocka, A., Cikara, M., Crockett, M. J., Crum, A. J., Douglas, K. M., Druckman, J. N., Drury, J., Dube, O., Ellemers, N., Finkel, E. J., Fowler, J. H., Gelfand, M., Han, S., Haslam, S. A., Jetten, J., . . . Willer, R. (2020). Using social and behavioural science to support COVID-19 pandemic response. *Nature Human Behaviour*. Advance online publication. <https://doi.org/10.1038/s41562-020-0884-z>
- Belongia, E. A., Irving, S. A., Waring, S. C., Coleman, L. A., Meece, J. K., Vandermause, M., Lindstrom, S., Kempf, D., & Shay, D. K. (2010). Clinical characteristics and 30-day outcomes for influenza a 2009 (H1N1), 2008–2009 (H1N1), and 2007–2008 (H3N2) infections. *Jour-*

- nal of the American Medical Association*, 304(10), 1091–1098. <https://doi.org/10.1001/jama.2010.1277>
- Bensimon, M., Levine, S. Z., Zerach, G., Stein, E., Svetlicky, V., & Solomon, Z. (2013). Elaboration on posttraumatic stress disorder diagnostic criteria: A factor analytic study of PTSD exposure to war or terror. *Israel Journal of Psychiatry and Related Sciences*, 50(2), 84–90.
- Bilgel, F., & Karahasan, B. C. (2019). Thirty years of conflict and economic growth in Turkey: A synthetic control approach. *Defence and Peace Economics*, 30(5), 609–631. <https://doi.org/10.1080/10242694.2017.1389582>
- Bloom, E., De Wit, V., & Carangal-San Jose, M. J. (2005). *Potential economic impact of an avian flu pandemic on Asia* (Asian Development Bank, No. 42). Retrieved from <https://www.think-asia.org/bitstream/handle/11540/2165/pb042.pdf?sequence=1>
- Braunack-Mayer, A., Tooher, R., Collins, J. E., Street, J. M., & Marshall, H. (2013). Understanding the school community's response to school closures during the H1N1 2009 influenza pandemic. *BMC Public Health*, 13(1), 344. <https://doi.org/10.1186/1471-2458-13-344>
- Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. J. (2020). The psychological impact of quarantine and how to reduce it: Rapid review of the evidence. *The Lancet*, 395(10227), 912–920. [https://doi.org/10.1016/S0140-6736\(20\)30460-8](https://doi.org/10.1016/S0140-6736(20)30460-8)
- Canetti, D., Hall, B. J., Rapaport, C., & Wayne, C. (2013). Exposure to political violence and political extremism: A stress-based process. *European Psychologist*, 18(4), 263–272. <https://doi.org/10.1027/1016-9040/a000158>
- Centers for Disease Control and Prevention. (2019a, March 8). *2014–2016 Ebola outbreak in West Africa*. Retrieved from <https://www.cdc.gov/vhf/ebola/history/2014-2016-outbreak/index.html>
- Centers for Disease Control and Prevention. (2019b, June 11). *2009 H1N1 pandemic (H1N1pdm09 virus)*. Retrieved from <https://www.cdc.gov/flu/pandemic-resources/2009-h1n1-pandemic.html>
- Chipman, K. J., Palmieri, P. A., Canetti, D., Johnson, R. J., & Hobfoll, S. E. (2011). Predictors of posttraumatic stress-related impairment in victims of terrorism and ongoing conflict in Israel. *Anxiety, Stress & Coping: An International Journal*, 24(3), 255–271. <https://doi.org/10.1080/10615806.2010.515304>
- Cohen-Louck, K., & Levy, I. (2020). Risk perception of a chronic threat of terrorism: Differences based on coping types, gender and exposure. *International Journal of Psychology*, 55(1), 115–122. <https://doi.org/10.1002/ijop.12552>
- Cohen-Louck, K., & Saka, Y. (2017). Patterns in response to chronic terrorism threats: A construct of emotional, cognitive, and behavioral responses among Israeli citizens. *Stress and Health: Journal of the International Society for the Investigation of Stress*, 33(4), 448–458. <https://doi.org/10.1002/smi.2728>
- Corbet, S., O'Connell, J. F., Efthymiou, M., Guiomard, C., & Lucey, B. (2019). The impact of terrorism on European tourism. *Annals of Tourism Research*, 75, 1–17. <https://doi.org/10.1016/j.annals.2018.12.012>
- Coronavirus Research Center. (2020, August 12). *COVID-19 Dashboard by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University (JHU)*. Retrieved from <https://coronavirus.jhu.edu/map.html>
- Day, M. (2020). Covid-19: Surge in cases in Italy and South Korea makes pandemic look more likely. *British Medical Journal (Clinical Research Ed.)*, 368, m751. <https://doi.org/10.1136/bmj.m751>
- Eckstein, Z., & Tsiddon, D. (2004). Macroeconomic consequences of terror: Theory and the case of Israel. *Journal of Monetary Economics*, 51(5), 971–1002. <https://doi.org/10.1016/j.jmoneco.2004.05.001>
- Economic Outlook. (2009). Will swine flu push the world into deflation? *Economic Outlook*, 33(3), 13–17. <https://doi.org/10.1111/j.1468-0319.2009.00726.x>
- Estrada, M. A. R. (2020). *How COVID-19 quarantine(s) can generate poverty?* Retrieved from <https://doi.org/10.13140/RG.2.2.31546.54729/2>
- Fan, E. (2003). *SARS: Economic impact and implications* (ERD Policy Brief No. 15). Asian Development Bank.
- Ferguson, N., Laydon, D., Nedjati Gilani, G., Imai, N., Ainslie, K., Baguelin, M., Bhatia, S., Boonyasiri, A., Cucunuba Perez, Z., Cuomo-Dannenburg, G., Dighe, A., Dorigatti, I., Fu, H., Gaythorpe, K., Green, W., Hamlet, A., Hinsley, W., Okell, L., Van Elsland, S., . . . Ghani, A. (2020). *Report 9: Impact of non-pharmaceutical interventions (NPIs) to reduce COVID19 mortality and healthcare demand*. Imperial College London. Retrieved from <https://doi.org/10.25561/77482>
- Fullerton, C. S., Ursano, R. J., Norwood, A. E., & Holloway, H. H. (2003). Trauma, terrorism, and disaster. In R. J. Ursano, C. S. Fullerton, & A. E. Norwood (Eds.), *Terrorism and disaster: Individual and community mental health interventions* (pp. 1–20). Cambridge University Press.
- Galea, S., Tracy, M., Norris, F., & Coffey, S. F. (2008). Financial and social circumstances and the incidence and course of PTSD in Mississippi during the first two years after Hurricane Katrina. *Journal of Traumatic Stress*, 21(4), 357–368. <https://doi.org/10.1002/jts.20355>
- Ganor, B. (2004). Terrorism as a strategy of psychological warfare. *Journal of Aggression, Maltreatment & Trauma*, 9(1–2), 33–43. [https://doi.org/10.1300/J146v09n01\\_03](https://doi.org/10.1300/J146v09n01_03)
- Gidron, Y., Kaplan, Y., Velt, A., & Shalem, R. (2004). Prevalence and moderators of terror-related post-traumatic stress disorder symptoms in Israeli citizens. *The Israel Medical Association Journal*, 6(7), 387–391.
- Global Burden of Disease Collaborative Network. (2017). *Global burden of disease study 2017*. Retrieved from <http://ghdx.healthdata.org/gbd-results-tool>
- Global Terrorism Database. (2018). *Global Terrorism Database*. Retrieved from <https://www.start.umd.edu/gtd/>
- Goode, E., & Ben-Yehuda, N. (1994). Moral panics: Culture, politics, and social construction. *Annual Review of Sociology*, 20(1), 149–171. <https://doi.org/10.1146/annurev.so.20.080194.001053>
- Goodwin, R., Gaines, S. O., Jr., Myers, L., & Neto, F. (2011). Initial psychological responses to swine flu. *International Journal of Behavioral Medicine*, 18(2), 88–92. <https://doi.org/10.1007/s12529-010-9083-z>
- Gorbalenya, A. E., Baker, S. C., Baric, R. S., de Groot, R. J., Drosten, C., Gulyaeva, A. A., Haagmans, C., Lauber, A., Leontovich, B. W., Neuman, D., Penzar, S., Perlman, L. L. M., Poon, D., Samborskiy, I. A., Sidorov, I. S., & Ziebuhr, J. (2020). Severe acute respiratory syndrome-related coronavirus: The species and its viruses—A statement of the Coronavirus Study Group. *Microbiology*. Advance online publication. <https://doi.org/10.1101/2020.02.07.937862>
- Gross, E. (2004). The struggle of a democracy against terrorism—Protection of human rights: The right to privacy versus the national interest—The proper balance. *Cornell International Law Journal*, 37(1), 28–88.
- Hawryluck, L., Gold, W. L., Robinson, S., Pogorski, S., Galea, S., & Styra, R. (2004). SARS control and psychological effects of quarantine, Toronto, Canada. *Emerging Infectious Diseases*, 10(7), 1206–1212. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3323345/pdf/03-0703.pdf>
- Herzenstein, M., Horsky, S., & Posavac, S. S. (2015). Living with terrorism or withdrawing in terror: Perceived control and consumer avoidance. *Journal of Consumer Behaviour*, 14(4), 228–236. <https://doi.org/10.1002/cb.1511>
- Hoh Teck Ling, G., & Mee Chyong Ho, C. (2020). Effects of the coronavirus (COVID-19) pandemic on social behaviours: From a social dilemma perspective. *Technium Social Science Journal*, 7(1), 312–320.
- Holman, E. A., Garfin, D. R., & Silver, R. C. (2014). Media's role in broadcasting acute stress following the Boston Marathon bombings. *PNAS Proceedings of the National Academy of Sciences of the United*

- States of America*, 111(1), 93–98. <https://doi.org/10.1073/pnas.1316265110>
- Horesh, D., & Brown, A. D. (2020). Traumatic stress in the age of COVID-19: A call to close critical gaps and adapt to new realities. *Psychological Trauma: Theory, Research, Practice, and Policy*, 12(4), 331–335. <https://doi.org/10.1037/tra0000592>
- Hyder, S., Akram, N., & Padda, I. U. H. (2015). Impact of terrorism on economic development in Pakistan. *Pakistan Business Review*, 839(1), 704–722.
- Institute For Economics and Peace. (2017). *Global terrorism index: Measuring and understanding impact of terrorism*. Retrieved from <http://visionofhumanity.org/app/uploads/2017/11/Global-Terrorism-Index-2017.pdf>
- Jackson, J. (2011). Revisiting risk sensitivity in the fear of crime. *Journal of Research in Crime and Delinquency*, 48(4), 513–537. <https://doi.org/10.1177/0022427810395146>
- Jetter, M. (2017). The effect of media attention on terrorism. *Journal of Public Economics*, 153, 32–48. <https://doi.org/10.1016/j.jpubeco.2017.07.008>
- Jordà, Ò., Singh, S. R., & Davis Taylor, A. M. (2020). *Longer-run economic consequences of pandemics (Federal Reserve Bank of San Francisco, Working Paper Series, No. 01–16)*. Retrieved from <https://doi.org/10.24148/wp2020-09>
- Kaplan, J., Frias, L., & McFall-Johnsen, M. (2020, April 29). A third of the global population is on coronavirus lockdown—Here’s our constantly updated list of countries locking down and opening up. *Business Insider*. Retrieved from <https://www.businessinsider.com/countries-on-lockdown-coronavirus-italy-2020-3>
- Kumar, P., Sachan, A., Kakar, A., & Gogia, A. (2015). Socioeconomic impact of the recent outbreak of H1N1. *Current Medicine Research & Practice*, 5(4), 163–167. <https://doi.org/10.1016/j.cmrp.2015.06.007>
- Kumar, U., & Mandal, M. K. (2015). *Understanding suicide terrorism: Psychosocial dynamics*. Sage.
- Lee, J. E. C., & Lemyre, L. (2009). A Social-Cognitive Perspective of Terrorism Risk Perception and Individual Response in Canada. *Risk Analysis*, 29(9), 1265–1280. <https://doi.org/10.1111/j.1539-6924.2009.01264.x>
- Lee, V. J., Chiew, C. J., & Khong, W. X. (2020). Interrupting transmission of COVID-19: Lessons from containment efforts in Singapore. *Journal of Travel Medicine*, 27(3), 1–5. <https://doi.org/10.1093/jtm/taaa039>
- Lieber, D. (2020, March 20). *Israel turns to its spy agencies to combat coronavirus*. The Wall Street Journal. <https://www.wsj.com/articles/israel-turns-to-its-spy-agencies-to-combat-coronavirus-11584735025>
- Mnookin, S. (2011). *The panic virus: A true story of medicine, science, and fear* (1st ed). Simon & Schuster.
- Mobbs, D., Hagan, C. C., Dalgleish, T., Silston, B., & Prévost, C. (2015). The ecology of human fear: Survival optimization and the nervous system. *Frontiers in Neuroscience*. Advance online publication. <https://doi.org/10.3389/fnins.2015.00055>
- Moghadami, M. (2017). A narrative review of influenza: A seasonal and pandemic disease. *Iranian Journal of Medical Sciences*, 42(1), 2–13.
- Morens, D. M., Folkers, G. K., & Fauci, A. S. (2009). What is a pandemic? *The Journal of Infectious Diseases*, 200(7), 1018–1021. <https://doi.org/10.1086/644537>
- National Consortium for the Study of Terrorism and Responses to Terrorism. (2012). Integrated United States Security Database (IUSSD): Data on the terrorist attacks in the United States homeland, 1970 to 2011. Department of Homeland Security Science and Technology Center of Excellence, University of Maryland. Retrieved from [https://www.start.umd.edu/sites/default/files/files/publications/START\\_IUSSDData\\_TerroristAttacksUS\\_1970-2011.pdf](https://www.start.umd.edu/sites/default/files/files/publications/START_IUSSDData_TerroristAttacksUS_1970-2011.pdf)
- Nellis, A. M., & Savage, J. (2012). Does watching the news affect fear of terrorism? The importance of media exposure on terrorism fear. *Crime & Delinquency*, 58(5), 748–768. <https://doi.org/10.1177/0011128712452961>
- Our World in Data. (2017). *Number of deaths by risk factor*. Retrieved from <https://ourworldindata.org/grapher/number-of-deaths-by-risk-factor>
- Page, S., Song, H., & Wu, D. C. (2012). Assessing the impacts of the global economic crisis and swine flu on inbound tourism demand in the United Kingdom. *Journal of Travel Research*, 51(2), 142–153. <https://doi.org/10.1177/0047287511400754>
- Pain, R. (2009). Globalized fear? Towards an emotional geopolitics. *Progress in Human Geography*, 33(4), 466–486. <https://doi.org/10.1177/0309132508104994>
- Palestinian rocket attacks on Israel. (2017). Retrieved from [https://en.wikipedia.org/wiki/Palestinian\\_rocket\\_attacks\\_on\\_Israel](https://en.wikipedia.org/wiki/Palestinian_rocket_attacks_on_Israel)
- Pfefferbaum, B., Newman, E., Nelson, S. D., Nitiéma, P., Pfefferbaum, R. L., & Rahman, A. (2014). Disaster media coverage and psychological outcomes: Descriptive findings in the extant research. *Current Psychiatry Reports*, 16(9), 464. <https://doi.org/10.1007/s11920-014-0464-x>
- Pizam, A., & Fleischer, A. (2002). Severity versus frequency of acts of terrorism: Which has a larger impact on tourism demand? *Journal of Travel Research*, 40(3), 337–339. <https://doi.org/10.1177/0047287502040003011>
- Qiu, J., Shen, B., Zhao, M., Wang, Z., Xie, B., & Xu, Y. (2020). A nationwide survey of psychological distress among Chinese people in the COVID-19 epidemic: Implications and policy recommendations. *BMJ General Psychiatry*, 33(2), e100213. <https://doi.org/10.1136/gpsych-2020-100213>
- Reardon, S. (2015). Ebola’s mental-health wounds linger in Africa: Healthcare workers struggle to help people who have been traumatized by the epidemic. *Nature*, 519(7541), 13–14. <https://doi.org/10.1038/519013a>
- Ren, S.-Y., Gao, R.-D., & Chen, Y.-L. (2020). Fear can be more harmful than the severe acute respiratory syndrome coronavirus 2 in controlling the corona virus disease 2019 epidemic. *World Journal of Clinical Cases*, 8(4), 652–657. <https://doi.org/10.12998/wjcc.v8.i4.652>
- Richardson, E. T., Barrie, M. B., Kelly, J. D., Dibba, Y., Koedoyoma, S., & Farmer, P. E. (2016). Biosocial approaches to the 2013–2016 Ebola pandemic. *Health and Human Rights*, 18(1), 115–128.
- Ritchie, H., Hasell, J., Appel, C., & Roser, M. (2020). *Terrorism*. Retrieved from <https://ourworldindata.org/terrorism>
- Romanov, D., Zussman, A., & Zussman, N. (2012). Does terrorism demoralize? Evidence from Israel. *Economica*, 79(313), 183–198. <https://doi.org/10.1111/j.1468-0335.2010.00868.x>
- Rose, A. Z., & Blomberg, B. S. (2010). Total economic consequences of terrorist attacks: Insights from 9/11. *Peace Economics, Peace Science, and Public Policy*, 16(1), 1–12.
- Rubin, G. J., Amlot, R., Page, L., & Wessely, S. (2009). Public perceptions, anxiety, and behaviour change in relation to the swine flu outbreak: Cross sectional telephone survey. *British Medical Journal*, 339, b2651–b2651. <https://doi.org/10.1136/bmj.b2651>
- Ruby, C. L. (2002). The definition of terrorism. *Analyses of Social Issues and Public Policy (ASAP)*, 2(1), 9–14. <https://doi.org/10.1111/j.1530-2415.2002.00021.x>
- Samitas, A., Asteriou, D., Polyzos, S., & Kenourgios, D. (2018). Terrorist incidents and tourism demand: Evidence from Greece. *Tourism Management Perspectives*, 25, 23–28. <https://doi.org/10.1016/j.tmp.2017.10.005>
- Shultz, J. M., Cooper, J. L., Baingana, F., Oquendo, M. A., Espinel, Z., Althouse, B. M., Marcelin, L. H., Towers, S., Espinola, M., McCoy, C. B., Mazurik, L., Wainberg, M. L., Neria, Y., & Rechkemmer, A. (2016). The role of fear-related behaviors in the 2013–2016 West Africa Ebola virus disease outbreak. *Current Psychiatry Reports*, 18(11), 104. <https://doi.org/10.1007/s11920-016-0741-y>
- Shwartz Altshuler, T. (2020, April 24). As gov’ts use coronavirus to spy on public, is our privacy infringed? The Jerusalem Post. Retrieved from <https://www.jpost.com/jpost-tech/as-govts-use-coronavirus-to-spy-on-public-is-our-privacy-infringed-625578>



- Simonsen, L., Spreeuwenberg, P., Lustig, R., Taylor, R. J., Fleming, D. M., Kroneman, M., & Paget, W. J. (2013). Global mortality estimates for the 2009 influenza pandemic from the GLaMOR Project: A modeling study. *PLoS Medicine*, *10*(11), e1001558. <https://doi.org/10.1371/journal.pmed.1001558>
- Somer, E., Maguen, S., Or-Chen, K., & Litz, B. T. (2009). Managing terror: Differences between Jews and Arabs in Israel. *International Journal of Psychology*, *44*(2), 138–146. <https://doi.org/10.1080/00207590701609076>
- Sun, L., Sun, Z., Wu, L., Zhu, Z., Zhang, F., Shang, Z., Jia, Y., Gu, J., Zhou, Y., Wang, Y., Liu, N., & Liu, W. (2020). Prevalence and risk factors of acute posttraumatic stress symptoms during the COVID-19 outbreak in Wuhan, China. *medRxiv*. Advance online publication. <https://doi.org/10.1101/2020.03.06.20032425>
- Tang, L., Bie, B., Park, S.-E., & Zhi, D. (2018). Social media and outbreaks of emerging infectious diseases: A systematic review of literature. *American Journal of Infection Control*, *46*(9), 962–972. <https://doi.org/10.1016/j.ajic.2018.02.010>
- United Nations. (1985). *General Assembly resolution 40/34*. Declaration of Basic Principles of Justice for Victims of Crime and Abuse of Power. Retrieved from <https://www.ohchr.org/en/professionalinterest/pages/victimsofcrimeandabuseofpower.aspx>
- Viscusi, W. K., & Zeckhauser, R. J. (2003). Sacrificing civil liberties to reduce terrorism risks. *Journal of Risk and Uncertainty*, *26*(2/3), 99–120. <https://doi.org/10.1023/A:1024111622266>
- Wang, C., Pan, R., Wan, X., Tan, Y., Xu, L., Ho, C. S., & Ho, R. C. (2020). Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. *International Journal of Environmental Research and Public Health*, *17*(5), 1729. <https://doi.org/10.3390/ijerph17051729>
- Watkins, J. (2020). Preventing a covid-19 pandemic. *British Medical Journal (Clinical Research Ed.)*, *m810*, 1–2. <https://doi.org/10.1136/bmj.m810>
- World Health Organization. (2004, April 21). Summary of probable SARS cases with onset of illness from 1 November 2002 to 31 July 2003. Retrieved from [https://www.who.int/csr/sars/country/table2004\\_04\\_21/en/](https://www.who.int/csr/sars/country/table2004_04_21/en/)
- World Health Organization. (2010, August 6). *Pandemic (H1N1) 2009—Update 112*. Retrieved from [https://www.who.int/csr/don/2010\\_08\\_06/en/](https://www.who.int/csr/don/2010_08_06/en/)
- World Health Organization. (2018, November 6). *Influenza (seasonal)*. Retrieved from [https://www.who.int/news-room/fact-sheets/detail/influenza-\(seasonal\)](https://www.who.int/news-room/fact-sheets/detail/influenza-(seasonal))
- World Health Organization. (2020). *Cumulative number of confirmed human cases for avian influenza A(H5N1) reported to WHO*. Retrieved from [https://www.who.int/influenza/human\\_animal\\_interface/H5N1\\_cumulative\\_table\\_archives/en/](https://www.who.int/influenza/human_animal_interface/H5N1_cumulative_table_archives/en/)
- Wolf, Y., & Frankel, O. (2007). Terrorism: Toward an overarched account and prevention with a special reference to pendulum interplay between both parties. *Aggression and Violent Behavior*, *12*(3), 259–279. <https://doi.org/10.1016/j.avb.2006.10.005>
- Wong, L. P., & Sam, I.-C. (2011). Behavioral responses to the influenza A(H1N1) outbreak in Malaysia. *Journal of Behavioral Medicine*, *34*(1), 23–31. <https://doi.org/10.1007/s10865-010-9283-7>
- Wormwood, J. B., Lin, Y.-R., Lynn, S. K., Barrett, L. F., & Quigley, K. S. (2019). Psychological impact of mass violence depends on affective tone of media content. *PLoS ONE*, *14*(4), e0213891. <https://doi.org/10.1371/journal.pone.0213891>
- Zemishlany, Z. (2012). Resilience and vulnerability in coping with stress and terrorism. *The Israel Medical Association Journal*, *14*(5), 307–309.

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