

MENTAL HEALTH POLICY IN THE UNITED STATES

THE PSYCHOLOGICAL FALLOUT OF THE PANDEMIC

By

Michael B. Friedman, LMSW

Adjunct Associate Professor, Columbia University School of Social Work

Abstract: This lecture provides an overview of the psychological fallout of the pandemic. Numerous studies indicate that there has been an increase in emotional distress due to the pandemic among people of all ages. This includes more people with symptoms of depression and anxiety as well as more misuse of alcohol and drugs. The psychological impact of the pandemic has been most severe for those dealing with grief, those struggling to manage economically, frontline workers, and People of Color, among others. It has also been more severe among younger people, among people with disabilities—mental as well as physical—and among the LGBTQ population.

There has been a remarkable response to the psychological problems due to the pandemic including efforts to address the social determinants of emotional distress such as loss of income and social isolation as well as efforts to make mental health services available, particularly via telehealth.

Undoubtedly, some of the psychological fallout will persist after the pandemic, but it is not clear whether lingering distress or resilience will be the dominant psychological experience. Whichever it turns out to be, needs for behavioral health services that existed prior to the pandemic are likely to continue after the pandemic with some additional needs due to the pandemic.

At the end of this lecture, I recommend a variety of steps that will be needed to meet post-pandemic mental health needs and to be prepared for the next pandemic. Beyond addressing key social issues and behavioral health service needs, my recommendations include a role for mental health professionals in helping the public health community devise communications tools that will result in the change in human behavior that is necessary to limit contagion and hold down the death toll.

In addition to its tragic physical toll, the pandemic has had significant psychological fallout. Over one million deaths in the United States and many millions more worldwide have left many multiples of the dead in grief. The pandemic undoubtedly stirred up fear of illness and death not just for ourselves but especially for families and friends. The steps that were taken

to control the spread of COVID-19 created additional psychological distress. Economic loss left a great many people worrying about where their and their family's next meal would come from. Unemployment soared. Small businesses collapsed, and many small business owners and workers lost hope. Social distancing resulted in social isolation and deep loneliness for many people, especially older people who lived alone. Children fell months and perhaps years behind educationally and developmentally and robbed many of them of time with friends and of a sense of being safe in their world. Working parents became frantic trying to juggle the demands of home schooling and working from home. Healthcare providers were constantly exposed to illness, stressed beyond limit in their work, and lived with fear that they would expose their families. Other "frontline" workers, the people who have jobs that cannot be done on computers at home, the people who staffed stores, who delivered food, who kept the streets clean, who responded to street crime, who put out fires—these people lived with constant threat of exposure.

The psychological fallout was not equal. It fell heavily on those who were economically strapped, on those on the frontlines, on those already vulnerable because they were physically or mentally ill, disabled, or took care of family and friends with disabilities.

And the toll of the pandemic fell most heavily on people of color, revealing health disparities that have always existed in the United States but that became glaring during the pandemic.

It is important to say that there was also another side of the psychological outcome of the pandemic. Many, many people—probably most—rose to the psychological occasion. Some exhibited great courage doing their day-to-day work. Some stepped up as volunteers to reach out to those in need. Working mothers somehow performed astounding juggling acts. Some older adults took on additional caregiving responsibilities. Many children, adolescents, and young adults made the most of their developmentally imperfect lives.¹

It is also important to say that health and human services systems, including mental health rose to the occasion. Remarkable economic relief efforts were mounted astoundingly quickly all things considered. The healthcare load may have seemed impossible, but somehow it was handled. And the mental health system used telehealth to reach millions of people who otherwise could not have gotten assistance they needed. Even the long-term care system, where a huge portion of deaths due to COVID took place, rebounded over time. Imperfect, of course, but nevertheless a striking example of human adaptability and resilience.

In this lecture, I will address a number of questions. What was the psychological fallout? Which populations were most vulnerable? What actions have been taken to meet their needs? What lessons have been learned? What is in our psychological future? And what policy changes are needed to prepare for the next time?

THE FALLOUT

How Extensive Was The Psychological Impact?

Numerous surveys and studies have been done to try to understand how extensive the psychological fallout of the pandemic has been and what populations have been most affected. ^{2,3,4,5,6,7,8,9,10,11,12,13,}

As with most epidemiological research, results vary from one survey or study to another. But the studies all confirm that many people have experienced more emotional distress than usual during the pandemic, that more people experienced symptoms of anxiety and depression than in previous years, and that alcohol and drug use increased.

The Census Bureau does a weekly survey¹⁴ that shows a decline in symptoms of anxiety and depression in 2021 from 41.1% in January to 31.1% at the end of the year. The *Pulse* report also shows substantial variations by population. For example, at the end of 2021, 47.5% of young adults had symptoms of anxiety and/or depression vs. 16.1% of older adults 70-79. Females were more likely to have reported symptoms, 35.8%, than males, 28.0%. Transgender adults 57.6% and bisexual adults 60.2% were among the most highly symptomatic as were people with disabilities, 60.4%. Differences in emotional distress by race were significant—Hispanic 35.5%, Black and White 34.4 and 31.0% respectively, and Asian 24.3%. There were also significant variations by state and other factors.

These numbers strike me as low. I suspect that everyone has at some point during the pandemic been more than a little upset by the impact it has had on their lives, by losses, and by the threat to the survival of the species. The Kaiser Family Foundation does surveys in which it asks a broader question than the Census Bureau's weekly survey does in that it asks whether the pandemic has had an impact on one's mental health.¹⁵ About half of Americans say yes in response to that question, considerably more than the roughly 32% who reported symptoms of anxiety or mood disorders at the end of 2021. And even that seems low to me.

Who Is Most Affected?

The studies generally confirm intuitive expectations about which populations are most psychologically vulnerable. They include:

- Those directly experiencing illness and death due to COVID-19
- Those without adequate income, food, or housing
- Frontline health care and other essential workers
- People of color
- People with pre-existing cognitive or behavioral disorders who are at risk for relapse or severe reactions^{16,17}
- Working parents with children at home who would ordinarily be in school or day care
- People with disabilities
- Family caregivers
- People who are LGBTQ.

The finding that young adults are more at risk for emotional distress than older adults¹⁸ is surprising to many people because they tend to think of older people as more vulnerable than younger. But this finding is consistent with prior research on the experience of older adults during disasters, which indicates, contrary to ageist expectations, that many older adults rise to the occasion during disasters and provide strong supports for their families and communities.¹⁹ Remember, most older adults are under the age of 80; most are not disabled and in need of help; most have less stressful lives than working age adults raising children; and most have survived difficult times in the past and learned to cope. In addition, decades of psychiatric epidemiology literature have established that older adults living in the community have lower risk of many psychiatric conditions than young and middle-age adults.²⁰ It's important to keep in mind that community surveys do not include people who are living in long-term care or other institutional facilities where the prevalence of cognitive and behavioral health disorders is very high. For that reason, the prevalence of mental disorders among older adults is likely to be understated.

The fact that older adults experience less emotional distress than younger people does not mean that they are somehow immune to emotional consequences of the pandemic. Many do experience significant emotional distress related to their vulnerability to illness and death and due to social isolation. They may not be the most vulnerable population psychologically, but they certainly are at risk, if only because they are the most vulnerable population physically.

What Are The Emotional Reactions?

The pandemic has stirred up a broad range of emotional distress including grief, fears regarding illness and death, desperation regarding economic survival, isolation and loneliness, distress about loss of physical contact, loss of a sense of control, hopelessness and profound sadness, moodiness,

anger, difficulties sleeping, family tensions, triggered memories of racist incidents, and more.²¹

It is important to know that psychological experience during the pandemic is variable. Some people are experiencing high levels of emotional distress; some very little. A Kaiser poll done with the same people in two different months showed that for some emotional distress was relatively constant, but for some it declined and for some it increased.²² So, it appears, as one might expect, that for many people emotional distress is “up and down”.

Over the course of the pandemic through 2021, The *Pulse* survey initially showed a decline in emotional distress overall, suggesting some adaptation was taking place. Later, the survey indicated an increase in the number of people experiencing psychological distress, although that change may have reflected growing racial tensions, economic hardship, and vituperative political division as well as the pandemic itself.²³ Now, as I’ve said, the trend is down.

What Studies Do Not Tell Us

Published studies, to the best of my knowledge, do not yet answer several critical questions. Do people having troubled emotional reactions to the pandemic have diagnosable mental disorders? Do increased rates of alcohol and drug use constitute a rise in the prevalence of diagnosable substance use disorders and addiction? How long lasting will emotional reactions to the pandemic be? Will they dissipate as the pandemic and the socio-economic conditions it has engendered come to an end? Will they last long beyond the pandemic itself creating increased long-term need for behavioral health services?

The surveys unfortunately cannot tell us whether reported emotional distress constitutes diagnosable mental or substance use disorders because diagnosis of these conditions typically requires an interview or more in-depth questioning. The surveys are essentially screening tools rather than diagnostic instruments.

For example, studies from the Johns Hopkins Bloomberg School of Public Health have used validated tools such as the PHQ-4²⁴ or Kessler-6²⁵ to highlight the psychological distress associated with the pandemic. But, while tools like the Kessler-6 are predictive of diagnosable disorders, not everyone who experiences acute psychological distress currently has or will go onto develop a diagnosable mental disorder.

The studies also cannot answer the critical question of whether psychological reactions to the pandemic will be long-lasting. Some diagnosable mental disorders, even “serious” disorders, are transient; and some people will certainly experience adaptation and resilience over time.^{26, 27} We do not know how many.

ADDRESSING THE PSYCHOLOGICAL FALLOUT OF THE PANDEMIC²⁸

During the pandemic, governments, charities, local communities, volunteers, and behavioral health providers have stepped up to respond to the widespread psychological fallout of the pandemic. This has included addressing the needs of people with pre-existing behavioral health conditions, who are at risk of exacerbation and relapse as well as the needs of people who develop new mental and/or substance use disorders during the pandemic. It has also included efforts to address the emotional distress that many people, with and without diagnosable disorders, have experienced—fears regarding illness and death, isolation and loneliness, loss of a sense of control, hopelessness, family tensions, grief, and more.

Living through the pandemic has been challenging and emotionally charged for most people but, as I’ve said, especially for people who are without adequate income, food, and shelter; for those who are at highest risk of sickness and death; for People of Color; and for the healthcare providers and other essential workers who are on the frontlines of this massive struggle to survive.

Responses to the pandemic that can help to contain the psychological fallout have included:

- Governments and charities have mounted relief efforts that address the most basic “**social determinants**” of mental health, i.e., income, food, and shelter.
- Federal and state laws and regulations have been changed to permit and to pay for **tele-mental health** services.
- Providers have used tele-mental health not just for standard therapies but also for **innovative approaches** to psychiatric rehabilitation, support groups, mutual aid meetings for people with substance use disorders, and even for mindfulness exercises.
- Much effort has gone into **preventing contagion** in residential settings, in the hopes of protecting both clients/patients and the staff bravely providing care for them. Sadly, these efforts have not been entirely effective. Nursing homes have had high rates of illness and death as, to

a lesser extent, have psychiatric hospitals, shelters, jails and prisons, etc. To some extent this reflects **failures to provide adequate testing, screening, and protective equipment**, although that improved over time.

- Governments have intervened to some extent to support the **financial survival of providers** with loans and changes in reimbursement criteria.
- **Training initiatives** have been developed by professional organizations, trade associations, professional schools, and continuing education programs to help providers learn how to use tele-mental health, to make use of emergency financing, to understand new regulations, and more.
- **Providers have developed mutual aid groups** to figure out how to deliver services when programs are closed, staff is in short supply, funding is problematic, etc.
- Governments, providers, professional organizations, and more have provided **public information about how to cope** with increased emotional distress.
- **Helplines and hot lines** have been beefed up for people seeking compassionate interaction, professional help, or immediate crisis intervention.
- Some **professionals have come out of retirement to provide clinical services** as volunteers, thus helping to alleviate what is inadequate capacity of the behavioral health system in the best times and the even more inadequate capacity during the height of the pandemic when some providers were out sick or with family responsibilities.
- **Volunteers** have also been organized in neighborhoods, states, and even nationally to **provide social connections and assistance to people who are isolated**. In some of these initiatives, clinicians train the volunteers and provide backup when they connect with people who need professional help.
- **Workplace programs**, such as employee assistance programs (EAP's), have provided work site interventions to help workers survive the stresses of their jobs ranging from yoga groups to enhanced treatment services.

Preparing for a New Normal

The stringent public mental health measures that were designed to contain COVID have now phased down for the most part. But we have not and may never return to the old normal. What should we anticipate for the new normal?

The pandemic has revealed—once again—the **social fault lines and the consequences of economic, racial, and health disparities in America**. An enormous proportion of the American population—most of whom are not officially poor--lives from paycheck to paycheck; they do not have enough in savings to cover necessities for even a couple of weeks. Many live on the edge of homelessness. And a very large number of Americans do not have adequate health insurance and have no coverage at all if they lose their jobs. Obviously, this makes their lives more than difficult. It also affects their behavioral health negatively and may contribute to rising suicide rates, drug overdoses, and alcohol-related deaths (the so-called “**deaths of despair**”). So far suicide rates have declined during the pandemic. But that may be an anomaly. Let’s hope not.

Unquestionably, a major social task of the recovery from the pandemic will be to **tackle disparities** and the **social determinants of behavioral health** in a serious way.

With regard to direct behavioral health services, we can expect that the psychological fallout of the pandemic will not suddenly come to an end. Some psychological effects will linger, and some may emerge when people are able to shift from the struggle to survive to an effort to re-establish normal lives. There may be **significant increased need, and demand, for behavioral health services**, as some are predicting. Or **resilience may dominate the post-pandemic period**. I think we simply don’t know yet.

If there is increased need, will behavioral health providers be able to meet it? **Lack of capacity** in America’s mental health system and **shortages of qualified behavioral health personnel** are longstanding problems. They **may get worse**.

Here are some key steps that need to be taken.

- New efforts are necessary to address **racial and ethnic mental health disparities** that have become increasingly apparent during the pandemic.
- Regulators and accrediting bodies need to set and enforce **standards to limit contagion and also limit social isolation in congregate care settings** such as nursing homes, inpatient psychiatric units of general hospitals, state hospitals, adult homes, community residences, supportive

housing, etc. Standards should include **routine testing/screening of workers and clients/patients, adequate protective gear**, and more. They should also include requirements to **protect residents from social isolation**. It will be difficult to achieve the right balance, but it's critical to try.

- **Mandates for vaccination and testing** should be in place at any facility where there is in-person contact.
- In addition, **stockpiles of protective equipment** should be readily available.
- **Tele-mental health** has unquestionably been a savior for many people. But it **has limitations**, not the least of which is **lack of universal access to computers and broadband**. Making high tech equipment available, training in its use, and creating universal access to broadband are important goals for the immediate future.
- **Emergency provisions for the use of tele-health should be made permanent** for both public and private payers.
- It is also critical to address **workforce shortages**.
- It is important to identify and continue to **remove regulatory and fiscal barriers** to behavioral health service provision. For example, there continue to be problems paying for service for people with both Medicare and Medicaid (dual-eligibles) as well as problems funding outreach, psychiatric rehabilitation, and non-medical model services.
- **Access to psychiatric inpatient services** during a pandemic becomes a great challenge because hospital capacity needs to be diverted to people who are critically ill. And when admissions are reduced in order to be able to maintain safe environments vis a vis a pandemic, what will happen to people who otherwise would be hospitalized, especially those who are homeless, potentially suicidal, etc.? A plan to sustain inpatient psychiatry needs to be part of preparation for future pandemics.
- **Frontline healthcare staff are under tremendous psychological stress** as they face severe illness and death daily, work long shifts, and manage anxiety about their own health and the health of their families. In addition, other **essential workers**, who risk their health daily, also experience great emotional distress. All of these **heroic workers need special attention and care**.
- **People with physical, developmental, psychiatric, or cognitive disabilities** who need predictable routines and their **caregivers will need help to re-establish lost routines and supports to avoid burnout and to continue to provide care in the home**.

- **Alcohol and other substance abuse appears to be on the rise.** It is important to **monitor and address rising risks of substance abuse**, especially of **deaths from overdoses, which have skyrocketed recently.**
- Generally, **suicide rates rise as the economy declines.** The disastrous near collapse of the American economy, the associated job loss and struggle to survive contributed to what was called “a perfect storm” for suicide. Surprisingly, it appears that the suicide rate overall and for Whites has declined in the early phases of the pandemic although the rate for Blacks increased. Is this anomalous or does it reflect new trends? Suicide rates need to be monitored carefully and continued efforts need to be devoted to **suicide prevention.**
- As noted previously, tremendous efforts have been made to provide **public information** including remarkably good advice about how to weather anxiety and stress. However, there are important questions about who the tip sheets and public service announcements reach. Is it only the educated population? Do there need to be different approaches to reach poor, disadvantaged, socially estranged populations, who are particularly hard hit by the pandemic? I think it’s clear the good advice being offered needs to be more **tailored to particular populations, taking into account different developmental stages, lifestyles, levels of education, regular sources of information,** etc.
- Funding for behavioral health services appears to have stabilized for the moment. But **inflation** puts it in jeopardy as do the 2022 elections, which could result in new attacks on Medicaid if the Republicans take control of Congress. **Continued vigilance and advocacy will be necessary.**
- The use of **volunteers to provide social connections** for people who are isolated has also been a very positive development. Hopefully, these initiatives will be sustained after the sense of urgency passes.
- It is entirely clear that the **closures** of schools, houses of worship, senior centers, social service provider organizations and more **created mental health challenges.** **Joint efforts between the behavioral health system and other services systems** are needed **contain the psychological and spiritual fallout** of a pandemic and to put plans in place so that they will not be so unprepared in the future. This includes finding ways to **help people deal with death and/or in grief** without traditional ceremonies—bedside vigils, funerals, graveside gatherings, comforting social events, and the like. Are mental health professionals

prepared to provide help? Enhanced partnerships with spiritual leaders would unquestionably be beneficial.

- **The private sector will also have an important role as people come back to work.** Workplace behavioral health programs will probably be under increased pressure to **address mental and substance abuse issues that affect productivity** and personal life satisfaction.
- The pandemic and the responses to it create a broad range of **research needs and opportunities.** How much relapse takes place? Do the prevalence and incidence of mental and substance use disorders increase? How much and what forms of emotional distress do people experience? How extensive is resilience and adaptability? Do the programmatic initiatives work? What are the benefits and shortcomings of tele-mental health services? Are there implications regarding the integration of behavioral and physical health? Do alternative reimbursement models created for this emergency contribute to continued service and the survival of service providers? Research funding needs to be rearranged to address these questions.

Following the president's declaration of a mental health crisis in America, planning to address these predictable concerns has already begun.

In addition, the behavioral health community needs to stretch beyond its usual limits to **help the public health community** fashion the responses designed to prevent contagion during a pandemic and to bring it to an end. At the core of all preventive interventions is **the need for people to change their behavior.** For example, losing weight requires diet and exercise. As the rise of obesity in America makes clear, the health community has not done a very good job of persuading people to change their habits. The same has been true during the pandemic. Sheltering in place? A lot of young people didn't believe it was relevant to them. Getting vaccinated? Remarkably about 35% of Americans were still not been fully vaccinated by August 2022.²⁹ The messaging simply has not worked. Our society is better at selling deodorant than giving away vaccinations.

So, a critical element of preparation for the next pandemic is **devising messages that persuade people to behave rationally**—always a difficult matter with human beings. Mental health professionals need to help.

Even in good times, behavioral health providers fight over the bones of governmental funding, each seeking to meet its own needs. And even in good times, mental health advocates have made themselves dysfunctional by engaging in ideological disputes that pit personal freedom against social protection—a dispute that now permeates American politics.

Hopefully, these disputes can be set aside and united action can be taken to progressively meet the behavioral health needs of the American population and to be prepared for the next crisis.

¹ Friedman, M. (2021). [Growing Up During The Pandemic--Trauma and Resilience.pdf \(michaelbfriedman.com\)](http://michaelbfriedman.com)

² Friedman M. and Hollinque C. (2021) "Psychological Fallout of the Pandemic: What We Know and What We Don't." *Behavioral Health News*, Winter 2021. http://michaelbfriedman.com/mbf/images/Psych_Fallout--What_We_Know_What_We_Dont_for_BHN_Final.pdf

³Keeter, S. (2020). People Financially Affected by COVID-19 Outbreak are Experiencing More Psychological Distress than Others. *Pew Research Center*, March 30, 2020 <https://www.pewresearch.org/fact-tank/2020/03/30/people-financially-affected-by-covid-19-outbreak-are-experiencing-more-psychological-distress-than-others/>

⁴ Kaiser Family Foundation. Tracking Polls. (2020, May 27). KFF Health Tracking Poll May 2020. <https://www.kff.org/report-section/kff-health-tracking-poll-may-2020-health-and-economic-impacts/>.

⁵ Kaiser Family Foundation (2020, August) Tracing Poll for July. <https://www.kff.org/coronavirus-covid-19/report/kff-health-tracking-poll-july-2020/>

⁶ Kaiser Family Foundation. Health Tracking Poll - Early April 2020: The Impact of Coronavirus On Life In America. <https://www.kff.org/coronavirus-covid-19/report/kff-health-tracking-poll-early-april-2020/>

⁷ McGinty, E. E., Presskreischer, R., Han, H., & Barry, C. L. (2020). Psychological Distress and Loneliness Reported by US Adults in 2018 and April 2020. *JAMA*, 324(1), 93–94. Advance online publication. <https://doi.org/10.1001/jama.2020.9740>

⁸ The United States Census Bureau. Household Pulse Survey Phase 2. (2020, August 19 - October 26). Measuring Household Experiences During the Coronavirus Pandemic. <https://www.census.gov/data/experimental-data-products/household-pulse-survey.html>

⁹ Twenge, J. (2020, May 7). New Study Shows Staggering Effect of Coronavirus Pandemic on America's Mental Health. *The Conversation*. <https://theconversation.com/new-study-shows-staggering-effect-of-coronavirus-pandemic-on-americas-mental-health-137944>

¹⁰ Czeisler, M.A, et al. (2020, August 14). Mental Health, Substance Use, and Suicidal Ideation During the COVID-19 Pandemic — United States, June 24–30, 2020. *CDC Mortality and Morbidity Report*, August 14, 2020. <https://www.cdc.gov/mmwr/volumes/69/wr/mm6932a1.htm>

¹¹ Ettman, CK, et al (2020). "Prevalence of Depression Symptoms in US Adults Before and During the COVID-19 Pandemic" in *JAMA Open Network*, September 2, 2020. <https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2770146>

¹² Holingue,C., et al (2020a). "Mental distress during the COVID-19 pandemic among US adults without a pre-existing mental health condition: Findings from American trend panel survey" in *Preventive Medicine*, October 2020. <https://doi.org/10.1016/j.ypmed.2020.106231>

-
- ¹³ Holingue, C., et al (2020b). "Mental Distress in the United States at the Beginning of the COVID-19 Pandemic." *American Journal of Public Health (AJPH)* <https://ajph.aphapublications.org/doi/10.2105/AJPH.2020.305857>
- ¹⁴ [Mental Health - Household Pulse Survey - COVID-19 \(cdc.gov\)](#)
- ¹⁵ [Mental Health Impact of the COVID-19 Pandemic: An Update | KFF](#)
- ¹⁶ Holingue, et al (2020a) Op. Cit.
- ¹⁷ Czeisler, et al. Op. Cit.
- ¹⁸ U.S. Census Bureau, *Pulse*. Op.Cit
- ¹⁹ Mayer B. (2019). A Review of the Literature on Community Resilience and Disaster Recovery. *Current environmental health reports*. <https://doi.org/10.1007/s40572-019-00239-3>
- ²⁰ Regier, D. A., et al (1993). One-month prevalence of mental disorders in the United States and sociodemographic characteristics: The Epidemiologic Catchment Area study. *Acta Psychiatrica Scandinavica*.
- ²¹ Centers for Disease Control and Prevention. (2020). "Coping with Stress", July 1, 2020 <https://www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/managing-stress-anxiety.html>
- ²² Kaiser Family Foundation (2020). Corona Virus Tracking Poll for July. August, 2020. <https://www.kff.org/coronavirus-covid-19/report/kff-health-tracking-poll-july-2020/>
- ²³ U.S. Census Bureau, *Pulse*. Op.Cit.
- ²⁴ Holinque (2020b) [op. cit.](#)
- ²⁵ McGinty, E. E., et al (2020) Op. Cit.
- ²⁶ Mayer, Op. Cit.
- ²⁷ Pfefferbaum, B., North, C.S. (2020). "Mental Health and the Covid-19 Pandemic" in *New England Journal of Medicine*. <https://www.nejm.org/doi/full/10.1056/NEJMp2008017>
- ²⁸ [BH During and After Pandemic.pdf \(michaelbfriedman.com\)](#)
- ²⁹ Our World In Data (2022) [vaccination statistics - Google Search](#)