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COVID-19 and Mental Health: A Syndemic of Misinfodemics

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Introduction

It was a hot summer in London, 1858, when the foul odor of human feces, the “Great Stink,” exuded from the River Thames, plaguing London and its Houses of Parliament (London's 'Great Stink’ and Victorian Urban Planning, 2004). The “Silver Thames” was described by Michael Faraday, a scientist from the Royal Institution, as “an opaque pale brown fluid” (Lemon). Centuries of dumping waste in the River Thames would eventually torment politicians when met with a heat wave. As the smell became overwhelming, those who had not migrated to the countryside from the Commons began soaking their curtains in chloride of lime (London's 'Great Stink' and Victorian Urban Planning, 2004).

At the time, miasma was a prevailing theory that supported the belief that contagions, like cholera, were spread by unpleasant smells in the air, a belief that allowed cholera, also known as “the Victorian Plague,” to claim tens of thousands of lives (Mann, 2016). In reality, close living quarters and poor hygiene practices, like dumping waste in the Thames, were the culprit of this increase in illnesses and epidemics. Contaminated water results in an awful odor, as well as providing an ideal breeding ground for microorganisms that cause water-borne diseases (Xiao Mina and Gyenes, 2018). It was not until the acceptance of germ theory that scientists understood that the germs in contaminated water were responsible for the spread of illnesses, as suggested by Dr. John Snow, rather than the accompanying stench, and that the solution was Bazalgette’s sewage system (Mann, 2016). The misinformation associated with miasma theory surely worsened health outcomes at the time, as the solutions produced were useless in stopping the spread of disease.

Miasma theory and the ‘Great Stink’ that plagued London in the 1800’s provided an early example of misinformed paradigms around health science that perpetuated poor health outcomes.

Although John Snow published his findings on germ theory in the 1840's, germ theory was not predominantly accepted until the 1890's (Frerichs, 2005; 'Joseph Lister's Antisepsis System,' 2018). During much of miasma theory's prominence, the technology and evidence did not exist to challenge the idea. As technology progressed, the scientific method advanced, and scientific knowledge grew, the environment of misinformation related to health science became more nuanced. Furthermore, the involvement of actors involved in scientific controversies has developed since the paradigm shift from miasma theory to germ theory. The advancement of technology and scientific knowledge, notably the emergence of internet and communications technologies, has situated controversies of science and technology in a tumultuous environment. With the emergence of such technologies, information disseminates rapidly, involving much larger networks of actors, as well as more powerful, influential, and far reaching actors, compared to the much smaller networks of actors connected to miasma theory and the gradual paradigm shift to germ theory.

Conceptual Frameworks

The actor-network theory (ANT) provides an effective lens to observe the development of science and technology, scientific controversies and misinformation, and the involvement of increasingly complex networks of actors in these controversies. ANT is a form of scientific constructivism suggesting that not only do science and technology construct culture and society, but that science and technology themselves are also constructed socially (Latour, 2005). Technology is produced by a network of actants, and ANT proposes that these actants can be both human and non-human (Latou, 2005). Scientific knowledge is produced through established relationships between actants engaged in science and technology, actants being

everything that has a causal effect on the production of scientific theories and controversies (Detel, 2002). In ANT an actant can include not only scientists, but background assumptions, methodologies and techniques, social rules and institutions, experiments, measurements and instruments, scientific writings, and external objects (Detel, 2002). An actant becomes part of the network through a term called translation, which encompasses the interactions through which an actant is affected (Dankert, 2016). With the emergence of the internet, social media, and communication technologies, actants are able to connect rapidly, establishing the potential for more expansive and complex networks, as well as more influential actants.

This potential for vast and highly complicated networks of actants enabled by the internet and emergent media technologies has implications for scientific controversies, misinformation, and conspiracies, as innumerous actants have become involved, including the lay public. Furthermore, in the context of health science, the potential for the rapid spread of misinformation amongst an enormous network of actors and actants is concerning in regards to health outcomes and the public health. The phenomena of misinformation perpetuating a specific health outcome, such as the spread of a disease, can be understood as misinfodemics. While miasma theory certainly was misinformed and perpetuated negative health outcomes, the scientific evidence to disprove the theory did not actually exist throughout much of the paradigm's prominence. For a misinfodemic to occur, there must be scientific evidence supporting a paradigm that is ignored or disputed by individuals armed with misinformation, which in turn produces preventable negative health outcomes. As scientific knowledge has evolved, the potential for misinfodemics to surface has become more prevalent, especially as the internet provides an efficient medium for the spread of misinformation and conspiracy theories, involving vast networks of actants.

Misinformation poses as a disease of its own, nowadays spread through the internet, disastrously impacting physical health outcomes. Early cigarette advertisements, along with some doctors, incorrectly suggested health benefits like maintaining a slim figure and better digestion ("Cigarette Ads Promising Better Health," 2019). Until recent public health campaigns, like the Food and Drug Administration's (FDA) "The Real Cost," misinformation encouraging the use of e-cigarettes had a dominating presence on social media (Duke, et al., 2015). Additionally, social media played a key role in the circulation of incorrect information related to the Ebola outbreak in 2014, exponentially 'infecting' online users around the world with misinformation about the spread of the virus (Allgaier and Svalastog, 2015).

The internet has provided a medium for the dissemination of misinformed ideas about the Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome (HIV/AIDS) for the past three decades, perpetuating the spread of the deadly virus by reinforcing dangerous behaviors. The presence of AIDS denialist organizations on the internet has challenged the authority of the scientific community, fueling distrust of authority, the scientific community, and the medical science community specifically (Public Library of Science, 2007). Organizations like "Reappraising AIDS" have led crusades of misinformation, perpetuating the idea that HIV does not cause AIDS (Public Library of Science, 2007). Simultaneously, the internet has proliferated false notions about the virus and its spread, such as HIV being transmittable by saliva, tears, urine, sweat, or even mosquitos ("Myths about HIV and AIDS," 2020). The HIV/AIDS misinfodemic and the distrust in medical science fueled by HIV denialist organizations has led HIV patients to seek out alternative, unproven, and ineffective treatments, or even convinces uninfected people that HIV prevention methods are unnecessary, both of which produce negative outcomes (Public Library of Science, 2007).

Poor health outcomes related to mental illness have always been perpetuated by various forms of misinformation. Misinformed treatments of mental illness have fueled negative outcomes, notably including the employment of isolation, which is still practiced today largely through radical prayer camps and prisons. Stigma driven by misinformation has also contributed to the social isolation of people struggling with mental illness, fueled popular misconceptions of mental illness and effective response, and provided barriers to accessing care. Stigmatization of mental illness as a barrier to accessing care has been particularly concerning during the COVID-19 pandemic, which has posed novel risks and barriers to accessing adequate mental healthcare. Furthermore, the COVID-19 misinfodemic has perpetuated the spread of the virus, which in turn has reinforced barriers to accessing mental healthcare. Additionally, the mental health misinfodemic has hindered the ability to combat the spread of COVID-19 through social distancing measures and isolation, as misinformation has significantly contributed to the longstanding mental health crisis. The synergistic relationship between the COVID-19 pandemic and the mental health crisis, largely fueled by misinformation, is considered a 'syndemic.'

The term 'syndemic' was coined in the 1990's as a conceptual framework shifting the public health paradigm towards understanding diseases or other health afflictions as being fueled by multifaceted social, environmental, economic, and political influences in a given population (Daley, 2019). The concept of syndemics is not simply the presence of two or more chronic conditions, however, because the concept distinctively includes two or more public health crises that synergistically interact with one another to increase the burden of illness (The Lancet, 2017). These adverse interactions can negatively contribute to patients' prognoses for concurrent conditions and amplify their vulnerability. In addition, these synergistic conditions can be exacerbated by social and other inequalities. The intention behind the syndemics framework is

to put health conditions in context, analyzing the situation and circumstances in which patients exist in any given population.

Medical anthropologist Merrill Singer first introduced the concept of syndemics in his research highlighting the interactions between substance abuse, violence, and human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS), known as the SAVA syndemic. The HIV/AIDS epidemic peaked in the mid 1980's, just before Singer conducted his research and established the concept of syndemics (Osmond, 2003; The Lancet, 2017). A plethora of social, environmental, economic, and political factors influenced and have continued to influence the landscape of the HIV/AIDS epidemic, including, but not limited to, the interacting forces identified in the SAVA syndemic.

During the HIV/AIDS epidemic in the 1990's, researchers observed a variety of components affecting risk and adversely impacting the burden of illness, components ranging from poverty and housing insecurity to social stigma and inaccessibility of support systems (The Lancet, 2017). This observation led to the development of a syndemic conceptual framework that has informed approaches to clinical medicine and public health interventions, recognizing contributing factors as interwoven and cumulative, contributing to the network that constructs a particular syndemic (The Lancet, 2017). Since then, syndemics have continued to emerge, as well as an abundance of opportunities and demand for the application of the principles of the syndemic conceptual framework in order to decrease the burden of illness (The Lancet, 2017). Social, cultural, political, and other contexts will always contribute to networks of public health issues and syndemics. These relationships will continue to exist, although the effects on the burden of illness can be reduced through multifaceted interventions to syndemics.

Background

Leading up to the COVID-19 and mental health syndemic, there already existed a backdrop of a growing mental health crisis. Approaching the COVID-19 pandemic, just over 10% of adults in the United States were experiencing symptoms of anxiety and/or depression (NATIONAL CENTER FOR HEALTH STATISTICS, 2020). Furthermore, approximately 20% of adults reported having any mental illness in the United States ('Adults Reporting Mental Illness in the Past Year,' 2021). Meanwhile, in 2016, 16.5% of individuals aged 6-17 in the U.S, experienced a mental health disorder (Whitney and Peterson, 2019). The prevalence of mental illness has been increasing since before the pandemic, as the 19% of adults in the United States who experienced mental illness between 2017-2018 represented an increase of 1.5 million Americans from the previous year (Mental Health America, 2021). Suicide rates have increased by 33% between 1999 and 2019, being the tenth leading cause of death in the United States, and second among people aged 10-34 ('Suicide Prevention: Fast Facts,' 2021). While the mental health crisis is a growing issue, 23.6% of adults reported an unmet need for mental health treatment between 2017-2018 (Mental Health America, 2021). The mental healthcare system has been particularly inaccessible to people of color and people with marginalized gender identities (Altiraifi and Rapfogel, 2020).

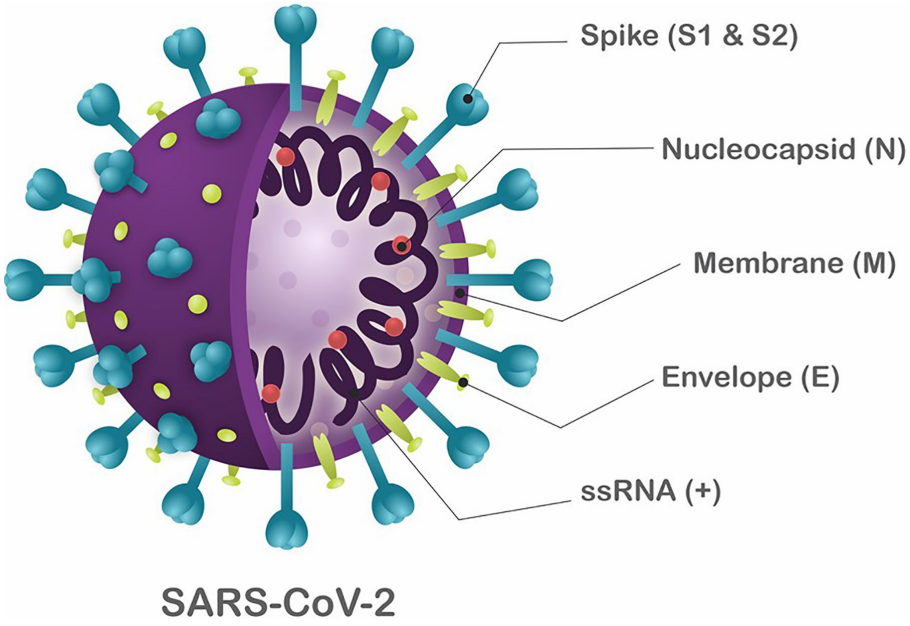
The mental health crisis leading up to the COVID-19 pandemic was not exclusive to the United States, though, as there has been a growing global mental health crisis. Depression has been one of the leading causes of disability globally, as 264 million were affected by depression in 2019 approaching the pandemic ('Mental disorders,' 2019). In 2019, approaching the pandemic, one in five people living in conflict areas was living with some form of mental illness, and one in ten was living with a moderate to severe mental disorder (van Ommeren, 2019). The

COVID-19 pandemic has provoked a long-standing global mental health crisis, a relationship that constitutes a syndemic. Notably, about 35% of adults in the U.S. have reported symptoms of anxiety or depressive disorder during the pandemic, even higher than the roughly 10% reported in 2019 (‘Anxiety or Depressive Disorder During COVID-19 Pandemic,’ 2021).

The COVID-19 pandemic has necessitated the establishment of social distancing measures and lifestyle changes, as well as leading to more stressful experiences, particularly in terms of the health of one’s self, family, and friends. In order to understand the policies established in response to the COVID-19 pandemic, it is essential to understand the virus itself and how it is spread. A key distinction in the terminology of the COVID-19 pandemic is the difference between the disease and the virus. The SARS-CoV-2 virus is a type of coronavirus, which is often mistakenly referred to as the COVID-19 virus (University of Michigan, 2020). In actuality, COVID-19 is the disease caused by the SARS-CoV-2 virus (University of Michigan, 2020). The SARS-CoV-2 virus is an enveloped virus with an RNA genome and spike glycoproteins embedded in the viral envelope that give the virus its distinctive shape and allow the virus to bind to mammalian cells (University of Michigan, 2020).

Figure 1

Schematic structure of SARS-CoV-2.



Note. From "Antivirals Against Coronaviruses: Candidate Drugs for SARS-CoV-2 Treatment?," by Santos, et al., 2020, (https://www.frontiersin.org/files/Articles/554339/fmicb-11-01818-HTML/image_m/fmicb-11-01818-g001.jpg).

The name 'COVID-19' is an abbreviation for coronavirus disease 2019, where 'CO' stands for corona, 'VI' stands for virus, 'D' stands for disease, and '19' refers to the year in which the virus had its initial outbreak, 2019 ('Coronavirus (COVID-19) frequently asked questions,' 2021). Most people who have COVID-19 experience mild symptoms, but the disease can also cause severe illness and death, particularly among vulnerable populations ('Coronavirus (COVID-19) frequently asked questions,' 2021). The SARS-CoV-2 virus is primarily spread through person to person close contact, particularly by individuals within six feet of each other ('Coronavirus (COVID-19) frequently asked questions,' 2021). Individuals who are infected with the virus can be asymptomatic and still spread the virus, highlighting the need for strict public health policies, as an infectious individual may perceive themself to be healthy and

noncontagious (‘Coronavirus (COVID-19) frequently asked questions,’ 2021). The scientific community and lay public are still learning about the spread of the virus and the physical and mental health effects of the disease as the pandemic progresses. There have been massive milestones in the development of this knowledge since initial lockdowns at the beginning of 2020, allowing for more effective responses, as well as safe gatherings and activities attempting to mimic life before the pandemic.

At the beginning of the pandemic, very little was known about SARS-CoV-2 and COVID-19, as well as the specific measures that would be effective in halting the spread of the virus and the kinds of activities that would be safe to allow. For months people were wiping their groceries with disinfectant wipes, fearing contracting the virus through contact with surfaces (Robinson, 2020). The lacking knowledge early on in the pandemic created uncertainty that fueled anxiety and panic. Many people experienced an initial panic and fear of the virus, and with little knowledge about the virus, its spread, and the disease, people either decided to or were required to undergo intense isolation that was harmful to mental health. Nowadays, it is understood that the virus is generally spread through direct contact, airborne transmission, or droplets (Pathak, 2021). Social distancing guidelines focus on mask wearing policies, limiting indoor interactions, and maintaining six feet or more between others. These social distancing policies have proven effective in halting the spread of the virus, and as confidence has grown in these policies, the stress, uncertainty, and fear of the pandemic has decreased, especially as the potential for safe gatherings and activities has become more clear. Furthermore the emergence of multiple effective vaccines has been able to address uncertainties of the future. The mask and the vaccine have both served as significant technological actants in the network of the

COVID-19 and mental health syndemic of misinfodemics, particularly as ones that have provided hope in terms of addressing the syndemic.

The context of the SAVA syndemic poses similarities to the environment surrounding the COVID-19 pandemic, both of which are profoundly connected to mental health. The experience of addressing substance abuse and violence, which are fundamentally related to mental health, in correspondence with HIV/AIDS during the SAVA syndemic may provide insights into addressing the COVID-19 pandemic, concurrent conditions, and contributing factors, as the concurrent mental health crisis continues to intensify.

This thesis will analyze the COVID-19 pandemic and the longstanding mental health crisis while applying a misinfodemic framework to both. In addition, the relationship between the COVID-!9 pandemic and the mental health crisis will be examined through the syndemic framework, considering the two to be synergistic in contributing to each other's burden of illness. In attempting to understand the relationship between the COVID-19 and mental health syndemic that has been exacerbated by misinformation related to each, ANT will be applied, particularly analyzing actants involved in the network of misinformation related to COVID-19 and mental health, largely connected through digital media. Furthermore, this thesis will caution against technological somnambulism in addressing the COVID-19 syndemic of misinfodemics and the involvement of human and non-human actants.

Chapter I: The Mental Health Misinfodemic

Social media, news networks, podcasts, and other media platforms collaborate with technologies, such as mobile phones, to keep viewers constantly engaged and informed with current events and sources of misinformation. The internet has provided an efficient medium for the dissemination of misinformation, perpetuating misinfodemics by constantly spreading false details in news and politics amongst media consumers. This constant exposure to high volumes of misinformation is overwhelming and leads to headline stress disorder, as well as fueling feelings of anxiety and depression amid an expanse of stressful information and misinformation (Margit Erdelyi, 2020).

The spread of misinformation during stressful times, when news channels dominate many people's attention, can be detrimental to mental health. The pandemic has been a particularly difficult and prolonged time in which news and current events have captivated much of the world's focus, hoping for changes for the better while monitoring risk and infection rates within communities. Misinformation is not only harmful to individual people's mental health, though, and has influenced paradigms around mental health, systematically hindering mental illness treatment across populations. Myths and false information have contributed to the lack of recognition and understanding around mental health, as well as fueling its stigmatization, hindering the ability of society and health scientists to develop a robust medical comprehension and treatment of mental illness.

Mental illness has been a particularly stigmatized type of illness historically, forcing patients to not only deal with their conditions, but social exclusion and prejudice as well. Unlike most health conditions, mental illness has been uniquely structured as a social identity, and people struggling with mental illness are often labeled as 'metally ill' (Arboleda-Flórez and

Stuart, 2012). For a long time people struggling with mental health conditions were imprisoned, tortured, or killed. These mental health conditions were considered to be God's punishment during the Middle Ages, as well as the devil's possession; those deemed punished or possessed were burned at the stake or chained in cells (Rössler, 2016). Exorcisms, prayer, and other religious ceremonies were also often performed in attempts to remove the supposed demonic possession (Vann, 2014). Improvements in the attitude towards mental health conditions were seen during the Enlightenment, but later the Nazi reign of Germany led to the murder and sterilization of hundreds of thousands of people with mental illness (Rössler, 2016).

The presence of mental health stigma is consistent across societies, none of which treat people with mental illness equally to those without. A survey disseminated across 27 different countries showed that 47% of the participants experienced discrimination in friendships, while 43% experienced discrimination from family members, 29% in finding and keeping a job, and 27% in intimate relationships (Thornicroft, et al., 2009). In addition, many people struggling with mental illness had the expectation of experiencing discrimination in relationships as well as work (Thornicroft, et al., 2009). Various types of mental health disorders are stigmatized and mistreated in different ways, as about ¾ of people have a negative perception of people with drug dependency and about ⅔ of people have negative a perception of people with schizophrenia and alcohol dependency, while depression garners more sympathy (Rössler, 2016). Culture plays a large role in the appearance of mental health stigmatization, as religious and supernatural explanations persist in some cultures (Rössler, 2016).

In many cultures, mental illness is seen as a weakness in character (Mental Health Myths and Facts, 2017). People are often expected to 'pick themselves up by the bootstraps' and pull themselves together through their struggles. Attitudes of this nature can contribute to the barriers

in accessing mental health resources, necessary to recovery (Ahmedani, 2011). Friends and family of individuals with mental illness may believe they cannot make a difference in their loved one's mental health, but loved ones can be key influences in the decision to seek out necessary services (Mental Health Myths and Facts, 2017). Another perspective that can serve as a barrier to the utilization of necessary resources is the misconception that some treatments are objectively less effective than others, including talk therapy (Mental Health Myths and Facts, 2017). In reality, mental health issues require variable treatment strategies, dependent on the patient, and not all conditions can be adequately treated with the same approach (Bulthuis, 2020). Mental illness can be effectively treated with medication, talk therapy, or varying combinations of the two, although some patients need particularly specialized approaches (Bulthuis, 2020).

Mental illnesses are also commonly misunderstood to be rare in populations (Bulthuis, 2020). In the United States, nearly one in five people live with a mental illness (National Institute of Mental Health, 2021). In addition, death by suicide is one of the leading causes of death in the United States (Center for Disease Control and Prevention, 2021). People struggling with mental illness are often expected to be violent and unpredictable, although this expectation is not grounded in facts (Mental Health Myths and Facts, 2017). There is also a common expectation that people with mental health conditions are incapable of work (Newman, 2020). In reality, most people with mental illnesses are not violent and can be highly productive individuals (Mental Health Myths and Facts, 2017).

Media, Mental Health, and Stigma

The power of the internet and mass media has added fuel to the fire of misconceptions and stigmatization of mental health. The media provides insights into strangers with whom one might normally never interact, feeding viewers biased information and dictating the perceptions that people form around various demographic groups. Media platforms can take many different forms, including television, news channels, films, music, newspapers, magazines, and social media, all of which frequently portray people struggling with mental illness through harmful stereotypes and misconceptions, contributing to the stigmatization and trivialization of mental illness (Saleh, 2020). Stereotypical media portrayals of mental health conditions contribute to the overgeneralization of the conditions, convincing consumers that every person with a particular mental illness will exhibit the same behaviors and symptoms. In addition, these various media sources often depict mental health struggles as being public and recognized, and very often are displayed as untreatable. In reality, mental illness often goes unrecognized and untreated, although if properly identified, mental illness can generally be managed with the right care (Saleh, 2020).

Depictions of characters with mental illnesses, including schizophrenia, in films can be destructive in their dispersal of misinformation. Movies and popular culture can have a great impact on attitude formation, making their spread of misinformation related to severe mental illnesses extremely concerning (Saleh, 2020). In the case of schizophrenia, movies often only portray symptoms of hallucinations, delusions, and incoherent speech, when symptoms such as lack of motivation, poverty of speech, and flat affect are actually more common (Saleh, 2020). People suffering with schizophrenia are often portrayed as violent criminals with unpredictable behavior, and have even been presented as “possessed” characters (Owen, 2012). News reports

and other forms of media often sensationalize the actions, violence, and crimes committed by people struggling with mental illness, which receive more attention than similar ones committed by mentally healthy individuals (Rössler, 2016). These depictions are harmful towards viewers with mental illnesses, as well as contributing to the culture of mental health stigmatization by reinforcing negative perceptions of people with mental illness. Therefore, digital media organizations are situated as highly influential actants in the network of mental illness stigmatization and the mental health misindodemic.

Figure 2

Britney Spears on the front cover of Daily Mirror newspaper following her infamous hair shaving incident.

Note. Sensationalist portrayal of Britney Spears' mental health crisis published on cover of Daily Mirror in 2007. From "New documentary reveals shocking new details about Britney Spears' 2007 meltdown," by The New Zealand Herald, 2019.

The Impact of Stigma

The knowledge that one's mental illness carries social stigma can be destructive to mental health, regardless of whether or not the individual has experienced stigma related discrimination (Ahmedani, 2011). The stigmatization of mental illness can be internalized by those struggling with mental illness through self-stigmatization, which can be damaging to a person's self esteem and self-efficacy. This impact on one's perception of the self can directly affect the ability to recover from and manage mental illnesses (Rössler, 2016). Similarly, family members can internalize guilt and place blame on themselves for their family member's condition (Rössler, 2016). Notably, the recognized impact of genetics in mental health can play a role in the guilt experienced by parents and other family members (Inglis and Austin, 2013). Furthermore, the attitudes around mental health in a family are integral in the extinction of stigma and the treatment of mental illness.

The process of self-stigmatization can begin long before someone develops a mental health disorder, as people frequently form these misconceptions and prejudices around mental illness while they are in good mental health (Rössler, 2016). After the onset of symptoms of various mental health disorders, someone with these negative preconceptions of mental illness would be likely to experience self-stigmatization and the associated damaging effects on self-esteem and self-efficacy. In anticipation of rejection fueled by stigma, many people will isolate themselves and reduce their networks. This self-isolation results in the loss of opportunities, including jobs and the utilization of necessary mental health services (Rössler, 2016).

Mental healthcare workers are key actors in the network of the mental health misinfodemic, as well as being involved in the networks of mental healthcare and mental illness

stigmatization. One would hope that social workers and mental healthcare professionals would be an exception to the presence of mental illness stigma in society, although in many cases, some hold particularly stigmatized beliefs about those struggling with mental illness, providing one of many barriers in accessing mental health services (Ahmedani, 2011). In fact, a Swiss study found that mental health professionals had similar desires of social distance from people with mental health conditions to that of the general public and that psychiatrists held more negative stereotypes about those struggling with mental health conditions than the general public (Nordt, et al., 2006). Social workers and mental health professionals may develop biases through their past experiences with mental health, including family histories of mental illness. These biases may also accompany burnout from work in mental healthcare, where individuals frequently work with patients struggling with severe and persistent mental illness (Ahmedani, 2011).

This stressful work could also potentially provoke a mental healthcare worker's mental illness, including possible substance use, which contributes to the experience of burnout (Ahmedani, 2011). Professions in mental healthcare are frequently self-selected by individuals who have had their own experiences with mental illness (Stanley, et al., 2006). Additionally, mental health disorders are particularly common among psychiatrists and mental health professionals (Yasgur, 2019). The fatigue associated with mental healthcare professions can contribute to internalized stigmas, impairing the efficacy of mental healthcare workers (Ahmedani, 2011). The acceptance of dangerous stereotypes and stigmatization of mental health conditions can perpetuate generalized responses that are inconsistent and frequently ineffective in treating mental illness (Rössler, 2016).

Mental Illness and Asylums

In the beginning of the medieval ages, isolation was the primary treatment for people suffering from mental illness. In the 17th century, asylums became a ubiquitous force in society, eventually positioned as an introductory, non-human actant in the isolation and abuse of those with mental illnesses and part of the network of misinformation around mental illness (Concordia St. Paul, 2016). Prior to the existence of asylums, banishment had been a standard response to mental illness in a community. People would be kept out of their communities or even placed on boats with no destination (Arboleda-Flórez and Stuart, 2012). Initially, asylums were established with benevolent intentions of providing a space for people suffering with mental illness, where they will not be harassed by the public (Arboleda-Flórez and Stuart, 2012). In the 1400's, Father Gilbert Jofré witnessed a crowd of people abuse a man with mental illness. Appalled at the lack of institutions in place to help with mental illness, he resolved to erect Valencia's first asylum (Arboleda-Flórez and Stuart, 2012).

Although asylums were initially meant to protect people with mental illness, they quickly became an environment more similar to imprisonment (Arboleda-Flórez and Stuart, 2012). In addition, isolation in asylums became a method of distancing people with mental illness from their communities and families, absolving them of responsibility (Concordia St. Paul, 2016). For a long time, asylums were overcrowded and had poor sanitary conditions, as well as employing cruel approaches (Concordia St. Paul, 2016). Hydrotherapy was a popular intervention in asylums, typically using shockingly cold water, intended to address agitation (Fabian, 2018). Asylum staff frequently resorted to mechanical restraints, such as straightjackets, manacles, waistcoats, and leather wristlets for extended periods of time, even days at a time (Fabian, 2018).

These restraints were so often employed because of the overpopulation of mental institutions (Fabian, 2018).

Figure 3

Patients in Aberdeen Royal Mental Hospital, which first opened in 1800.

Note. Image depicting the overpopulation of mental health institutions. From "Psychiatry on the NHS: from overcrowded asylums to a shortage of beds?," by McArdle, 2018.

Psychiatric medications have been used to treat patients with mental illness since the 1800's, when isolating people struggling with mental illness from their families and communities in asylums was a common practice, which resulted in the overpopulation of these facilities (Fabian, 2017). In order to manage the overcrowded mental institutions, patients were sedated with drugs as a chemical restraint alternative to the previously employed physical restraints (Fabian, 2017). Popular drugs used by doctors to sedate patients included morphine and opium, both of which have side effects, including being highly addictive (Fabian, 2017). Other early

drugs frequently abused by doctors included toxic mercury to manage mania, barbiturates to induce temporary comas, and chloral hydrate, which gained prominence in the 1950's, despite causing psychotic episodes and other side effects (Fabian, 2017). Although psychiatric medications eventually adopted a positive influence in the network of mental health, their initial impact as actants was harmful and driven by bad intentions and misinformation.

Emergence of Psychiatric Medications

In December 1951, a breakthrough was made in psychiatric medication when Thorazine was first synthesized (Ban, 2007). Thorazine, or chlorpromazine, is an antipsychotic medication that has been used to treat conditions, such as schizophrenia (Cunha, 2021). The drug is not perfect, but was certainly an improvement from the available treatments at the time, proving to be a substantial improvement in safety and efficacy (Fabian, 2017). Although the brand name Thorazine has been discontinued in the United States, generic forms of chlorpromazine are still distributed and used to this day (Cunha, 2021). The effectiveness and success of chlorpromazine led to the development of other psychotropic drugs, including Risperdal, Zyprexa, Abilify, and Seroquel (Fabian, 2017). The development of chlorpromazine was integral in the genesis of the field of neuropsychopharmacology.

While psychotropic drugs have been an instrumental innovation in mental healthcare since their emergence in the field, their popularity may be contributing to generic, overgeneralized approaches to mental illnesses. The emphasis on the utilization of psychiatric medications to treat mental illness has accompanied the stigmatization of other important forms of treatment, including talk therapy (Mental Health Myths and Facts, 2017). The increasing reliance on pharmacological treatments has largely been dictated by their rapid improvement and

the advantages of new psychotropic drugs (Frank, et al., 2005). The shift towards a focus on pharmacological treatments has also been fueled by the emergence of direct to consumer advertising, often seen on social media, which has been found to increase patients' likelihood of preference for psychotropic medication, as opposed to psychotherapy (Frank, et al., 2005). In addition, the expansion of insurance coverage for prescription drugs has influenced the market for pharmacological treatments in mental health, as well as increasing the frequency of its usage (Frank, et al., 2005). Unfortunately, the growing enthusiasm towards psychotropic medication in treating mental illness has provided space for the practice of inappropriate prescribing, in addition to the stigmatization and trivialization of other safe, effective, and sometimes necessary approaches to treating mental illness.

Prescribed psychotropic medications may seem like a simple and obvious solution to mental illness, but this approach may not always be the safest and most effective option. Many patients in the United States obtain prescriptions for psychotropic drugs, particularly antidepressants, from primary care physicians without having been evaluated by a mental health professional (Smith, 2012). In the absence of communication with a mental health professional, patients may not always be aware of other available options for treatment that may be safer and more effective, including cognitive behavioral therapy (Smith, 2012). The use of psychotropic drugs has been increasing since their genesis in the 1950's, but the recent 22% in use from 2001 to 2010 underscores the growing concern of inappropriate prescribing among many mental health professionals (Smith, 2012).

Particularly concerning has been the use of powerful antipsychotic medications in elderly nursing homes, as well as the overwhelming misuse of prescribed stimulants among children who may have been misdiagnosed with attention-deficit/hyperactivity disorder (ADHD) (Smith,

2012). Antipsychotic medications have been prescribed to the elderly in nursing homes experiencing symptoms of psychosis and other behavioral issues associated with dementia, despite the proven increased risk of death in these patients among a variety of other serious symptoms (Smith, 2012). In 2010, approximately one million children were misdiagnosed with ADHD, likely because of their age and maturity relative to their older classmates (Michigan State University, 2010). Additionally, children in foster care are four and a half times more likely to be prescribed antipsychotic medications than other children, especially concerning in the conversation of inappropriate prescribing practices (Smith, 2012).

The development of Prozac in 1987 was significantly responsible for the disproportionate shift away from psychotherapy and towards psychiatric medications. Prozac has fewer adverse side effects than alternative antidepressants and remains one of the most popular antidepressants in the United States (Schimelpfening, 2021). Since the emergence of Prozac, the use of antidepressants in the United States has increased by four times (Smith, 2012). In 2010, antidepressants became the second most prescribed medication in the country, behind cholesterol lowering drugs (Insel, 2011). Furthermore, the use of psychotherapy has been declining in correspondence with the rising use of psychotropic drugs. Between 1998 and 2007, the proportion of patients using only medication without psychotherapy increased from 44% to 57%, while only psychotherapy decreased from 16% to 10.5%, and combination of the two decreased from 40% to 32% (Clay, 2011). Early on in the pandemic, psychiatrists were slow to adapt COVID-19-specific psychopharmacology guidelines, jeopardizing treatment with psychotropic medications (Luykx, et al., 2020). Notably, one study found an absolute increase in the prescription of antipsychotic medications, antidepressant medications, and trazodone among nursing home residents in Ontario, Canada during the pandemic (Stall, 2021).

While many people will experience improvements in mental health after being administered prescription medications, these psychotropic drugs can do more harm than good for others. In many cases, treatment with psychotropic drugs may actually increase the risk of relapsed symptoms (Davey, 2014). Inappropriate prescribing can result in the development of a dependence on prescription medications, when psychotherapy may have sufficed (Juergens, 2020). In addition, the use of prescription medications at the onset of mental illness symptoms, rather than psychotherapy, can lead patients to place the responsibility of their recovery in the hands of their medical professional (Davey, 2014). The approach of psychotherapy may lead to a more collaborative perception of the recovery process, requiring the attention and effort of both the clinician and patient.

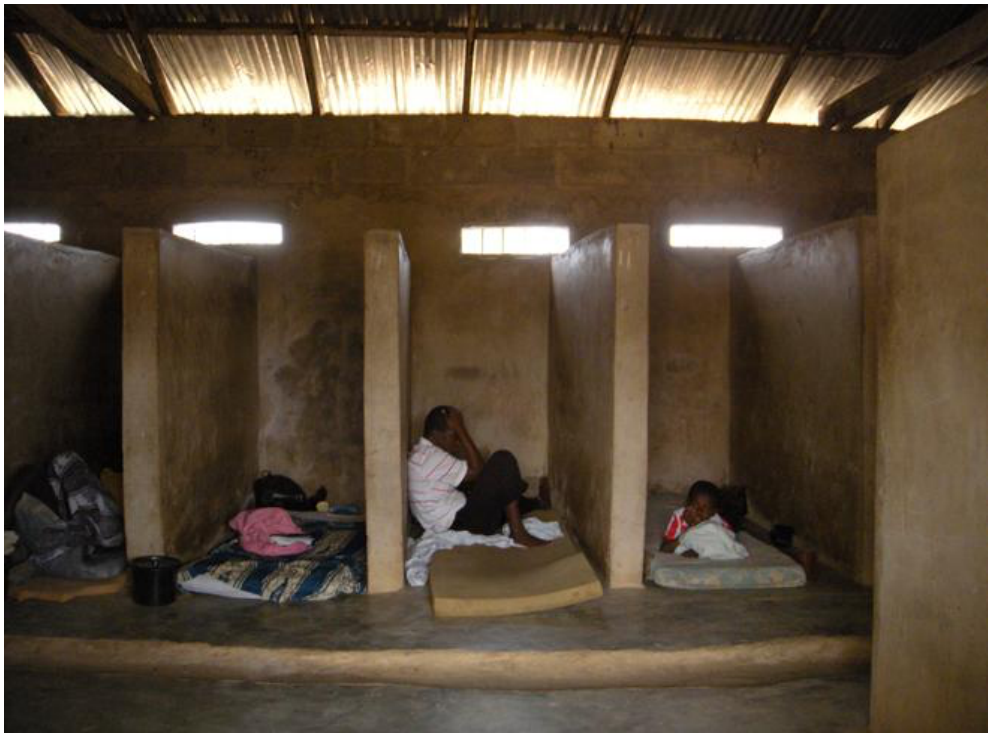
Modern Isolation of Mental Illness

As society and its understanding of mental illness have developed, particularly the medications used to treat symptoms of mental illness, asylums and mental institutions have simultaneously become less popular. Improvements have been made in the quality of mental health care and awareness, although mental institutions are still prevalent in some places (Arboleda-Flórez and Stuart, 2012). Certain communities without the facilities of a mental hospital will keep people struggling with mental illness chained up outdoors, or even cast out entirely from the community (Arboleda-Flórez and Stuart, 2012). In many parts of Western Africa, where mental health awareness is abysmal, prayer camps have served as a primary option for mental health treatment (Carey, 2015). People often seek out prayer camps due to a lack of faith in doctors and traditional medicine (Edwards, 2014).

Prayer camps in Ghana have been particularly harmful actants in the network of mental health and misinformation. They continue to operate under the guise of being a compassionate, religious response to mental illness. In reality these prayer camps keep people with mental illness in inhumane conditions, subjecting them to human rights violations (Barriga, 2014). Human beings are chained to trees and concrete structures, sometimes with no cover (Barriga, 2014). Kept in their chains, people are made to urinate, defecate, bathe, and sleep in the same space (Barriga, 2014). The practice of holding people in chains in inhumane conditions continues to persist in prayer camps despite a 2017 ban on such activity (Human Rights Watch, 2019). While people can challenge their detention in psychiatric hospitals because of Ghana's 2012 Mental Health Act, this does not apply to prayer camps, leaving people suffering with mental illness no legal action to take (Barriga, 2014). Privately-owned Christian institutions operate these prayer camps with foundations in evangelical or Pentecostal denominations (Barriga, 2014).

Figure 4

Heavenly Ministries Spiritual Revival and Healing Center.



Note. Some people with presumed mental disabilities lived in buildings with cubicles for each resident and were chained to walls. They could not leave the cubicles without permission of the staff at the prayer camp. From "The (In)human Dimension of Ghana's Prayer Camps," by Barriga, 2014.

Meanwhile, in the United States, people suffering through mental illnesses are subjected to similar experiences of violence and cruelty through encounters with the criminal justice system. People who are experiencing a mental health crisis are more likely to interact with law enforcement than a medical professional (Jailing People with Mental Illness, 2021). In fact, individuals suffering through untreated mental illness are sixteen times more likely to be killed during an encounter with law enforcement than other citizens without mental illness (Carroll, 2018). Additionally, people suffering during mental health crises are nine times more likely to be incarcerated than hospitalized (Zezima, 2020).

Approximately two million people with mental illness are imprisoned each year in the United States, most of which are being tried or have been convicted for nonviolent crimes (Jailing People with Mental Illness, 2021). In prison, people suffering with mental illness do not have access to the care they need and as a result, the symptoms of their conditions actually get worse, which may be part of why individuals with mental health conditions remain imprisoned longer than their counterparts (Jailing People with Mental Illness, 2021). Essentially, jails and prisons have become the United States' largest and least effective psychiatric facilities (Zezima, 2020). Around 25% of people in the criminal justice system struggle with a mental illness and over 550,000 people suffer from serious mental illness in jail on any given day (Zezi2020).

The abusive tactics used to control inmates with mental illness often involve violence resulting in serious injury or even death, which significantly provokes and worsens symptoms, making the process of re-entering communities more difficult (Honberg, 2015). Human Rights Watch conducted a review and reported the use of these inappropriate practices in interactions with people suffering from mental illness, including spraying them with painful chemicals, physically beating them brutally, shocking them with electric stun guns, and restraining them in chairs or beds for days at a time (Honberg, 2015). In addition, inmates struggling with mental illness will often be forced into long-term solitary confinement, despite the fact that long term isolation has been proven to cause significant psychological distress among people without mental illness (Honberg, 2015). The practice of long-term solitary confinement as a means of controlling inmates with mental illness is even more debilitating and is essentially torture for these individuals (Honberg, 2015).

In fact, a systematic review of other systematic reviews found a consistent link between social isolation and loneliness and poor mental health and cardiovascular outcomes (Leigh-Hunt,

et al., 2017). This is particularly concerning when considering the impact of the COVID-19 pandemic on mental health. Isolation has largely contributed to people being more likely to experience mental health crises during the pandemic (Panchal, et al., 2020). People experiencing a mental health crisis are more likely to interact with the criminal justice system (Jailing People with Mental Illness, 2021). As such, people who are experiencing mental health crises related to isolation may be treated with further isolation through interactions with the criminal justice system. The criminal justice system in the United States has had an extremely negative impact as an actant in the network of the COVID-19 and mental health syndemic of misinfodemics, often ineffectively responding to mental illness driven by isolation in the pandemic with further isolation in the criminal justice system, where they are at an increased risk of getting sick from COVID-19.

During the COVID-19 pandemic, prisoners have been at an increased risk of contracting the virus, as well as receiving inadequate care or no care at all after getting sick. As of March 2, at least 386,765 prisoners in the United States have tested positive for COVID-19 and at least 2,459 of them have died from health issues related to the virus (The Marshall Project, 2021). In addition, one in every five imprisoned Americans tested positive for the virus by December of 2020, testing positive at a rate greater than four times the rate of the general population (Schwartzapfel, et al., 2020). The spread of the virus in prisons has been largely unregulated, as prisoners are often unable to social distance from each other (Schwartzapfel, et al., 2020). Furthermore, testing in prisons has been very limited, hindering the ability to mitigate the spread of the virus (Schwartzapfel, et al., 2020). In addition, COVID-19 patients in prisons have received little or no care, resulting in sicker individuals and more deaths than to be expected (Schwartzapfel, et al., 2020). As a result, people imprisoned during the COVID-19 pandemic,

notably people experiencing mental health crises, may feel as though they have been given a death sentence.

Not only are individuals in the midst of a mental health crisis at an increased risk of arrest and violent interactions with the police, they are also more likely to get COVID-19. Mental illness can impact a person's ability to make healthy lifestyle choices and avoid illness, as well as influencing the likelihood of engaging in risky behavior, particularly when a mental illness has gone untreated or mistreated. People diagnosed with mental illnesses within the past year have been found to be at an increased risk of getting COVID-19 (Wang and Xu, 2020). Furthermore, these individuals generally have worse health outcomes than people infected with COVID-19 without any mental illness (Wang and Xu, 2020).

In order to control the spread of COVID-19, it is essential to tackle the longstanding mental health crisis that has been provoked alongside the COVID-19 pandemic. The ongoing mental health crisis has been perpetuated by misinformation, stigmatization, and ineffective responses to mental illness. Resolving the mental health crisis will necessitate the deconstruction of these powerful cultural forces, which have been deeply ingrained in the United States. Stigmatization driven by factors including the media, religion, familial dynamics, and communications technologies, will always pose a potential barrier to the utilization of resources. It is essential that people suffering with mental illness during the pandemic utilize necessary resources in order to limit the amount of risky behavior in a population. In addition, these influences can fuel the impaired efficacy of some mental health professionals. As such, deconstructing misinformation surrounding mental illness will be necessary in addressing the mental health crisis. Furthermore, the intentions of various responses to mental illness must be critically analyzed, notably the rapid medicalization of mental health patients, as well as

imprisonment that cruelly punishes, rather than treating and rehabilitating people in need. Forming a better societal understanding of people with mental illness, their behavior, and the productiveness of various responses will be essential in limiting the spread of COVID-19, especially as mental health fatigue rises as the pandemic persists.

Chapter II: The COVID-19 Misinfodemic

Misinformed arguments supporting anti-vaccination have been circulated by means of the internet, notably social media, increasing incidences of preventable diseases, such as measles (Helmi, et al., 2017). The notion that vaccinations are associated with autism is often part of why parents' are hesitant to vaccinate their children. In fact, The Lancet published an article by Andrew Wakefield supporting this connection, the research of which was found to be flawed and unethical (Ferriman, 2004). After the results were proven false, Wakefield's study was retracted by The Lancet (Boseley, 2010). He was removed from the United Kingdom Medical Registry, and he was barred from practicing medicine due to his abuse of power and trust, as well as contributing to the stigmatization of the medical science field (Meikle and Boseley, 2010). By the time these actions were taken, the damage had already been done; the misinformation spread across the globe, leading to a fall in vaccination rates that would persist after several studies debunked the myth (University of Cincinnati, 2012). The myth created by this study has led to outbreaks of preventable diseases across the world, as measles was declared endemic in the United Kingdom in 2008 (Godlee, et al., 2011). Meanwhile, in 2019, the most cases of measles were recorded in the United States since 1992, and the majority of patients were unvaccinated, highlighting the loss of public confidence in vaccines ("Measles Cases and Outbreaks," 2020). Misinformation spreads online like a virus with negative health consequences, and the power of misinfodemics lies in the virality of the misinformed messages that they spread.

COVID-19 Misinformation Globally

Twitter bots and Russian internet trolls have been active actants in the COVID-19 misinfodemic network by antagonizing the anti-vaccine conflict in the United States, provoking

an unnecessary and misguided debate (Broniatowski, et al., 2018). The divisive misinformation disseminated by Russian entities abroad, in the United States, and even within the country itself, has been a weapon historically employed by Russia. Russian intelligence services equivalent to the Central Intelligence Agency, namely the G.R.U. or Organization of the Main Intelligence Administration, have been spreading misinformation about COVID-19 and the pandemic, contributing to the tumultuous, divisive and highly political environment of the pandemic (Barnes and Sanger, 2020). The novel COVID-19 virus has been mysterious and perplexing to the scientific community, as well as being highly contagious and deadly. The intentional spread of misinformation by government entities, which can be specifically defined as *disinformation,* as well as unknowingly by lay citizens, poses even greater concern for health outcomes of the dangerous COVID-19 virus when considering the pandemic in terms of misinfodemics, that is the worsening of health outcomes due to the viral spread of misinformation.

In addressing the pandemic, it is essential to acknowledge the existence of the coinciding misinfodemic, as both epidemics have been far-reaching, drawing global attention to the severity of misunderstandings of COVID-19. The various misinformed ideas about the pandemic have survived long after the initial outbreaks and will continue to have persisting negative effects on global health. In Meedan's "2020 Global Misinfodemic Report," they found the evolution of COVID-19 misinformation to include unproven treatments, penalties for spreading information, and xenophobic perspectives (Marrelli, 2020). The COVID-19 misinfodemic has become a global pandemic, manifesting differently between communities. In Iran, social media has spread fake remedies, notably the idea that consuming high-proof alcohol would kill the virus in the body, resulting in deaths and sickness due to methanol poisonings, with some provinces having

even more deaths from methanol poisoning than COVID-19 in March of 2020 (Karimi and Gambrell, 2020).

This thesis will specifically analyze the environment of the COVID-19 misinfodemic in Iran because of the country's strained relation with the United States that may have contributed to the positioning of the Iranian government as incompetent in the global COVID-19 pandemic, as well the role highly active media, religious, and political actants in the COVID-19 misinfodemic network. Iran's government had been facing a crisis of delegitimization and dying public trust leading up to the pandemic. Iran's outbreak occurred early on and the quarantine response was delayed, marking Iran as one of the initial epicenters in the global COVID-19 pandemic. The Iranian government downplayed the severity of the virus, and its inadequate response sparked international criticism that established public distrust (Sadjadpour, 2020). In April, the IRGB unveiled their 'fake' COVID-19 detectors, which would ultimately undermine their authority (Paton, 2020). In addition, news channels associated with the state and the IRGC proliferated conspiracy theories about the origin of COVID-19, providing more fuel for the distrust of the government (Alimardani and Elswah, 2020). The lack of trust in the Iranian government, as well as narratives tied to religion and politics, have contributed to the spread of misinformation related to COVID-19 (Alimardani and Elswah, 2020).

Due to the loss of trust for the Iranian government, many Iranians have turned to unqualified community leaders, such as religious figures, for important news and health science information. When the outbreak first hit Iran, religious leaders suggested that religious shrines would have sacred protection from the spread of COVID-19 and insisted on keeping the shrines open, which perpetuated the particularly dire situation of Iran as an epicenter early in the pandemic (Alimardani and Elswah, 2020). Ayatollah Abbas Tabrizan, also known as the "father

of Islamic medicine," is an Islamic religious figure who challenges westernization and western medicine, and his followers have been known to question modern medicine, refusing vaccinations and other medical advice (Faghihi, 2020). Tabrizan has recommended treatments for COVID-19 that are completely ineffective, and his followers have rubbed "the perfume of the Prophet" on the lips of patients and spread the idea that camel urine could treat the virus (Alimardani and Elswah, 2020). While some religious leaders have contributed to the dangerous spread of COVID-19 misinformation, others have actually stood out as strong leaders in public health, leading community members to accurate medical science information (Alimardani and Elswah, 2020). Modern communication and social media platforms have allowed for the dissemination of health misinformation fueled by religious ideology, posing as another form of misinformation contributing to the misinfodemic.

The United States, Misinformation, and Conspiracies

The United States is another country with politicians that inadequately responded to the COVID-19 pandemic early on, as well as spreading conspiracy theories, particularly spreading racist rhetoric. In May, Donald Trump claimed to have seen evidence to suggest that the virus had originated from a lab in Wuhan, China, despite contradictory statements from the Office of the Director of National Intelligence and criticisms that his calling COVID-19 the "Chinese virus" may be encouraging xenophobia (Cohen, et al., 2020; Rogers, et al., 2020). Despite accumulating incidents of Anti-Asian American offenses, many conservative politicians continued to use terms like Trump's "Kung Flu" and "China virus" (Shi, 2021; "President Trump calls coronavirus 'kung Flu,'" 2020).

The Stop AAPI National Report found between March of 2020 and February of 2021 almost 3,800 cases of Asian hate incidents, over 15% more than the previous year (Jeung, et al., 2021). White House Press Secretary Jen Psaki suggested that the damaging rhetoric of Trump's administration certainly played a damaging role in rising threats against Asian Americans (Porterfield, 2021). Meanwhile, the Anti-Defamation League published a study finding that online harassment towards Asian Americans increased from 11% to 17% of Asian Americans during the COVID-19 pandemic (Anti-Defamation League, 2021). The study also found that the increasing presence of anti-Asian American perspectives online was connected to the racist rhetoric of Trump and other politicians regarding the coronavirus and its origins (Anti-Defamation League, 2021). The bigotry and conspiracy theories that spread online were fueled by Trump and other politicians, and played a large role in the spike in physical violence towards Asian Americans (Anti-Defamation League, 2021).

There is a relationship between mental health and the acceptance of misinformation and conspiracy theories. Conspiracy theories often consist of beliefs that a group of actors collude to achieve some malicious goal (van Prooijen and Douglas, 2018). A variety of personality traits are linked to beliefs in conspiracies, including entitlement, self-centered impulsivity, cold-heartedness, elevated depressive and anxious moods, as well as a pattern of thinking termed 'psychoticism' (Bowes, et al., 2020). Psychoticism is a feature of schizotypal personality disorders, characterized by odd beliefs, magical thinking, and paranoid ideation (Carey, 2020). The psychoticism feature is similar to a mild form of psychosis, an identifier of schizophrenia (Carey, 2020). Additionally, psychopathological traits, namely schizotypy and delusion-proneness, provide strong predictors for beliefs in false conspiracies (Georgiou, et al., 2019). Meanwhile, paranoid ideation and schizotypy are strongly associated with acceptance of

conspiratorial theories (Darwin, et al., 2011). People are particularly likely to buy into conspiracy theories during times of stress like the COVID-19 pandemic (van Prooijen and Douglas, 2017). In fact, high rates of stressful life events and higher degrees of perceived stress predict belief in conspiracies (Swami, et al., 2016).

Conspiracy theories are shockingly common in society and are not always linked to underlying mental health issues, like psychopathological conditions (Oliver, 2014). Uncertainty and the feeling of lacking control often contribute to the development of conspiracy theories, as they serve as a method of finding sense in stressful situations (van Prooijen and Douglas, 2017). Popular conspiracy theories typically form in societal crisis situations in particular (van Prooijen and Douglas, 2017). Although conspiracy theories are often a response to anxiety and uncertainty, acceptance of these theories may actually exacerbate the feeling of not being in control (van Prooijen and Douglas, 2017). Furthermore, by placing responsibility for tragedies, social issues, and other societal crises on a few powerful, colluding actors, attention is diverted from legitimate structural, systemic, and institutional failures (Jolley, et al., 2017). The acceptance of conspiracy theories is tied to feelings of anxiety, fear, uncertainty, and lacking control (van Prooijen and Douglas, 2017). Societal crisis situations may provoke these feelings in people, which explains the fact that conspiracy theories often originate in times of societal crisis (van Prooijen and Douglas, 2017).

While conspiracy theories have always been widespread, the emergence of the internet and social media platforms has provided a medium to reach a far greater number of people. Whether or not the proportion of conspiracy theorists has actually increased due to the presence of social media is unclear, but certainly social media has increased the amount of conspiracy theories in circulation, as well as allowing them to spread much quicker than in the past

(Cummings, 2020). Obvious sources for the spread of online misinformation and conspiracy theories include social networking and media sharing platforms such as YouTube, Facebook, Instagram, and Twitter (Allington, 2021). There are also origins in the comments sections of popular newspapers, as well as from online influencers who actually profit financially through infecting their viewers with misinformation (Wood and Douglas, 2015; Center for Countering Digital Hate, 2020). The environment of the COVID-19 pandemic has been conducive to the proliferation of misinformation and conspiracy theories, as the pandemic has been highly stressful, challenged the authority and legitimacy of governments and organizations like the WHO, as well as attracting massive amounts of social media attention in a time when technology and social media use has been far more frequent, in part due to the potential risks of leaving the house (Wold, 2020). Notably, stronger support of conspiracy theories specifically related to COVID-19 have also been associated with broader conspiratorial beliefs (Georgiou, et al., 2020).

Religion and Politics

The environment of misinformation related to COVID-19 in the United States is similar to that of Iran, as the network of misinformation in the United States has been tied to religious and political actants. The United States has a history of refusal to buy into vaccinations, fueled by conservatism, as well as a variety of religious ideologies (Baumgaertner, et al., 2018; Pelčić, et al., 2016). The internet has provided an effective medium for the increased spread of misinformed arguments, as 31 million people follow anti-vaccine groups on Facebook (Burki, 2020). The influence of religion and politics has dangerously situated controversies in medical science information in the realm of subjective opinion, rather than well-informed facts. This development has led to pockets of communities forming across the country and the internet,

notably social media, where members of such communities both support each other's misconceptions and attempt to further the spread of misinformation (Helmi, et al., 2017). The role of perspective and ideology in spreading health misinformation has been visible in the anti-vaccination crusade for years, as the dissent in the United States and other countries often stems from communities of religious conservatives.

The relation between religious conservatives and medical misinformation has remained consistent in the environment of misinformation related to the COVID-19 pandemic in the United States, as the spread of dangerous misconceptions and refusal to cooperate with community health safety guidelines has largely stemmed from this same religious conservative demographic. Since the start of the quarantine, there has been pressure to re-open the economy, often interwoven with calls to re-open churches (Baker, et al., 2020). As the virus takes an increasing number of lives, the importance of social distancing persists, but simultaneously the desire for in person religious gatherings also increases (Baker, et al., 2020). Guidelines for restricted in-person gatherings, meant to protect the public health, have limited the experience of religious services, and these restrictions have been opposed on the premise of religious services being essential, the restriction of which is supposedly infringing upon religious liberty (Baker, et al., 2020).

Religion and misinformation during the pandemic certainly have a relationship, but religiosity itself has actually been a predictor of Americans practicing social distancing and other precautionary actions (Perry, et al., 2020). In reality, Christian nationalism is the demographic culprit in predicting disregard for preventative measures in the spread of COVID-19 (Perry, et al., 2020). Christian nationalism is an ideology that suggests a revisionist history, that the United States was founded as a Christian nation and should be one today (Zubovich, 2018). Christian

nationalists are united in a distrust for the news media, a disregard for scientific authority, and the belief that Americans are chosen and protected by the Lord (Perry, et al., 2020). Trump, as well as many other conservative politicians, has been effective in rhetorically appealing to these three perspectives during his political career, firmly maintaining the support Christian nationalists, even through his inadequate handling of the COVID-19 outbreak and global pandemic (Bailey, 2020).

Trump and Misinformation

Early on in the pandemic, Trump suggested that handling the virus would be a success, "especially as the weather starts to warm & the virus hopefully becomes weaker, and then gone" (Trump, 2020). Trump has consistently downplayed the severity of the virus and the pandemic, attempting to reassure the American public that the United States has handled the pandemic exceptionally well, and ultimately undermining the gravity of the situation and the lives that have been lost (Paz, 2020). He even admitted to his intention of playing down the severity of the virus, hoping not to cause panic, despite being fully aware of its infectiousness and deadliness (Gregorian, 2020). Trump and his administration have proven to be detrimental actants in the COVID-19 misinfodemic network, consciously spreading misinformation and racist rhetoric.

Trump's administration enlisted a task force that ultimately co-opted the credibility of the Centers for Disease Control and Prevention (C.D.C.) by posting guidelines for coronavirus testing to their website, circumventing the typical C.D.C. scientific review (Mandavilli, 2020). Specifically Trump's task force posted recommendations for who to test for the coronavirus, a post that was not written by C.D.C. scientists, and was posted despite objections from C.D.C. scientists (Mandavilli, 2020). The post claimed that people without symptoms did not need to

receive testing, even if they had been exposed to the virus, among other obvious mistakes (Mandavilli, 2020). The glaring mistakes posted to the C.D.C.'s website by Trump's taskforce severely undermined efforts to control the spread of the virus, as well as the authority and credibility of the organization, with dire implications for the global perception of the United States' C.D.C.

In addition, Trump has challenged the effectiveness of masks in preventing the spread of the virus, and has publicly shown reluctance in wearing one, even while he was infected with the virus (Paz, 2020; Baker, 2020). His consistent dishonesty, particularly related to COVID-19, made his positive diagnosis alarming, as the information relayed about his health was inherently hard to believe (Beauchamp, 2020). Trump has been the most significant agent in the misinfodemic, using his platform as the President of the United States to spread misinformation about the COVID-19 pandemic, perpetuating the politicization of precautionary methods like social distancing and mask wearing, galvanizing Christian nationalists, and having a dire impact on the United States' public health and awareness.

A recent study by Cornell researchers found that the largest proportion in the spread of the COVID-19 misinformation in the media has been held by Donald Trump; the President of the United States may have been the actor with the largest role in the COVID-19 misinfodemic (Evanega, 2020). The majority of this misinformation was related to ineffective treatments, such as antimalarial drugs, powerful lights, and disinfectants (Evanega, 2020). Although he claims the comments to have been sarcastic, Donald Trump's suggestion that injecting disinfects might be an effective treatment had serious consequences (Chiu, et al., 2020). In the 18 hours after his comments, the New York Poison Center received 30 calls about disinfectants, in addition to other areas reporting increases in poison center calls related to disinfectants (Glatter, 2020). Trump's

promotion of unproven treatments has dangerous implications for the spread of misinformation, as well as health outcomes. His use of social media and technology as a medium for disseminating his ideas was seen long before the pandemic, and the misinformation he spread during the pandemic was amplified through his use of digital media, outsizing his role in the misinfodemic.

Not only has Trump touted antimalarial drugs as a safe and effective method of COVID-19 prevention, but has also announced his own personal use of it, despite the National Institutes of Health's disapproval of this use of the antimalarial medication (Solender, 2020). The President's high profile endorsement of this misinformed practice is especially alarming considering the data showing an increase in the risk of death after taking hydroxychloroquine by 34%, as well as a 137% greater risk of developing cardiac arrhythmia (Togoh, 2020). This increases to 45% greater risk of death and 411% greater risk of cardiac arrhythmia when taken in combination with antibiotics, which Trump claimed to have taken as well (Togoh, 2020). In fact, a man died and his wife was hospitalized after consuming chloroquine meant for cleaning their koi pond, thinking it was the same as the chloroquine suggested to ward off COVID-19 in the media (Shepherd, 2020). Trump's endorsement of misinformation, in combination with the FDA's emergency use authorization, caused the prescription rate of these antimalarial drugs to increase by a factor of 80 between February and March (Perez, 2020). The rapidity with which ineffective antimalarial drugs were accepted has contributed to the fear of a political rush to find a vaccine (Perez, 2020).

Political Rush to Vaccine

Donald Trump was determined to push a vaccine through the FDA's approval process, and even claimed that no president has ever pushed the FDA in the way he has (Feuer, 2020). Trump's intention to roll out a vaccine before the election had a clear ulterior motive; he knew implementing a vaccine and reopening the economy would serve to benefit his re-election campaign (Masket and Reich, 2020). In August, Trump claimed that in a few months a safe and effective vaccine had been produced "so hundreds of millions of doses can be quickly available," with the hope of administering a vaccine in time for the election (Thrush, 2020). While being able to safely vote in person may have been ideal, it was an unrealistic goal considering the typical timeline of FDA approval for vaccines, meant to ensure safety and efficacy (Masket and Reich, 2020; U.S. Food and Drug Administration).

The dangers of rushing a vaccine to the general public were highlighted in the case of former United States President Gerald Ford's "National Swine Flu Immunization Program," which, similarly to Donald Trump's push for a vaccine, seemed politically motivated by his re-election campaign (Kreston, 2020). Ford's mass vaccination campaign was disastrous, as the virus turned out to be less deadly than expected, while the vaccine was found to have adverse side effects, resulting in over four-hundred and fifty people developing the paralyzing Guillain-Barré syndrome (Kreston, 2020). This public health failure likely contributed to Ford's re-election loss and the American public's distrust in medical science and vaccinations (Kreston, 2020).

The political rush to a vaccine from the conservative party is intriguing considering the association of the religious right with anti-vaccination. Some Christian nationalists have refused to abide by COVID-19 safety guidelines, and many Christians have felt that their rights to

religious freedom have been infringed upon by social distancing measures. Simultaneously, many 'libertarians' have objected to public health guidelines as infringing upon their liberty, although true libertarianism would cite exposing others to increased risk of an infectious virus as the more pressing infringement on freedom (Ledewitz, 2020). Despite Trump's push to vaccine and the right's desire to reopen the economy and return to 'normal' life, the concern remains that the anti-vaxxers will maintain their refusal to vaccinate even with a safe COVID-19 vaccine rolled out, which would have negative consequences in halting the spread of the virus (Burki, 2020). In addition, Americans who have consistently adhered to vaccinations are growing wary of a possible COVID-19 vaccine, because of the political push from Trump and accelerated FDA approval process (Hoffman, 2020). The effectiveness of a potential vaccine is undermined by substantial populations refusing to adhere to vaccination, as the premise of vaccines relies on herd immunity, which can even protect those who are not vaccinated from the spread of the virus (U.S. Department of Health & Human Services, 2020). If enough people refused to vaccinate, the vaccine could be a failure, which would have frightening implications for the environment of distrust for vaccines and medical science going forward (Hoffman, 2020). Additionally, the possibility of crossover between populations of anti-vaxxers and anti-maskers is extremely concerning, as both groups perpetuate the spread of misinformation and disease (Bracho-Sanchez, 2020).

The idea of the pandemic persisting due to the spread of misinformation fueling the politicized refusal of vaccination poses a concern to the mental health of people who have been in quarantine and following safety guidelines for months. The internet has emerged as an essential means of spreading misinformation, infecting netizens and perpetuating misinfodemics (Margit Erdelyi, 2020). The constant consumption of massive amounts of news and media,

notably containing misinformation, has contributed to the stress of Americans and the existence of "headline stress disorder," particularly in the age of the COVID-19 pandemic (Margit Erdelyi, 2020; The Cybersmile Foundation, 2020). False and misleading news is intended to manipulate the public and is designed to evoke an emotional response through its provocative nature (Margit Erdelyi, 2020). The content itself can result in feelings of anger, suspicion, anxiety, and depression, and the recognition of the content as 'fake news' can cause similar emotional effects (Margit Erdelyi, 2020). In this way, the COVID-19 misinfodemic has contributed to the relationship between COVID-19 and mental health as a syndemic, providing an addition to the many mental health stressors associated with the pandemic.

Chapter III: COVID-19 and Mental Health as a Syndemic

During the COVID-19 pandemic, many countries have introduced physical and social distancing measures, as well as quarantine, lockdown, and curfew restrictions, in order to mitigate the spread of the virus. These necessary measures have taken on a complex role as actants in the network of the COVID-19 and mental health syndemic, greatly impacting social life, as the COVID-19 pandemic has profoundly changed everyday life around the world. While these measures have been necessary and largely effective in halting the spread of the virus, they have also corresponded with intensifying the long standing mental health crisis. Remarkable lifestyle changes in the past year have had a significant impact on mental health, in regards to both acute and chronic conditions (Marroquín, et al., 2020). As everyday life has changed drastically, many people have developed novel mental health conditions, while others have experienced exacerbated symptoms of pre-existing conditions (Lake, 2020). Specifically, feelings of isolation, stress, and fear have contributed to the mental health crisis that has occurred alongside the COVID-19 pandemic (‘Mental Health and Coping During COVID-19,’ 2020).

Mental health disorders were already a pressing global health issue prior to the global COVID-19 pandemic, as 450 million people in the world lived with a mental illness at the beginning of 2019 (Fox, 2019). The COVID-19 pandemic and its associated public health policies have provoked the longstanding mental health crisis, establishing a syndemic constructed by the nuanced relationship between the co-occurring COVID-19 pandemic and mental health crisis, as well as their many intersecting factors which are synergistic in contributing to the burden of both illnesses (William and Shiel, 2018).

In order to reduce the burden of illness exaggerated by the syndemic, particularly the spread of COVID-19, deaths related to COVID-19, the prevalence and incidence of mental

health illness, and deaths related to mental health illness, it is necessary to understand COVID-19 and mental health illness as a syndemic with many complicated, intersecting components (William and Shiel, 2018). The global mental health crisis has rapidly developed into a much larger crisis alongside the COVID-19 pandemic, exemplifying the term syndemic (Fox, 2019; Lake, 2020).

The spread of COVID-19 and the presence of mental illness and fatigue in a community adversely contribute to one another in many ways. For example, a Centers for Diseases Control of Prevention (CDC) study in June of 2020 found that 31% of respondents reported symptoms of anxiety or depression, 13% reported having started or increased substance use, 26% reported stress-related symptoms, and 11% reported having serious thoughts of suicide in the past 30 days, nearly twice the rates expected prior to the pandemic (Czeisler, et al., 2020). One statistic that is particularly illuminating in the relationship between the mental health crisis and the COVID-19 pandemic is that 18.1% of patients who have had COVID-19 will be diagnosed with a psychiatric disorder, including depression, anxiety, and insomnia within three months, and 5.8% will have had their first diagnosis (Taquet, et al., 2021). Furthermore, the same study found the relationship between mental health and COVID-19 to be bidirectional, as patients with mental illness were at a 65% greater risk of contracting COVID-19 (Taquet, et al., 2021). Patients who have been hospitalized for COVID-19 are particularly vulnerable to mental illness, reporting waking up feeling like they are still in the hospital or even struggling to breathe (Wang, et al., 2020; Wamsley, 2020). Conceptualizing the two global health issues as a syndemic promotes interventions intended to address both as collaborating forces with a multifactorial relationship, a strategy necessary to effectively halting the spread of the virus.

Addressing mental illness as a public health issue is an arduous task, even without

considering the syndemic approach in the context of COVID-19 and mental health. The mental health crisis alone has a breadth of social, environmental, political, and other influences that require a multidimensional approach. Many countries, especially lower income countries, have lacked the necessary resources to respond to the mental health crisis preceding the COVID-19 pandemic (Fox, 2019). Limited resources and inaccessibility of health care pose significant barriers to mental illness treatment (Lake and Turner, 2017). Many countries and communities have cultures of stigmatization around mental illness and the utilization of mental health services that prevents many people in need from seeking necessary care (Lake and Turner, 2017). Only recently have healthcare workers around the world begun to break down mental health as a taboo topic and emphasize the importance of acknowledging mental illness and its relationship with overall health.

Mental Health, Physical Health, and Social Well-Being

The global health community has paid increasing attention to mental health in the past few years and has begun to recognize the importance of addressing mental health in reaching global development goals (Volkov, 2020). The common misconception of mental health and physical health as distinct entities ignorantly disconnects the mind and body. Physical health is directly impacted by mental health, and in fact, the World Health Organization (WHO) defines health as a state of physical, mental, and social well-being (David, 2020). Mental illness can bring about a variety of physical health complications, such as heart disease, high blood pressure, weakened immune system, obesity, asthma, gastronomical issues, and even premature death (Oberheu, 2019). In addition, mental illness can often affect a person's ability in making healthy life choices, avoiding illnesses, notably infectious diseases, and fighting chronic conditions, as

well as their performance in school or work and their personal lives and relationships (Oberheu, 2019; Volkov, 2020).

Mental illness certainly has the potential to disseminate into other aspects of life, notably one's agency in making decisions that affect their health, their ability to avoid illness, and their prognosis in fighting off ailments, particularly chronic ones (Oberheu, 2019). This poses two primary concerns when considering the COVID-19 and mental health syndemic. The first is that individuals who are struggling with mental illness may make reckless choices that may expose themselves to the virus, or even others after being infected (Wang and Xu, 2020). The second concern is that mental health could affect a patient with a pre-existing illness and their ability to monitor the condition during the pandemic.

In January, National Public Radio (NPR) reported a story of a seventeen year old girl named Lindsey who has struggled with autism long before the pandemic. She has trouble communicating and navigating social interactions, and thrived on her routine and special help at school prior to the pandemic (Turner, et al., 2021). Her mother, Sandra, explained how Lindsey would continue to get up early, get dressed, and wait for the school bus, even after her school closed during the pandemic (Turner, et al., 2021). When the school bus would not show up, she would wander away from the house. Sandra called her state's mental health crisis hotline, but would often get put on hold, receiving no reply until the crisis was already resolved (Turner, et al., 2021). Meanwhile, the local emergency room told Sandra there was little they could do for Lindsey (Turner, et al., 2021). One day, Lindsey left the house for chips without any pants on, and Sandra, feeling she had no other option, called the police, who would go on to wrestle Lindsey to the ground (Turner, et al., 2021). When Sandra protested their violence, they threatened to arrest her too (Turner, et al., 2021). Many families have faced similar

circumstances with mental health crises during the pandemic, where they feel the police are their only remaining option.

As the pandemic persists, and in some places continues to get worse, those with pre-existing conditions have experienced changes in their ability to adequately monitor such conditions. In addition, pre-existing illnesses that may qualify a patient as high-risk pose great concern when considering the effect of mental health on maintaining other elements of overall health, including monitoring pre-existing conditions and preventing COVID-19 infection. Not only have patients with mental illness had trouble treating pre-existing chronic conditions, the same can be said of COVID-19. Patients with mental disorders have been shown to have worse outcomes than those without mental illness, highlighted by the death rate almost twice as high for those struggling with mental illness (Wang and Xu, 2020). Specifically, patients with schizophrenia are almost ten times as likely to contract COVID-19 and almost three times as likely to die from COVID-19 after falling ill than patients without any mental illness (Gordon, 2021).

Many children with serious emotional or behavioral struggles, such as autism, severe anxiety, depression, and trauma-related mental health conditions are facing unprecedented barriers to managing their conditions. With schools and doctor's offices closed during much of the pandemic, many children have been deprived of accessing critical resources, notably teachers and therapists familiar with their conditions and needs (Turner, et al., 2021). Simultaneously, many of these children with mental health challenges rely on consistent routines, which have been destroyed by the pandemic and associated public health policies (Turner, et al., 2021). Many kids are also deeply missing socialization with their friends in school, especially young kids who do not yet have the capacity to have meaningful interactions on Zoom and other online

platforms (Denworth, 2020). The fallout of these detrimental changes can end up being serious mental breakdowns, leaving parents in a state of paralysis. Mental health crisis hotlines often have long waiting times, defeating the purpose of the service, while hospitals can do little to help in these situations (Turner, et al., 2021). Parents have been left with few options of recourse, as their children have been disconnected from their support systems and mental health resources, with nowhere else to turn (Turner, et al., 2021).

Another particularly concerning age group during the pandemic is the elderly. Prior to the pandemic, elderly isolation was already a major concern, which is now growing into a pressing crisis. As the elderly are a vulnerable population to COVID-19, friends and family have been especially careful around them, often insisting on social distancing. For Karen Schams, a 70 year old woman who lives alone in Ashland, the pandemic meant no more weekend trips to visit and hug her grandchildren (Reed and McKenzie, 2020). Schams underwent lung cancer surgery in May of 2020, which left her cancer free, but still left damage in her lungs (Reed and McKenzie, 2020). As such, she is an extremely vulnerable individual to COVID-19, and remained strictly isolated for her own safety (Reed and McKenzie, 2020).

Around two weeks before the pandemic hit its stride in the United States, on February 27th of 2020, the National Academy of Sciences reported social isolation and loneliness in older adults as a growing public health issue with dire implications (National Academies of Sciences, 2020). Isolation greatly increases the risk of mortality, more so than smoking, obesity, and lack of physical activity (Reed and McKenzie, 2020). Specifically, isolation and loneliness significantly increase risk of depression, anxiety, and suicidal thoughts, as well as risk of stroke, coronary heart disease, cancer mortality, development of dementia, functional decline, and death (Reed and McKenzie, 2020). Particularly troubling has been the experience of elderly people

living in long-term care facilities who once relied on visits from family and friends, and now feel abandoned because of the restrictions preventing such visits (Reed and McKenzie, 2020). Furthermore, many elderly individuals who contracted COVID-19 were confused about why people could not visit them early on in the pandemic, and sadly many individuals passed away isolated in the hospital, without the option of being visited by family (Reed and McKenzie, 2020).

Mental Health Fatigue and Trauma

The pandemic has taken a massive toll on mental health, and as time goes on, many people are experiencing mental health fatigue that affects their ability to continue practicing effective social distancing methods and follow strict lockdown policies (Deliso, 2020). The WHO defines pandemic fatigue as "demotivation to follow recommended protective behaviors, emerging gradually over time and affected by a number of emotions, experiences and perceptions" (WHO Regional Office for Europe, 2020). The necessary precautions to avoid the virus during the pandemic can be emotionally and mentally exhausting, and people are more likely to engage in risky behavior as they grow more tired of these safety measures (Deliso, 2020). This phenomenon of growing mental health fatigue hinders the ability to combat the spread of the virus at a community level, highlighting the relationship driving the syndemic (Deliso, 2020). The more time passes with these fundamental changes in lifestyle, the more strain communities will experience in mental health, which will impede interventions intended to halt the spread of the virus.

Mental illness can take many different forms with a wide range of severity, some of the most common anxiety disorders being depression, bipolar disorders, eating disorders, personality

disorders, post-traumatic stress disorder (PTSD), and psychotic disorders, among many others (MedlinePlus, 2020). Chronic mental health conditions are ongoing and persistent in their debilitating effect on patients. The psychiatric symptoms of these chronic conditions can affect patients' daily activities, work, school, and relationships (Park, et al., 2012). Changes in lifestyle and environment, as well as traumatic events, such as the COVID-19 pandemic, can certainly provoke these symptoms (Center for Substance Abuse Treatment, 2014). PTSD is a notable example of a mental health condition that often becomes chronic, a condition with an increasing level of risk during the COVID-19 pandemic (National Institute of Mental Health, 2019). In fact, the COVID-19 pandemic has brought up symptoms of PTSD among gay men, retained from the beginning of the HIV epidemic (Bitterman, 2020).

The changes in lifestyle induced by the COVID-19 pandemic, potentially traumatic changes, may also produce cases of acute mental illness, in addition to provoking chronic mental illnesses. Acute mental illness is distinguished by the sudden and rapid onset of distressing symptoms of mental illness that necessitate immediate treatment in patients, some of which have never experienced mental illness before, while others may experience the sudden worsening of an ongoing condition (Mount Carmel Hospital, 2020; Michigan Medicine Department of Psychiatry, 2020). Acute stress disorder is characterized by an intense adverse reaction to a traumatic event and is a precursor to PTSD, as well as an example of acute mental illness that may be directly impacted by the pandemic (Barnhill, 2020). Mental health is frequently related to traumatic experiences, and this connection is not limited to acute stress disorder and PTSD.

The COVID-19 pandemic has been a traumatic event for many people. The pandemic has provided innumerous contributing stressors to mental illness that are categorizable as traumatic or general stressors. Some of these traumatic stressors include experiencing severe

illness, hospitalization, witness of death, loss of a loved one, and frequent exposure to a high-degree of detail related to COVID-19, notably in the healthcare environment (Tucker and Czapla, 2021). Meanwhile, general stressors produced by the pandemic would include exposure to COVID-19, quarantine, isolation, loss of employment and income, working from home, caregiving, making troubling medical decisions, and inability to access personal protective equipment (Tucker and Czapla, 2021). The pandemic has necessitated many stressful lifestyle changes, as well as producing more frequent occurrences of stressful or traumatic life events.

While many of these lifestyle changes are typically categorized as general stressors, rather than traumatic stressors, some unique circumstances could thrust the experience over the threshold of trauma, as sheltering in place is not equally adverse for each individual. For many people, the changes in daily life associated with social distancing and lockdown measures are stressful, but manageable, while others have been forced into particularly difficult circumstances during the pandemic, altering general stressors into significantly traumatic stressors. Isolation, quarantine, and working from home are all stressors associated with the necessary measures to control the spread of the virus, but these stressors could be traumatic in abusive environments. Unfortunately, these necessary public health interventions have corresponded with the unintended consequence of trapping survivors of domestic violence and abuse with their abusers, forcing survivors into traumatic environments (Evans, et al., 2020).

Many domestic violence hotlines experienced a decrease in calls during the pandemic, but experts in the field suggest that this decrease is explained by survivors of domestic abuse being unable to access a safe location to utilize such services (Evans, et al., 2020). Meanwhile, medical offices that can screen for intimate partner violence and domestic abuse have commonly shifted to telemedicine platforms. The shift towards telemedicine has made the service

inaccessible to many survivors of domestic abuse because of unreliable internet access and close proximity to abusers who may overhear the conversation (Evans, et al., 2020).

In addition to trapping survivors with their abusers, the pandemic has provoked stressful home environments, as well as factors in violence prevention. As many people's activities have shifted to digital environments within the home, notably education and work, the home environment has become increasingly stressful. These stressful changes have contributed to an increase in domestic abuse, including cases of child abuse (Mozes, 2020; Pefley, 2020). Additionally, limited job opportunities are available at this moment in time, making separation difficult without an alternative source of economic support (Evans, et al., 2020). To make matters even more complicated, many shelters and hotels have been forced to reduce their capacity or shut down completely, while travel restrictions have prevented relocation to safe havens (Evans, et al., 2020). In France, reports of domestic violence have increased by 30% between lockdowns in March and June, while emergency calls for domestic violence cases increased by 25% and helplines in Singapore and Cyprus have documented a 33% and 30% increase in calls, respectively (UN WOMEN, 2020). Meanwhile, a review paper found that domestic violence incidents increased by 8.1% after lockdowns began (Bailey, 2021). The pandemic has aggravated many difficult circumstances intertwined with mental health, including trauma and domestic abuse, in a constantly changing environment of stressors and responses.

People around the world have been forced into extremely difficult circumstances, unable to access mental health resources and support systems necessary to their physical and mental well-being. Due to the necessary restrictions associated with the pandemic, many of these people in need of support have lost resources that they have relied on in the past. These resources represent positive actants in the mental health network, although their impacts have

been limited by the COVID-19 pandemic. Others have found themselves in new and unfamiliar situations where they need support, but cannot access the critical services that have assisted people in similar situations prior to the pandemic. With no support systems available, many people struggling with mental illness have turned to drugs and alcohol during the pandemic, unfortunately, contributing to the mental health crisis. A report from the CDC found that 13.3% of adults developed new or increased use of substances to manage stress during the pandemic (Czeisler, 2020). Particularly concerning are populations of heightened risk for adverse mental health conditions associated with the COVID-19 pandemic, including young adults, racial and ethnic minorities, unpaid caregivers, health care workers, and those experiencing job insecurity, populations which reported worse mental health outcomes, increased substance abuse, and heightened thoughts of suicide (Czeisler, 2020; Panchal, et al., 2020). In addition to the sudden inaccessibility of mental health resources due to the COVID-19 pandemic, substance abuse services have become increasingly inaccessible as well (Panchal, et al., 2020).

Toxic Communities

Similarly to those who have been forced to shelter at home in abusive living environments, many people have had to shelter in toxic communities. These toxic communities have been particularly dangerous actants in the network of the COVID-19 and mental health syndemic of misinfodemics, contributing to worse health outcomes in COVID-19 and mental illness through their support of harmful misinformation. The United States is a large-scale example of this toxicity, as COVID-19 denial has fueled the country's failure to control the spread of the virus. The country's initial response to the virus severely lacked leadership, as well as being incoherent, lacking urgency, and being ineffective (Abutaleb, et al., 2020). Donald

Trump took 70 days to acknowledge the severity of the virus after initially being informed on January 3rd of 2020, downplaying the situation for more than two months (Abutaleb, et al., 2020). This slow reaction put the United States behind in controlling the spread of the virus, and Trump's rhetoric and skepticism contributed in emboldening a dangerous population of Americans in denial of the virus' existence and importance.

Figure 5

Protesters demonstrate against stay-at-home orders that were put in place due to the COVID-19 pandemic, in Huntington Beach, California, April 17, 2020.

Note. From "Pro-Trump Protesters Push Back on Stay-at-Home Orders," by Associated Press, 2020.

Across the United States, pockets of COVID-19 deniers emerged in communities, increasing the burden of illness in these places. The United States' culture of individualism showed its toxic nature by allowing scientific truths to be altered into subjective opinion (Morris, 2020). In some of these small communities of COVID-19 denial, healthcare workers have been

alienated by the politicized distrust of medical science (Morris, 2020). Healthcare workers have been made out to be the enemy, with their professional guidance being disregarded as offensive and conspiratory (Morris, 2020). This alienation has driven many healthcare workers out of their small, rural communities, leaving gaping holes in their healthcare systems. The denial of the legitimacy of COVID-19 and refusal to follow safety regulations will eventually catch up with these communities, which have been rendered vulnerable because of the alienation of their medical professionals (Morris, 2020).

Not only are COVID-19 deniers and anti-maskers putting themselves at risk, they are putting their entire community at risk of both COVID-19 infection and mental health illness. The alienation of passionate healthcare providers is damaging to their mental health, leaving many of them feeling broken (Morris, 2020). In addition, for members of the community who have been responsible and careful, following COVID-19 safety protocols, this rift and resulting exodus of medical professionals from the area or even profession could cause a great deal of stress. Trying to convince anti-maskers to believe in science and reason can be exhausting and place a substantial burden on one's mental health, not to mention the heightened fear and risk caused by these delusioned individuals' dangerous behavior and their alienation of essential healthcare workers (Kerr, 2020).

In fact, evidence suggests that mental health plays a role in the acceptance of conspiracy theories and misinformation. People with underlying conspiratorial beliefs and psychopathological traits are more likely to develop strong beliefs in conspiracy theories (Georgiou, et al., 2019). Schizotypal personalities have also been proven to be associated with conspiratorial beliefs (Barron, et al., 2017). Additionally, extremely stressful external events, such as a global pandemic, may make an individual more prone to finding patterns, connections,

and meanings consistent with conspiracy theories (van Prooijen and Douglas, 2017). For example, the 9/11 terrorist attacks produced conspiracy theories regarding the United States' government's involvement in the accident, particularly that 'they' were responsible or had intentionally failed to prevent the attack (Dunbar and Reagan 2011). Understanding the complex relationship between mental health and acceptance of misinformation could provide key insights into increasing adherence to social distancing measures and lockdown restrictions, necessary to controlling the spread of the virus.

The pandemic has severely impacted acute and chronic mental health conditions, provoking pre-existing conditions and producing new conditions. The acute and long-term effects are not completely certain at this time, but as the pandemic continues, more insights emerge, particularly for acute conditions (Newby, 2020). Understanding the relationship between COVID-19 and mental health will be essential in decreasing the burden of mental illness globally, as people have increased substance abuse and elevated thoughts of suicide during the pandemic (Czeisler, 2020). The long-term effects of the pandemic on mental health are not visible at this moment, but will certainly be a substantial concern even after the virus is under control. Previous national and global crises could provide key insights into predicting the pandemic's long-term and chronic effects on mental health, as such events have historically increased rates of serious mental illness (Lake, 2020). For example, the severe acute respiratory syndrome (SARS) epidemic was associated with increased risk of suicide among the elderly, as well as long-term effects, including post-traumatic stress among healthcare workers (Savage, 2020; Wu, et al., 2009). The long-term effects of the pandemic will be visible at the societal level if the concurrent mental health crisis is not adequately acknowledged, as mental health can dictate relationships, academics, and careers, affecting economic productivity (Lake, 2020). In

order to limit these long-term mental health effects, the healthcare system, including governmental, medical, and public health actors, must respond with a multifaceted approach to the mental health and COVID-19 syndemic.

Conclusion: The Digital Syndemic

In developing a multifaceted approach to the COVID-19 pandemic and mental health crisis, or the COVID-19 and mental health syndemic, it is essential to address each of the misinfodemics driving the syndemic along with other necessary public health interventions intended to treat and prevent cases of COVID-19 and mental illness. Many of these public health strategies and resources specific to the longstanding mental health crisis have been limited in terms of accessibility and effectiveness during the pandemic due to necessary social distancing measures, particularly early on. Mental health resources have been adapted to digital platforms, which affects the dynamic of the patient and healthcare worker and limits the potential for privacy during sessions. Meanwhile, the COVID-19 and mental health misinfodemics that have been propagated predominantly through digital media have been driving forces in the synergistic relationship between the COVID-19 pandemic and mental health crisis that constitutes a syndemic.

The integral role of digital media as an actant in the network of the COVID-19 and mental health syndemic of misinfodemics, supplemented with the shift to digital platforms for mental health services driven by the COVID-19 pandemic, constructs a digital syndemic. In conclusion, this thesis will attempt to create a roadmap for addressing the COVID-19 and mental health syndemic of misinfodemics, particularly with the tools available within the digital syndemic. In doing so, the conclusion of this thesis will identify some potentially effective strategies, but more so provide guidance in adequately addressing the COVID-19 pandemic and mental health crisis by acknowledging, understanding, and prioritizing their relationship that is exacerbated by misinformation.

Deconstructing the Mental Health Misinfodemic

The mental health misinfodemic has its own complex network of actants involved in the even more expansive network of the COVID-19 and mental health syndemic of misinfodemics. Calling attention to the role of powerful actants in the mental health misinfodemic is essential in its deconstruction, necessary to addressing the longstanding mental health crisis. Various forms of digital media actants have served as efficient mediums for the rapid dissemination of misinformed ideas about mental illness through the internet and popular culture, particularly spreading harmful misinformation that perpetuates the stigmatization of mental illness.

Portrayals of mental illness in digital media, notably news reports, movies, television, video games, and social media, are sensationalized in ways that misrepresent mental illness and spread misinformed understandings of conditions. The global culture around mental illness, particularly in the United States, must shift towards a more compassionate and sensitive understanding of these conditions and their representations in digital media. Accurate, responsible, and effective representations of mental illness actually contribute to better community understandings of mental health conditions (Srivastava, et al., 2018). These representations can be achieved by including the perspectives of stakeholders in the mental health crisis, including mental health patients and professionals.

Effective reports of mental illness should humanize mental health conditions by emphasizing them as being real, common, and treatable. Providing accounts of community leaders with mental illness can also offer hope to another individual struggling with mental illness that they can get through their experience with mental illness, while also raising awareness about the difficulty of managing mental health conditions. Highlighting the impact of mental illness on family and friends in depictions of mental illness can also empower people

with mental health conditions to take action and get help. In order to reduce the stigmatization of mental health in news media, journalists must be adequately educated in mental health terminology and sensitivity. In addition, mental healthcare workers should be involved in the production of films and other sources of media to prevent stigmatizing depictions. Including the voices of stakeholders in representations of mental illness can spread accurate and useful information in adequately recognizing and responding to a mental health crisis, which encourages struggling individuals and their loved ones to seek help by (Srivastava, et al., 2018). A number of models have been proposed to raise mental health awareness through media, notably including a proposal by the California Institute for Mental Health that specifically suggested targeting vulnerable Latinx populations by using Latinx media sources to raise awareness, promote information and resources, and reduce stigmatization (California Institute for Mental Health, 2013).

Media conglomerates, broadcasting companies, and other sources of digital media cannot exactly be forced to accept this guidance, so it is important to consider a diverse approach in deconstructing the stigmatization of mental illness through sensationalized and misinformed representations in digital media. In order to humanize mental illness and fight its stigmatization, individuals and communities must be encouraged to take action and make an effort to learn more about how to recognize, respond to, and talk about mental illness, how to recognize misinformed or sensationalized portrayals of mental illness, and to share this information openly with others. Encouraging people to be open about their experiences with mental illness and treatment options contributes to its normalization and humanization, which can be of great help to others struggling with mental illness.

Numerous organizations have taken action in the battle against misinformation spread through digital media. In deconstructing the mental health misinfodemic, these tools can be essential in identifying content and sources of misinformation. *Bad News* is a tool that was developed in 2018 to assist users in building an understanding of the techniques involved in the dissemination of misinformation (Gusmanson, 2018). The game puts players in the role of creating 'fake news' headlines, and the goal is to attract followers (Gusmanson, 2018). Meanwhile, countless fact checking organizations exist for a variety of platforms that allow the spread of misinformation. These fact checking organizations target specific mediums that disseminate misinformation, ranging from Twitter posts to statements from politicians. Creative approaches and applications of modern technology have been and will continue to be essential in the battle against misinformation, notably the mental health misinfodemic, which in turn will improve the efficacy of public health interventions and health outcomes.

Deconstructing the COVID-19 Misinfodemic

. Media companies, particularly media conglomerates, have been essential actants in the network of both the COVID-19 and mental health misinfodemics as mediums for the spread of misinformation. For example, when CNN published concerns about an anticipated lock-down in Lombardy, a northern region in Italy, just hours before the Italian Prime Minister could relay the information (Cinelli, et al., 2020). In attempts to escape the area, people overcrowded trains and airports before the lock-down was put in place, interfering with the containment of the virus (Cinelli, et al., 2020). This rapid spread of accurate information caused chaos and reckless behavior, and even more concerning is the potential dangers of this rapid dissemination when dealing with misinformation.

Social media platforms like Twitter, YouTube, and Instagram allow for easy, rapid access to enormous amounts of content. YouTube, in particular, is owned by Google and Americans spend an aggregate of 8.061 years on the service every day, while only spending 713 years on Facebook daily (Koetsier, 2018). These platforms have been equipped with advanced algorithms that track users' preferences and reactions, which then gets taken into account in advertisements and suggested content curated to each individual's personality. Furthermore, many people form social media networks consisting of like-minded individuals, as people often choose not to view content from individuals with differing opinions (Dickinson, 2020). Online users generally seek out information supporting their preconceptions, while rejecting contradictory information, demonstrating confirmation bias (Bessi, et al., 2015; Zollo, et al., 2017). This results in the formation of polarized groups with shared narratives known as echo chambers, and this high polarization increases the likelihood that misinformation will spread (Vicario, et al., 2019). Facebook has been demonstrated to have a particularly high degree of segregation in information sharing, compared to Reddit, likely due to the nature of their feed algorithms, as Reddit allows users to adjust their preferences, whereas Facebook provides curated content solely determined by an algorithm (Cinelli, et al., 2021). The high polarization and segregation of ideologies in digital media networks results in more rapid spread of information, so the role of different types of algorithms as actants in the network of digital misinfodemics has implications for the mechanisms that produce such misinfodemics and how they can be deconstructed.

Approaches to addressing to COVID-19 misinfodemic take a similar form to approaches for the mental health syndemic, emphasizing empowering the dissemination of accurate information and rejecting misinformation. One potentially effective strategy could be identifying key individuals with large network influences, such as popular actors, athletes, social media

influencers, and other celebrities, with or without science backgrounds, recruiting and deploying them to share accurate and useful information related to COVID-19 with their large networks, as well as encouraging social distancing measures and desired behaviors (Young, et al., 2020). Early on in the pandemic, Governor Cuomo's social media team rolled out videos of celebrities, including Danny DeVito, Ben Stiller, Robert DeNiro, and LaLa Anthony, pressuring people to follow social distancing guidelines (Harris, 2020). After posting these videos, Cuomo's social media accounts grew in unprecedented numbers of followers, while the posts themselves have also received a lot of attention (Harris, 2020). The ability for these celebrity social media posts to rapidly reach a large audience highlights the potential of enlisting celebrities in the battle against misinformation and COVID-19. These messages from popular celebrities are especially important in a time when trust for the government is limited, particularly when considering the highly politicized COVID-19 vaccine that many people distrust because of its expedited FDA approval timeline. Celebrity endorsements of vaccines have been a strategy employed throughout history, a strategy that may have an increasing effect with the emergence of digital and social media technologies (Ives, 2021).

Another strategy could be attempting to precipitate the viral spread of these desired behaviors and important, accurate information through viral campaigns (Young, et al., 2020). A specific example of this viral campaign strategy can be seen in infographics that spread virally on social media, particularly Instagram stories. Furthermore, the spread of misinformation can be disrupted by modifying the actual networks by removing certain actants like malicious bots or even introducing beneficial bots that spread well-informed messages to the network (Young, et al., 2020). In addition, the structure of digital media networks that provide a medium for the spread of misinformation can be reformed, notably including Instagram's algorithm that

frequently suggests misinformation (Center for Countering Digital Hate, 2021). Social media companies must be pressured or even incentivized to construct buffers against the spread of misinformation. These companies may be hesitant or completely unwilling, as restricting the content of posts could result in the loss of many accounts, particularly ones belonging to people who support misinformation. Halting the dissemination of misinformation has actually been taken more seriously by social media companies recently, particularly during the COVID-19 pandemic, although their actions have not been significant enough to effectively address the issue.

In December of 2020, Twitter updated its policies on hate speech, but the Anti-Defamation League suggested that this change made no significant difference (Twitter Safety, 2020; Shalvey, 2021). Donald Trump was an actor integral in the spread of both misinformation and hate speech connected to Asian Americans and COVID-19. After years of spreading misinformation online, Donald Trump was banned from Twitter recently in January of 2021 for his role in the storming of the United States' capitol, cutting him off from one of his key tools in spreading misinformation and hateful rhetoric during his administration (Timberg, 2021). Trump was also banned from Facebook, Instagram, Reddit, and Snapchat, as well as being temporarily banned by YouTube for a week (Denham, 2021). Online misinformation related to election fraud dropped 73% after the historic restrictions and even bans of Trump's activity on social media platforms, as well as many of his closest allies (Dwoskin and Timberg, 2021).

Meanwhile, the Disinformation Dozen, a group of anti-vaxxers, maintain roles in spreading misinformation in digital media, specifically related to COVID-19 vaccines. These individuals have a large following, while also introducing large amounts of anti-vaccine content into the digital network. (Center for Countering Digital Hate, 2021). They are responsible for up

to 65% of vaccine content, producing up to 73% of Facebook's anti-vaccine content, while up to 17% of tweets are associated with the Disinformation Dozen (Center for Countering Digital Hate, 2021). The Disinformation Dozen have repeatedly violated Facebook, Instagram, and Twitter's terms of service agreements, but nine of them remain on all three platforms, and Robert F. Kennedy, Sherri Tenpenny, and Rizza Islam have only been removed from one platform (Center for Countering Digital Hate, 2021).

The COVID-19 misinfodemic has been largely perpetuated by actors like Donald Trump and the Disinformation Dozen. Social media platforms like Facebook, Instagram, and Twitter are responsible in the COVID-19 Misinfodemic, as they have demonstrated a systemic failure in promptly and adequately responding to dangerous misinformation, failing to respond to 95% of COVID-19 and vaccine misinformation (Center for Countering Digital Hate, 2021). A key strategy in halting the spread of destructive misinformation is to decrease the visibility of major actors in the network of misinformation. Removing the Disinformation Dozen's platforms by banning them and their organizations from social media platforms like Facebook, Instagram, and Twitter is an essential action in addressing the COVID-19 misinfodemic by cutting off the source of misinformation for a large following. Social media platforms should provide adequate warning for users following links to websites known to present misinformation and effective corrections when viewing posts containing misinformation (Center for Countering Digital Hate, 2021). Deconstructing the COVID-19 misinfodemic by providing netizens with reliable information and sufficient cautions when exposed to misinformation will assist public health interventions in decreasing the spread of the virus by increasing acceptance of social distancing guidelines and vaccine adherence.

Approaching COVID-19 and Mental Health as a Syndemic

In collaboration with deconstructing the COVID-19 and mental health misinfodemics, recognizing and approaching the COVID-19 pandemic and mental health crisis as a syndemic will be essential in improving the health outcomes of both these intertwined global health crises. The COVID-19 pandemic took a massive toll on mental health. Soon after the initial outbreaks, the COVID-19 pandemic took priority globally, taking attention away from many other pressing global health issues, including the mental health crisis. Furthermore, the necessary lockdowns and strict social distancing policies early in the pandemic were detrimental to mental health, provoking the longstanding mental health crisis. The COVID-19 pandemic and mental health crisis have proven to be synergistic in their relation to each other, as the persistence of each crisis hinders the effectiveness of public health interventions targeted to them individually. As such, the mental health crisis can no longer be shelved if the COVID-19 pandemic is going to finally end. In order to address both the COVID-19 pandemic and the mental health crisis, it is necessary to understand their relationship as a syndemic, and consider this relationship when developing public health approaches for each.

This paradigm shift will encourage a broad network approach to public health issues, emphasizing their interconnected nature that necessitates multi-pronged strategies. Throughout the pandemic, the potential of digital healthcare to increase the accessibility of adequate mental healthcare has become clear. Investing resources into these digital healthcare services, particularly digital therapy and mental health apps, will be essential in tackling the mental health crisis during the digital syndemic. Non-medical treatments, such as talk-therapy and mindfulness practices, must be emphasized, as medications are not always effective, safe, or affordable (Lake, 2020). Furthermore, the utilization of talk therapy services must be

encouraged, as they have not only been decentered by powerful pharmaceutical companies for years, but have also lost appeal as in person activities have been limited during the pandemic. Developing robust, accessible, and equitable virtual alternatives for mental illness treatment will also be key in reducing cases of serious mental illness, as well as providing a safe option during the pandemic (Blumenfield and Levin-Scherz, 2020).

The violent and brutal policing of individuals experiencing mental health crises must come to an end. The police should not be a primary institution in approaching mental illness, as they have a history of violence towards patients with mental illness. Communities need to develop more compassionate and logical responses to mental illness, investing more resources into programs that train and deploy individuals educated in interacting with people in the midst of a mental health crisis. Police funds must be reallocated to provide better education for police officers in interacting with people experiencing mental health crises. In addition, social service workers should address non-crime-related emergency calls, rather than the police, as social workers have specific training and skills that allow them to provide better care to those experiencing mental health crises.

The COVID-19 pandemic has limited the activities that people engaged in as means of managing mental health before the outbreak, activities ranging from exercise and other casual outlets to mental health services including talk therapy. Even school and work provided structure for many people's lives that made their conditions more manageable. The shift to digital platforms that removed this structure for many people, as well as the loss of other essential resources has been detrimental to communities and individuals' mental health. Communities need to stress compassion for mental illness, a global health issue that has only become more pervasive during the COVID-19 pandemic. For example, many schools have

provided students with days off intended for self care and stress management, as this year has posed unprecedented challenges to students in managing their course loads.

Digital media has played an integral role as an actant in the network of the COVID-19 and mental health syndemic of misinfodemic, fueling the spread of misinformation that exacerbates the COVID-19 and mental health syndemic. While the digital syndemic has raised significant barriers in addressing the syndemic of misinfodemics, it has also produced novel approaches to mental illness that could serve as key services even after the pandemic, particularly the development of robust digital healthcare services like digital talk-therapy that, in some cases, increase the accessibility of mental healthcare. Emphasizing the treatment of mental illness along with the COVID-19 pandemic is crucial in reducing risky behavior that perpetuates the spread and improving vaccination adherence, both of which are necessary to ending the COVID-19 pandemic that has driven the long standing mental health crisis. As such, recognizing the synergistic relationship of COVID-19 and mental illness and the importance of addressing the mental health crisis will be essential in ending the COVID-19 and mental health syndemic of misinfodemics.

Bibliography

1. History - London's 'Great Stink' and Victorian Urban Planning. (2004, November 4). Retrieved November 09, 2020, from http://www.bbc.co.uk/history/trail/victorian_britain/social_conditions/victorian_urban_planning_04.shtml
2. Lemon, J. (n.d.). Sir Michael Faraday: A Biography (Concentrated on his efforts to clean up the Thames River). Retrieved November 09, 2020, from http://www.choleraandthethames.co.uk/cholera-in-london/the-great-stink/michael-faraday/
3. Mann, E. (2016, April 04). Story of cities #14: London's Great Stink heralds a wonder of the industrial world. Retrieved November 09, 2020, from https://www.theguardian.com/cities/2016/apr/04/story-cities-14-london-great-stink-river-thames-joseph-bazalgette-sewage-system
4. Xiao Mina, A., & Gyenes, N. (2018, August 30). How Misinfodemics Spread Disease. Retrieved November 09, 2020, from https://www.theatlantic.com/technology/archive/2018/08/how-misinfodemics-spread-disease/568921/
5. Frerichs, R. (2005). Father of modern epidemiology. Retrieved April 30, 2021, from https://www.ph.ucla.edu/epi/snow/fatherofepidemiology.html
6. Joseph Lister's Antisepsis System. (2018, October 14). Retrieved April 30, 2021, from https://www.sciencemuseum.org.uk/objects-and-stories/medicine/listers-antisepsis-system
7. Detel, W. (2002, November 02). Social Constructivism. Retrieved May 01, 2021, from https://www.sciencedirect.com/science/article/pii/B008043076701086X
8. Latour, B. (2005). Reassembling the social - an introduction to actor-network-theory. Retrieved May 01, 2021, from https://ui.adsabs.harvard.edu/abs/2005reso.book.....L/abstract
9. Dankert, R. (2016, February 16). Using actor-network theory (ant) doing research. Retrieved May 02, 2021, from https://ritskedankert.nl/using-actor-network-theory-ant-doing-research/
10. 10 Evil Vintage Cigarette Ads Promising Better Health. (2019, August 02). Retrieved November 13, 2020, from https://www.healthcare-administration-degree.net/10-evil-vintage-cigarette-ads-promising-better-health/
11. Duke, J., Alexander, T., Zhao, X., Delahanty, J., Allen, J., MacMonegle, A., & Farrelly, M. (2015, December 17). Youth's Awareness of and Reactions to The Real Cost National Tobacco Public Education Campaign. Retrieved November 09, 2020, from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4682984/
12. Allgaier, J., & Svalastog, A. (2015, October). The communication aspects of the Ebola virus disease outbreak in Western Africa--do we need to counter one, two, or many epidemics? Retrieved November 09, 2020, from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4655935/
13. Public Library of Science. (2007, August 22). HIV Denialists Spread Misinformation Online: Consequences Could Be Deadly. *ScienceDaily*. Retrieved November 10, 2020 from www.sciencedaily.com/releases/2007/08/070821081431.htm

14. Myths about HIV and AIDS. (2020, April 14). Retrieved November 13, 2020, from https://www.avert.org/hiv-transmission-prevention/myths
15. Daley, J. (2019, January 30). Syndemic: The Little-Known Buzzword That Describes Our Troubled Times. Retrieved January 16, 2021, from https://www.smithsonianmag.com/smart-news/syndemic-little-known-buzzword-describes-our-troubled-times-180971381/
16. The Lancet. (2017, March 4). Syndemics: Health in context. Retrieved January 17, 2021, from https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(17)30640-2/fulltext
17. NATIONAL CENTER FOR HEALTH STATISTICS. (2020, May). National Health Interview Survey Early Release Program: Early Release of Selected Mental Health Estimates Based on Data from the January–June 2019 National Health Interview Survey. Retrieved May 10, 2021, from https://www.cdc.gov/nchs/data/nhis/earlyrelease/ERmentalhealth-508.pdf
18. Adults Reporting Mental Illness in the Past Year. (2021, March 16). Retrieved May 10, 2021, from https://www.kff.org/other/state-indicator/adults-reporting-any-mental-illness-in-the-past-year/
19. Whitney, D., & Peterson, M. (2019, April 01). US National and State-Level Prevalence of Mental Health Disorders and Disparities of Mental Health Care Use in Children. Retrieved May 10, 2021, from https://jamanetwork.com/journals/jamapediatrics/fullarticle/2724377?guestAccessKey=f689aa19-31f1-481d-878a-6bf83844536a
20. Mental Health America. (2021). The State Of Mental Health In America. Retrieved May 10, 2021, from https://www.mhanational.org/issues/state-mental-health-america
21. Suicide Prevention: Fast Facts. (2021, March 23). Retrieved May 10, 2021, from https://www.cdc.gov/suicide/facts/index.html
22. Altiraifi, A., & Rapfogel, N. (2020, September 10). Mental Health Care Was Severely Inequitable, Then Came the Coronavirus Crisis. Retrieved May 10, 2021, from https://www.americanprogress.org/issues/disability/reports/2020/09/10/490221/mental-health-care-severely-inequitable-came-coronavirus-crisis/
23. Reddy, M. S. (2010, January). Depression: The Disorder and the Burden. Retrieved May 10, 2021, from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3137804/
24. The World Health Organization. (2019, November 28). Mental disorders. Retrieved May 10, 2021, from https://www.who.int/news-room/fact-sheets/detail/mental-disorders
25. van Ommeren, M. (2019, June 11). Mental health conditions in conflict situations are much more widespread than we thought. Retrieved May 10, 2021, from https://www.who.int/news-room/commentaries/detail/mental-health-conditions-in-conflict-situations-are-much-more-widespread-than-we-thought
26. Adults Reporting Symptoms of Anxiety or Depressive Disorder During COVID-19 Pandemic. (2021, April 16). Retrieved May 10, 2021, from https://www.kff.org/other/state-indicator/adults-reporting-symptoms-of-anxiety-or-depressive-disorder-during-covid-19-pandemic/?currentTimeframe=0&sortModel=%7B%22colId%22%3A%22Location%22%2C%22sort%22%3A%22asc%22%7D

27. University of Michigan. (2020, July 14). Curated information on COVID 19: Endowment for Basic Sciences: Michigan Medicine. Retrieved May 12, 2021, from https://medicine.umich.edu/dept/ebs/curated-information-covid-19
28. Santos, I. D., Grosche, V. R., Goulart Bergamini, F. R., Silva, R. S., & Gomes Jardim, A. C. (2020, August 13). Schematic structure of SARS-CoV-2 [The viral structure is primarily formed by the structural proteins such as spike (S), membrane (M), envelope (E), and nucleocapsid (N) proteins. The S, M, and E proteins are all embedded in the viral envelope, a lipid bilayer derived from the host cell membrane. The N protein interacts with the viral RNA in to the core of the virion.]. Retrieved May 12, 2021, from https://www.frontiersin.org/files/Articles/554339/fmicb-11-01818-HTML/image_m/fmicb-11-01818-g001.jpg
29. Centers for Disease Control and Prevention. (2021, May 7). Coronavirus (COVID-19) frequently asked questions. Retrieved May 12, 2021, from https://www.cdc.gov/coronavirus/2019-ncov/faq.html#:~:text=Coronaviruses%20are%20thought%20to%20be,%2C%20products%20or%20packaging.
30. Robinson, B. (2020, April 04). The psychology of Uncertainty: How to cope With COVID-19 Anxiety. Retrieved May 13, 2021, from https://www.forbes.com/sites/bryanrobinson/2020/03/12/the-psychology-of-uncertainty-how-to-cope-with-covid-19-anxiety/?sh=5ff4e699394a
31. Pathak, N. (2021, April 20). Surface cleaning and COVID-19: What you should know. Retrieved May 13, 2021, from https://www.webmd.com/lung/how-long-covid-19-lives-on-surfaces
32. Osmond, D. (2003, March). Comprehensive, up-to-date information on HIV/AIDS treatment and prevention from the University of California San Francisco. Retrieved January 17, 2021, from http://hivinsite.ucsf.edu/InSite?page=kb-01-03
33. Margit Erdelyi, K. (2020, August 12). The Psychological Impact of Information Warfare & Fake News. Retrieved November 26, 2020, from https://www.psycom.net/iwar.1.html
34. Arboleda-Flórez, J., & Stuart, H. (2012, January). From sin to science: Fighting the stigmatization of mental illnesses. Retrieved February 24, 2021, from https://pubmed.ncbi.nlm.nih.gov/22854027/
35. Rössler, W. (2016, September). The stigma of mental disorders: A millennia-long history of social exclusion and prejudices. Retrieved February 01, 2021, from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5007563/
36. Vann, M. (2014, May 7). The 10 worst mental health treatments in history - Everyday Health. Retrieved March 01, 2021, from https://www.everydayhealth.com/pictures/worst-mental-health-treatments-history/
37. Thornicroft, G., Brohan, E., Rose, D., Sartorius, N., Leese, M. (2009, January 31). Global pattern of experienced and anticipated discrimination against people with schizophrenia: A cross-sectional survey. Retrieved February 11, 2021, from https://pubmed.ncbi.nlm.nih.gov/19162314/
38. Mental Health Myths and Facts. (2017, August 29). Retrieved February 23, 2021, from https://www.mentalhealth.gov/basics/mental-health-myths-facts

39. Ahmedani, B. (2011, December 29). Mental health stigma: Society, individuals, and the profession. Retrieved February 12, 2021, from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3248273/
40. Bulthuis, E. (2020, February 27). The truth behind common mental health myths. Retrieved February 23, 2021, from https://www.healthpartners.com/blog/mental-health-myths/
41. National Institute of Mental Health. (2021, January). Mental Illness. Retrieved February 23, 2021, from https://www.nimh.nih.gov/health/statistics/mental-illness.shtml
42. Center for Disease Control and Prevention. (2021, January 12). FastStats - leading causes of death. Retrieved February 23, 2021, from https://www.cdc.gov/nchs/fastats/leading-causes-of-death.htm
43. Newman, T. (2020, October 5). 11 myths about mental health. Retrieved February 25, 2021, from https://www.medicalnewstoday.com/articles/medical-myths-mental-health-misconceptions#1.-Mental-health-problems-are-uncommon
44. Saleh, N. (2020, June 02). How Mental Health Issues Are Damaged by Mass Media. Retrieved January 29, 2021, from https://www.verywellmind.com/mental-health-stigmas-in-mass-media-4153888
45. Owen, P. R. (2012, July). Portrayals of Schizophrenia by Entertainment Media: A Content Analysis of Contemporary Movies. *Psychiatry Services, 63*(7).
46. Herald, N. (2019, November 3). [Britney Spears on the front cover of Daily Mirror newspaper following her infamous hair shaving incident.]. Retrieved May 12, 2021, from https://www.nzherald.co.nz/entertainment/new-documentary-reveals-shocking-new-details-about-britney-spears-2007-meltdown/ZYO4CGAF4ZFCI7YWJ6WOHNGQQA/.
47. Inglis, A., & Austin, J. (2013). The blame game. Retrieved February 22, 2021, from https://www.heretohelp.bc.ca/visions/families-vol8/the-blame-game
48. Nordt, C., Rössler, W., & Lauber, C. (2006, March 1). Attitudes of mental health professionals toward people with schizophrenia and major depression. Retrieved February 12, 2021, from https://pubmed.ncbi.nlm.nih.gov/16510695/
49. Stanley, N., Manthorpe, J., & White, M. (2006, July 13). Depression in the Profession: Social WORKERS' experiences and perceptions. Retrieved February 12, 2021, from https://academic.oup.com/bjsw/article-abstract/37/2/281/1705336
50. Yasgur, B. (2019, January 28). Challenging stigma: Should psychiatrists disclose their own mental illness? Retrieved February 12, 2021, from https://www.psychiatryadvisor.com/home/topics/mood-disorders/depressive-disorder/challenging-stigma-should-psychiatrists-disclose-their-own-mental-illness/

51. Concordia St. Paul. (2016, October 14). A history of mental illness treatment. Retrieved February 24, 2021, from https://online.csp.edu/blog/psychology/history-of-mental-illness-treatment/
52. Wolchover, N. (2011, October 05). Top 5 nobel prize goof-ups. Retrieved February 25, 2021, from https://www.livescience.com/16391-top-5-nobel-prize-goof-ups.html
53. Fabian, R. (2018, September 28). The history of inhumane mental health treatments. Retrieved March 01, 2021, from https://www.talkspace.com/blog/history-inhumane-mental-health-treatments/
54. Patients in Aberdeen Royal Mental Hospital, which first opened in 1800 [Digital image]. (2018, July 4). Retrieved from https://www.heraldscotland.com/news/16332708.psychiatry-nhs-overcrowded-asylums-shortage-beds/
55. Ban, T. (2007, August). Fifty years chlorpromazine: A historical perspective. Retrieved March 01, 2021, from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2655089/
56. Cunha, J. P. (2021, February 22). Side effects of thorazine (chlorpromazine), warnings, uses. Retrieved March 02, 2021, from https://www.rxlist.com/thorazine-side-effects-drug-center.htm#overview
57. Frank, R., Conti, R., & Goldman, H. (2005, June). Mental health policy and psychotropic drugs. Retrieved March 02, 2021, from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2690138/
58. Smith, B. (2012, June). Inappropriate prescribing. Retrieved March 03, 2021, from https://www.apa.org/monitor/2012/06/prescribing
59. Michigan State University. (2010, August 17). Nearly 1 million children potentially misdiagnosed with ADHD. Retrieved March 05, 2021, from https://msutoday.msu.edu/news/2010/nearly-1-million-children-potentially-misdiagnosed-with-adhd/
60. Schimelpfening, N. (2021, February 07). The 5 most used antidepressants. Retrieved March 05, 2021, from https://www.verywellmind.com/most-common-antidepressants-1066939
61. Insel, T. (2011, December 06). Post by Former NIMH Director Thomas Insel: ANTIDEPRESSANTS: A complicated picture. Retrieved March 05, 2021, from https://www.nimh.nih.gov/about/directors/thomas-insel/blog/2011/antidepressants-a-complicated-picture.shtml
62. Clay, R. (2011, September). Advocating for psychotherapy. Retrieved March 05, 2021, from https://www.apa.org/monitor/2011/09/psychotherapy

63. Luykx, J., Van Veen, S., Risselada, A., Naarding, P., Tijdink, J., & Vinkers, C. (2020, September). Safe and informed prescribing of psychotropic medication during the COVID-19 pandemic. Retrieved April 27, 2021, from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7248582/
64. Stall, N. (2021, March 15). Psychotropic drug prescribing among nursing home residents during the covid-19 pandemic. Retrieved April 27, 2021, from https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/2777521
65. Davey, G. (2014, January 30). Overprescribing drugs to treat mental health problems. Retrieved March 05, 2021, from https://www.psychologytoday.com/us/blog/why-we-worry/201401/overprescribing-drugs-treat-mental-health-problems
66. Juergens, J. (2020, November 30). Antidepressant addiction and abuse. Retrieved March 05, 2021, from https://www.addictioncenter.com/stimulants/antidepressants/
67. Carey, B. (2015, October 11). The chains of mental illness in West Africa. Retrieved March 01, 2021, from https://www.nytimes.com/2015/10/12/health/the-chains-of-mental-illness-in-west-africa.html
68. Edwards, J. (2014, January 4). Ghana's mental health patients confined to prayer camps. Retrieved March 1, 2021, from https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(13)62717-8/fulltext
69. Barriga, S. R. (2014, October 10). The (in)human dimension of Ghana's prayer camps. Retrieved February 25, 2021, from https://www.hrw.org/news/2014/10/10/inhuman-dimension-ghanas-prayer-camps#
70. Barriga, S. R. (2014, October 10). Heavenly Ministries Spiritual Revival and Healing Center. [Some people with presumed mental disabilities lived in buildings with cubicles for each resident and were chained to walls. They could not leave the cubicles without permission of the staff at the prayer camp.]. Retrieved from https://www.hrw.org/news/2014/10/10/inhuman-dimension-ghanas-prayer-camps#
71. Human Rights Watch. (2019, November 27). Ghana: Faith HEALERS DEFY ban on chaining. Retrieved February 25, 2021, from https://www.hrw.org/news/2019/11/27/ghana-faith-healers-defy-ban-chaining
72. Jailing People with Mental Illness. (2021). Retrieved March 07, 2021, from https://www.nami.org/Advocacy/Policy-Priorities/Divert-from-Justice-Involvement/Jailing-People-with-Mental-Illness
73. Carroll, H. (2018). People with untreated mental illness 16 times more likely to be killed by law enforcement. Retrieved March 07, 2021, from

https://www.treatmentadvocacycenter.org/key-issues/criminalization-of-mental-illness/2976-people-with-untreated-mental-illness-16-times-more-likely-to-be-killed-by-law-enforcement-

74. Zezima, C. (2020, August 12). Incarcerated with mental illness: How to reduce the number of people with mental health issues in prison. Retrieved March 07, 2021, from https://www.psycom.net/how-to-reduce-mental-illness-in-prisons
75. Honberg, R. (2015, May 12). Cruel and Unusual – it's time to end an American Tragedy. Retrieved March 07, 2021, from https://www.nami.org/Blogs/NAMI-Blog/May-2015/Cruel-and-Unusual-%E2%80%93-It%E2%80%99s-Time-to-End-an-American-T
76. Leigh-Hunt, N., Bagguley, D., Bash, K., Turner, V., Turnbull, S., Valtorta, N., & Caan, W. (2017, September 12). An overview of systematic reviews on the public health consequences of social isolation and loneliness. Retrieved April 30, 2021, from https://www.sciencedirect.com/science/article/abs/pii/S0033350617302731
77. The Marshall Project. (2021, March 05). A state-by-state look at coronavirus in prisons. Retrieved March 08, 2021, from https://www.themarshallproject.org/2020/05/01/a-state-by-state-look-at-coronavirus-in-prisons
78. Schwartzapfel, B., Park, K., & Demillo, A. (2020, December 18). 1 in 5 prisoners in the u.s. has had COVID-19. Retrieved March 08, 2021, from https://www.themarshallproject.org/2020/12/18/1-in-5-prisoners-in-the-u-s-has-had-covid-19
79. Wang, Q., & Xu, R. (2020, November 12). Study Reveals Adults With Mental Disorders Are At Significantly Higher Risk of COVID-19 and Have Poorer Outcomes. Retrieved January 22, 2021, from https://www.bbrfoundation.org/content/study-reveals-adults-mental-disorders-are-significantly-higher-risk-covid-19-and-have-poorer
80. Helmi, M., Getman, R., Roberts, H., Seymour, B., Cutler, D., & Yansane, A. (2017, December 21). Vaccine Hesitancy and Online Information: The Influence of Digital Networks - Rebekah Getman, Mohammad Helmi, Hal Roberts, Alfa Yansane, David Cutler, Brittany Seymour, 2018. Retrieved November 09, 2020, from https://journals.sagepub.com/doi/abs/10.1177/1090198117739673
81. Ferriman, A. (2004, March 27). MP raises new allegations against Andrew Wakefield. Retrieved March 13, 2021, from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC381348/
82. Boseley, S. (2010, February 02). Lancet retracts 'utterly False' MMR paper. Retrieved March 13, 2021, from https://www.theguardian.com/society/2010/feb/02/lancet-retracts-mmr-paper
83. Meikle, J., & Boseley, S. (2010, May 24). MMR row doctor Andrew Wakefield struck off register. Retrieved March 13, 2021, from

https://www.theguardian.com/society/2010/may/24/mmr-doctor-andrew-wakefield-struck-off
84. University of Cincinnati. (2012, June 4). Vaccinations of US children declined after publication of now-refuted autism risk. *ScienceDaily*. Retrieved March 13, 2021 from www.sciencedaily.com/releases/2012/06/120604142726.htm
85. Godlee, F., Smith, J., & Marcovitch, H. (2011, March 15). Wakefield's article linking MMR vaccine and autism was fraudulent. Retrieved March 15, 2021, from https://www.bmj.com/content/342/bmj.c7452.long
86. Hussain, A., Ali, S., Ahmed, M., & Hussain, S. (2018, July 3). The Anti-vaccination Movement: A Regression in Modern Medicine. Retrieved November 23, 2020, from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6122668/
87. Measles Cases and Outbreaks. (2020, November 05). Retrieved November 09, 2020, from https://www.cdc.gov/measles/cases-outbreaks.html
88. Broniatowski, D., Jamison, A., Qi, S., AlKulaib, L., Chen, T., Benton, A., . . . Dredze, M. (2018, October). Weaponized Health Communication: Twitter Bots and Russian Trolls Amplify the Vaccine Debate. Retrieved November 11, 2020, from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6137759/
89. Barnes, J., & Sanger, D. (2020, July 28). Russian Intelligence Agencies Push Disinformation on Pandemic. Retrieved November 11, 2020, from https://www.nytimes.com/2020/07/28/us/politics/russia-disinformation-coronavirus.html
90. Marrelli, M. (2020, June 26). Exploring COVID-19 in Emerging Economies: Announcing the 2020 Global Misinfodemic Report. Retrieved November 11, 2020, from https://meedan.com/blog/global-misinfodemic-report/
91. Karimi, N., & Gambrell, J. (2020, March 27). Nearly 500 people dead in Iran after drinking methanol to fight off COVID-19. Retrieved November 11, 2020, from https://www.ctvnews.ca/health/nearly-500-people-dead-in-iran-after-drinking-methanol-to-fight-off-COVID-19-1.4870674
92. Behravesh, M. (2020, January 14). 'Funeral for public trust': New crisis in Iran after plane crash. Retrieved November 20, 2020, from https://www.aljazeera.com/news/2020/01/14/funeral-for-public-trust-new-crisis-in-iran-after-plane-crash/
93. Sadjadpour, K. (2020, March 25). Iran's Coronavirus Disaster. Retrieved November 20, 2020, from https://carnegieendowment.org/2020/03/25/iran-s-coronavirus-disaster-pub-81367
94. Paton, C. (2020, April 16). Iran's 'amazing' Covid-19 detectors identified as re-purposed fake bomb scanners. Retrieved November 20, 2020, from https://www.thenationalnews.com/world/mena/iran-s-amazing-covid-19-detectors-identified-as-re-purposed-fake-bomb-scanners-1.1006918
95. Alimardani, M. & Elswah, M. (2020, June 23). Trust, Religion, and Politics: Coronavirus Misinformation in Iran. Retrieved November 20, 2020, from https://meedan.com/reports/trust-religion-and-politics-coronavirus-misinformation-in-iran/
96. Faghihi, R. (2020, March 10). A cleric's cure for coronavirus becomes butt of jokes in Iran. Retrieved November 20, 2020, from https://www.al-monitor.com/pulse/originals/2020/03/bizarre-cures-for-coronavirus-in-iran.html

97. Cohen, Z., Marquardt, A., Atwood, K., & Acosta, J. (2020, May 01). Trump contradicts US intel community by claiming he's seen evidence coronavirus originated in Chinese lab. Retrieved November 22, 2020, from https://www.cnn.com/2020/04/30/politics/trump-intelligence-community-china-coronavirus-origins/index.html
98. Rogers, K., Jakes, L., & Swanson, A. (2020, March 18). Trump Defends Using 'Chinese Virus' Label, Ignoring Growing Criticism. Retrieved November 22, 2020, from https://www.nytimes.com/2020/03/18/us/politics/china-virus.html
99. Shi, V. (2021, March 20). From insults to property damage to killing: After atlanta, Asian American fear escalates. Retrieved April 20, 2021, from https://www.usatoday.com/story/opinion/2021/03/20/trump-covid-asian-american-hate-rises-biden-changes-tone-column/4747943001/
100. President Trump calls coronavirus 'kung Flu'. (2020, June 24). Retrieved April 20, 2021, from https://www.bbc.com/news/av/world-us-canada-53173436
101. Jeung, R., Ph.D, Yellow Horse, A., Ph.D, Popovic, T., & Lim, R. (2021, April 01). National report. Retrieved April 20, 2021, from https://stopaapihate.org/national-report/
102. Porterfield, C. (2021, March 17). Trump's 'Damaging RHETORIC' contributed to bias Against Asian-Americans, White House says After Atlanta shooting. Retrieved April 20, 2021, from https://www.forbes.com/sites/carlieporterfield/2021/03/17/trumps-damaging-rhetoric-contributed-to-bias-against-asian-americans-white-house-says-after-atlanta-shooting/?sh=6e6414d75976
103. Anti-Defamation League. (2021, March). Online Hate and Harassment: The American Experience 2020. Retrieved April 20, 2021, from https://www.adl.org/online-hate-2020
104. Van Prooijen, J., & Douglas, K. (2018, December). Belief in conspiracy theories: Basic principles of an emerging research domain. Retrieved March 23, 2021, from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6282974/#ejsp2530-bib-0004
105. Bowes, S., Costello, T., Ma, W., & Lilienfeld, S. (2020, September 10). Looking under the tinfoil hat: Clarifying the personological and psychopathological correlates of conspiracy beliefs. Retrieved March 22, 2021, from https://onlinelibrary.wiley.com/doi/full/10.1111/jopy.12588
106. Carey, B. (2020, September 28). A theory about conspiracy theories. Retrieved March 22, 2021, from https://www.nytimes.com/2020/09/28/health/psychology-conspiracy-theories.html
107. Georgiou, N., Delfabbro, P., & Balzan, R. (2019, July 22). Conspiracy beliefs in the general population: The importance of psychopathology, cognitive style and educational attainment. Retrieved March 23, 2021, from https://www.sciencedirect.com/science/article/pii/S0191886919304532
108. Darwin, H., Neave, N., & Holmes, J. (2011, March 24). Belief in conspiracy theories. the role of paranormal belief, paranoid ideation and schizotypy. Retrieved March 23, 2021, from https://www.sciencedirect.com/science/article/pii/S0191886911001036?via%3Dihub
109. Van Prooijen, J., & Douglas, K. (2017, July). Conspiracy theories as part of history: The role of societal crisis situations. Retrieved March 23, 2021, from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5646574/

110. Swami, V., Furnham, A., Smyth, N., Weis, L., Lay, A., & Clow, A. (2016, May 06). Putting the stress on conspiracy theories: Examining associations between psychological stress, anxiety, and belief in conspiracy theories. Retrieved March 23, 2021, from https://www.sciencedirect.com/science/article/pii/S0191886916303440?casa_token=diiU0c3ruEEAAAAA%3AJ_xpBWIFbXFdKv0qdmYf2fv9moVBsO23MoY0BL1INZvHNkCi5Drgc5FnijNlt8lkj00hm3yaSA
111. Oliver, J. (2014, May 01). Medical conspiracy theories and health behaviors. Retrieved March 23, 2021, from https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/1835348
112. Jolley, D., Douglas, K., & Sutton, R. (2017, February 18). Blaming a few bad apples to save a threatened barrel: The system‐justifying function of conspiracy theories. Retrieved March 23, 2021, from https://onlinelibrary.wiley.com/doi/full/10.1111/pops.12404
113. Cummings, W. (2020, August 11). Conspiracy theories: Here's what drives people to them, no matter how wacky. Retrieved March 23, 2021, from https://www.usatoday.com/story/news/nation/2017/12/23/conspiracy-theory-psychology/815121001/
114. Allington, D. (2021, March 22). Conspiracy theories, radicalisation and digital media. Retrieved April 05, 2021, from https://gnet-research.org/2021/02/08/conspiracy-theories-radicalisation-and-digital-media/
115. Wood, M. J., & Douglas, K. M. (2015). Online communication as a window to conspiracist worldviews. Retrieved April 05, 2021, from https://pubmed.ncbi.nlm.nih.gov/26136717/
116. Center for Countering Digital Hate. (London, 2020). *#DeplatformIcke: How Big Tech powers and profits from David Icke's lies and hate, and why it must stop*. https://252f2edd‐1c8b‐49f5‐9bb2‐cb57bb47e4ba.filesusr.com/ugd/f4d9b9_db8ff469f6914534ac02309bb488f948.pdf.
117. Wold, S. (2020, September 16). COVID-19 is changing how, why and how much we're using social media. Retrieved March 24, 2021, from https://www.digitalcommerce360.com/2020/09/16/covid-19-is-changing-how-why-and-how-much-were-using-social-media/
118. Georgiou, N., Delfabbro, P., & Balzan, R. (2020, November 1). COVID-19-related conspiracy beliefs and their relationship with perceived stress and pre-existing conspiracy beliefs. Retrieved March 24, 2021, from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7296298/#bb0145
119. Baumgaertner, B., Carlisle, J., & Justwan, F. (2018, January 25). The influence of political ideology and trust on willingness to vaccinate. Retrieved November 22, 2020, from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5784985/
120. Pelčić, G., Karačić, S., Mikirtichan, G., Kubar, O., Leavitt, F., Cheng-Tek Tai, M., Tomašević, L. (2016, October 31). Religious exception for vaccination or religious excuses for avoiding vaccination. Retrieved November 22, 2020, from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5141457/
121. Burki, T. (2020, October). The online anti-vaccine movement in the age of COVID-19 Retrieved November 25, 2020, from https://www.thelancet.com/journals/landig/article/PIIS2589-7500(20)30227-2/fulltext

122. Baker, J., Martí, G., Braunstein, R., Whitehead, A., & Yukich, G. (2020). Religion in the Age of Social Distancing: How COVID-19 Presents New Directions for Research. Retrieved November 23, 2020, from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7543648/
123. Perry, S., Whitehead, A., & Grubbs, J. (2020, July 26). Culture Wars and COVID‐19 Conduct: Christian Nationalism, Religiosity, and Americans' Behavior During the Coronavirus Pandemic. Retrieved November 23, 2020, from https://onlinelibrary.wiley.com/doi/10.1111/jssr.12677
124. Zubovich, G. (2018, October 23). The Christian Nationalism of Donald Trump. Retrieved November 23, 2020, from https://religionandpolitics.org/2018/07/17/the-christian-nationalism-of-donald-trump/
125. Bailey, S. (2020, October 27). Seeking power in Jesus' name: Trump sparks a rise of Patriot Churches. Retrieved November 24, 2020, from https://www.washingtonpost.com/religion/2020/10/26/trump-christian-nationalism-patriot-church/
126. Trump, D. [@realDonaldTrump]. (2020, February 07). ....he will be successful, especially as the weather starts to warm & the virus hopefully becomes weaker, and then gone. Great discipline is taking place in China, as President Xi strongly leads what will be a very successful operation. We are working closely with China to help! Retrieved November 23, 2020, from https://twitter.com/realDonaldTrump/status/1225728756456808448?ref_src=twsrc%5Etfw%7Ctwcamp%5Etweetembed%7Ctwterm%5E1225728756456808448
127. Paz, C. (2020, November 02). All the President's Lies About the Coronavirus. Retrieved November 23, 2020, from https://www.theatlantic.com/politics/archive/2020/11/trumps-lies-about-coronavirus/608647/
128. Gregorian, D. (2020, September 10). Trump told Bob Woodward he knew in February that COVID-19 was 'deadly stuff' but wanted to 'play it down'. Retrieved November 26, 2020, from https://www.nbcnews.com/politics/donald-trump/trump-told-bob-woodward-he-knew-february-covid-19-was-n1239658
129. Mandavilli, A. (2020, September 17). C.D.C. Testing Guidance was Published Against Scientists' Objections. Retrieved April 16, 2021, from https://www.nytimes.com/2020/09/17/health/coronavirus-testing-cdc.html
130. Baker, S. (2020, October 02). 2 days before Trump and Melania tested positive for COVID-19, the Trump family broke venue rules and went mask-less at the presidential debate. Retrieved November 23, 2020, from https://www.businessinsider.com/trump-family-members-not-wear-masks-during-debate-joe-biden-2020-9
131. Beauchamp, Z. (2020, October 02). The future of the country hinges on Trump's health - and we can't trust he's telling the truth. Retrieved November 26, 2020, from https://www.vox.com/policy-and-politics/2020/10/2/21498537/trump-covid-19-coronavirus-diagnosis-trust-lying
132. Evanega, S., Lynas, M., Adams, J., & Smolenyak, K. (2020). CORONAVIRUS MISINFORMATION: Quantifying sources and themes in the COVID-19 ‘infodemic.’ Retrieved November 23, 2020, from

https://allianceforscience.cornell.edu/wp-content/uploads/2020/09/Evanega-et-al-Coronavirus-misinformationFINAL.pdf

133. Chiu, A, Shepherd, K., Shammas, B., & Itkowitz, C. (2020, April 25). Trump claims controversial comment about injecting disinfectants was 'sarcastic'. Retrieved November 25, 2020, from https://www.washingtonpost.com/nation/2020/04/24/disinfectant-injection-coronavirus-trump/

134. Glatter, R. (2020, April 27). Calls To Poison Centers Spike After The President's Comments About Using Disinfectants To Treat Coronavirus. Retrieved November 25, 2020, from https://www.forbes.com/sites/robertglatter/2020/04/25/calls-to-poison-centers-spike--after-the-presidents-comments-about-using-disinfectants-to-treat-coronavirus/?sh=45a5d0a31157

135. Solender, A. (2020, May 19). Trump Says He's Taking Hydroxychloroquine Despite An NIH Advisory Against It. Retrieved November 24, 2020, from https://www.forbes.com/sites/andrewsolender/2020/05/18/trump-says-hes-taking-hydroxychloroquine-despite-an-nih-advisory-against-it/?sh=747ad40d1cd7

136. Togoh, I. (2020, May 22). Trump-Endorsed Hydroxychloroquine Linked To Higher Risk Of Death In Coronavirus Patients, Medical Analysis Finds. Retrieved November 24, 2020, from https://www.forbes.com/sites/isabeltogoh/2020/05/22/trump-endorsed-hydroxychloroquine-linked-to-higher-risk-of-death-in-coronavirus-patients-medical-analysis-finds/?sh=59f9761943a5

137. Shepherd, K. (2020, March 24). A man thought aquarium cleaner with the same name as the anti-viral drug chloroquine would prevent coronavirus. It killed him. Retrieved November 25, 2020, from https://www.washingtonpost.com/nation/2020/03/24/coronavirus-chloroquine-poisoning-death/

138. Perez, M. (2020, September 03). Prescriptions Skyrocket For Hydroxychloroquine-A Dubious Coronavirus Treatment Endorsed By Trump. Retrieved November 24, 2020, from https://www.forbes.com/sites/mattperez/2020/09/03/prescriptions-skyrocket-for-hydroxychloroquine-a-dubious-coronavirus-treatment-endorsed-by-trump/?sh=704bb33c3bb7

139. Feuer, W. (2020, October 08). Trump says 'no president's ever pushed' the FDA like him, vaccine coming 'very shortly'. Retrieved November 24, 2020, from https://www.cnbc.com/2020/10/07/trump-says-no-presidents-ever-pushed-the-fda-like-him-vaccine-coming-very-shortly.html

140. Masket, S., & Reich, J. (2020, September 11). Perspective | Trump's rush for a covid vaccine could make it less likely to work. Retrieved November 24, 2020, from https://www.washingtonpost.com/outlook/trump-covid-vaccine-science/2020/09/04/5c22d02a-ee33-11ea-ab4e-581edb849379_story.html

141. Thrush, G. (2020, August 28). Full Transcript: President Trump's Republican National Convention Speech. Retrieved November 24, 2020, from https://www.nytimes.com/2020/08/28/us/politics/trump-rnc-speech-transcript.html

142. U.S. Food and Drug Administration. (n.d.). Drug Development & Approval Process. Retrieved November 24, 2020, from https://www.fda.gov/development-approval-process-drugs
143. Kreston, R. (2020, May 04). The Public Health Legacy of the 1976 Swine Flu Outbreak. Retrieved November 24, 2020, from https://www.discovermagazine.com/health/the-public-health-legacy-of-the-1976-swine-flu-outbreak
144. Ledewitz, B. (2020, September 09). Here's everything libertarians like RUSS DIAMOND get wrong about MASK-WEARING: BRUCE LEDEWITZ: PENNSYLVANIA Capital. Retrieved April 16, 2021, from https://www.penncapital-star.com/commentary/heres-everything-libertarians-like-russ-diamond-get-wrong-about-mask-wearing-bruce-ledewitz/
145. Hoffman, J. (2020, July 18). Mistrust of a Coronavirus Vaccine Could Imperil Widespread Immunity. Retrieved November 26, 2020, from https://www.nytimes.com/2020/07/18/health/coronavirus-anti-vaccine.html
146. U.S. Department of Health & Human Services. (2020, February). Vaccines Protect Your Community. Retrieved November 26, 2020, from https://www.vaccines.gov/basics/work/protection
147. Bracho-Sanchez, E. (2020, August 04). The eerie similarities between the anti-mask and the anti-vax. Retrieved November 25, 2020, from https://www.cnn.com/2020/08/04/health/coronavirus-mask-refusers-vaxxers-opinion/index.html
148. Margit Erdelyi, K. (2020, August 12). The Psychological Impact of Information Warfare & Fake News. Retrieved November 26, 2020, from https://www.psycom.net/iwar.1.html
149. The Cybersmile Foundation. (2020). Concerns Grow That Fake News And Misinformation Online Surrounding COVID19 Is Affecting Peoples Mental Health. Retrieved November 26, 2020, from https://www.cybersmile.org/news/concerns-grow-that-fake-news-and-misinformation-online-surrounding-covid19-is-affecting-peoples-mental-health
150. UNESCO. (2020, November 12). #CoronavirusFacts: Addressing the 'Disinfodemic' on COVID-19. Retrieved November 26, 2020, from https://en.unesco.org/covid19/disinfodemic/coronavirusfacts
151. Meedan. (2020). 2020 Misinfodemic Report: COVID-19 in Emerging Economies. Retrieved November 26, 2020, from https://meedan.com/reports/2020-misinfodemic-report-covid-19-in-emerging-economies/
152. Marroquín, B., Vine, V., & Morgan, R. (2020, November). Mental health during the COVID-19 pandemic: Effects of stay-at-home policies, social distancing behavior, and social resources. Retrieved January 17, 2021, from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7439968/
153. Lake, J. (2020, June 14). A Mental Health Pandemic: The Second Wave of COVID-19. Retrieved January 17, 2021, from https://www.psychiatrictimes.com/view/a-mental-health-pandemic-the-second-wave-of-covid-19
154. Center for Disease Control and Prevention. (2020, December 11). Mental Health and Coping During COVID-19. Retrieved January 17, 2021, from

https://www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/managing-stress-anxiety.html
155. Fox, M. (2019, January 16). How Can We Help Solve The Global Mental Health Crisis? Retrieved January 17, 2021, from https://www.forbes.com/sites/meimeifox/2019/01/16/how-can-we-help-solve-the-global-mental-health-crisis/?sh=4a3d4409197b
156. William C., Shiel Jr., M. (2018, December 11). Definition of Syndemic. Retrieved January 13, 2021, from https://www.medicinenet.com/syndemic/definition.htm
157. Czeisler, M.É., Lane, R.I., Petrosky, E., et al. (2020, August 14). Mental Health, Substance Use, and Suicidal Ideation During the COVID-19 Pandemic — United States, June 24–30, 2020. MMWR Morb Mortal Wkly Rep 2020;69:1049–1057. DOI: http://dx.doi.org/10.15585/mmwr.mm6932a1
158. Taquet, M., Luciano, S., Geddes, J., & Harrison, P. (2021, February 1). Bidirectional associations BETWEEN COVID-19 and psychiatric disorder: Retrospective cohort studies of 62 354 COVID-19 cases in the USA. Retrieved April 20, 2021, from https://pubmed.ncbi.nlm.nih.gov/33181098/
159. Wang, Q., Xu, R., & Volkow, N. (2020, October 07). Increased risk Of COVID‐19 infection and mortality in people with MENTAL DISORDERS: Analysis from electronic health records in the United States. Retrieved April 20, 2021, from https://onlinelibrary.wiley.com/doi/10.1002/wps.20806
160. Wamsley, L. (2020, November 11). After COVID-19 Diagnosis, nearly 1 in 5 are diagnosed with mental disorder. Retrieved April 20, 2021, from https://www.npr.org/sections/coronavirus-live-updates/2020/11/11/933964994/after-covid-diagnosis-nearly-1-in-5-are-diagnosed-with-mental-disorder
161. Lake, J., & Turner, M. (2017). Urgent Need for Improved Mental Health Care and a More Collaborative Model of Care. Retrieved January 18, 2021, from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5593510/
162. Volkov, S., World Health Organization. (2020). Mental health. Retrieved January 19, 2021, from https://www.who.int/health-topics/mental-health#tab=tab_1
163. David, T., World Health Organization. (2020). Constitution. Retrieved January 20, 2021, from https://www.who.int/about/who-we-are/constitution
164. Oberheu, A. (2019, May 3). How Your Mental Health Affects Your Physical Health. Retrieved January 20, 2021, from https://blog.bcbsnc.com/2019/05/mental-health-affects-physical-health/
165. Wang, Q., & Xu, R. (2020, November 12). Study Reveals Adults With Mental Disorders Are At Significantly Higher Risk of COVID-19 and Have Poorer Outcomes. Retrieved January 22, 2021, from https://www.bbrfoundation.org/content/study-reveals-adults-mental-disorders-are-significantly-higher-risk-covid-19-and-have-poorer
166. Gordon, J. (2021, April 09). One year In: COVID-19 and mental health. Retrieved April 20, 2021, from https://www.nimh.nih.gov/about/director/messages/2021/one-year-in-covid-19-and-mental-health.shtml
167. Turner, C., Herman, C., & Chatterjee, R. (2021, January 18). 'I've Tried Everything': Pandemic Worsens Child Mental Health Crisis. Retrieved January 23, 2021, from https://www.npr.org/sections/health-shots/2021/01/18/953581851/ive-tried-everything-pa

ndemic-has-cut-options-for-kids-with-mental-illness?utm_campaign=npr&utm_medium=social&utm_term=nprnews&utm_source=facebook.com&fbclid=IwAR2BxgxYe0luQmxfGyiJEeM-ENewL4pCgB_ZgNIvhm1jK_MpqT6DIo_WmaQ

168. Denworth, L. (2020, June 25). What happens when kids don't see their peers for months. Retrieved April 20, 2021, from https://www.theatlantic.com/family/archive/2020/06/how-quarantine-will-affect-kids-social-development/613381/
169. Reed, K., & McKenzie, J. (2020, October 25). Before the pandemic, elderly isolation was a major concern. now, it's a crisis. Retrieved April 20, 2021, from https://www.columbiamissourian.com/news/covid19/before-the-pandemic-elderly-isolation-was-a-major-concern-now-its-a-crisis/article_ea050210-0def-11eb-b794-33321d9e41fa.html
170. National Academies of Sciences, Engineering, and Medicine; Division of Behavioral and Social Sciences and Education; Health and Medicine Division; Board on Behavioral, Cognitive, and Sensory Sciences; Board on Health Sciences Policy; Committee on the Health and Medical Dimensions of Social Isolation and Loneliness in Older Adults. (2020, February 27)Social Isolation and Loneliness in Older Adults: Opportunities for the Health Care System. Washington (DC): National Academies Press (US). Summary. Available from: https://www.ncbi.nlm.nih.gov/books/NBK557972/
171. Deliso, M. (2020, November 8). How to combat 'COVID fatigue': Medical experts on what works -- and doesn't. Retrieved January 21, 2021, from https://abcnews.go.com/Health/combat-covid-fatigue-medical-experts-works/story?id=73861469
172. WHO Regional Office for Europe. (2020). Pandemic fatigue: Reinvigorating the public to prevent covid-19: Policy considerations for member states in the WHO European region. Retrieved March 31, 2021, from https://apps.who.int/iris/handle/10665/335820
173. MedlinePlus. (2020, December 28). Mental Disorders. Retrieved January 21, 2021, from https://medlineplus.gov/mentaldisorders.html
174. Park, J. M., Goff, D. C., Park, L., & Wilbur, J. E. (2012, March 12). CHAPTER 64 - Chronic Mental Illness. Editor(s): Theodore A. Stern, Jerrold F. Rosenbaum, Maurizio Fava, Joseph Biederman, Scott L. Rauch. Massachusetts General Hospital Comprehensive Clinical Psychiatry. Mosby. Pages 887-893. ISBN 9780323047432. https://doi.org/10.1016/B978-0-323-04743-2.50066-4. (http://www.sciencedirect.com/science/article/pii/B9780323047432500664)
175. Center for Substance Abuse Treatment (US). (2014). Understanding the Impact of Trauma. Retrieved January 21, 2021, from https://www.ncbi.nlm.nih.gov/books/NBK207191/
176. National Institute of Mental Health. (2019, May). Post-Traumatic Stress Disorder. Retrieved January 21, 2021, from https://www.nimh.nih.gov/health/topics/post-traumatic-stress-disorder-ptsd/index.shtml
177. Bitterman, A. (2020, May 12). For many gay men, the current pandemic is triggering hiv/aids trauma. Retrieved April 29, 2021, from https://www.advocate.com/commentary/2020/5/11/many-gay-men-current-pandemic-triggering-hivaids-trauma

178. Michigan Medicine Department of Psychiatry. (2020, May 04). Posttraumatic Stress Disorder during COVID-19: Psychiatry: Michigan Medicine. Retrieved January 21, 2021, from https://medicine.umich.edu/dept/psychiatry/michigan-psychiatry-resources-covid-19/specific-mental-health-conditions/posttraumatic-stress-disorder-during-covid-19
179. Mount Carmel Hospital. (2020). Acute Mental Illness. Retrieved January 21, 2021, from https://deputyprimeminister.gov.mt/en/mch/Pages/Hospital-Services/acute-mental-illness.aspx
180. Barnhill, J. W. (2020, April). Acute Stress Disorder - Mental Health Disorders. Retrieved January 21, 2021, from https://www.merckmanuals.com/home/mental-health-disorders/anxiety-and-stress-related-disorders/acute-stress-disorder
181. Tucker, P., & Czapla, C. S. (2021, January 8). Post-COVID Stress Disorder: Another Emerging Consequence of the Global Pandemic. Retrieved January 21, 2021, from https://www.psychiatrictimes.com/view/post-covid-stress-disorder-emerging-consequence-global-pandemic
182. Evans, M. L., Lindauer, M., & Farrell, M. E. (2020, September 16). A Pandemic within a Pandemic - Intimate Partner Violence during Covid-19: NEJM. Retrieved January 21, 2021, from https://www.nejm.org/doi/full/10.1056/NEJMp2024046
183. Mozes, A. (2020, August 18). Study Finds Rise in Domestic Violence During COVID. Retrieved January 22, 2021, from https://www.webmd.com/lung/news/20200818/radiology-study-suggests-horrifying-rise-in-domestic-violence-during-pandemic#1
184. Pefley, A. (2020, May 22). Experts see rise in child abuse cases tied to COVID-19. Retrieved January 22, 2021, from https://cbs12.com/news/local/experts-see-rise-in-child-abuse-cases-tied-to-covid-19
185. UN WOMEN. (2020, June 23). COVID-19 and Ending Violence Against Women and Girls. Retrieved April 21, 2021, from https://perma.cc/G48D-BVCU
186. Bailey., C. (2021, February 24). NCCCJ - Impact Report: COVID-19 and domestic Violence Trends. Retrieved April 21, 2021, from https://covid19.counciloncj.org/2021/02/23/impact-report-covid-19-and-domestic-violence-trends/
187. Czeisler MÉ , Lane RI, Petrosky E, et al. (2020, August 14). Mental Health, Substance Use, and Suicidal Ideation During the COVID-19 Pandemic — United States, June 24–30, 2020. MMWR Morb Mortal Wkly Rep 2020;69:1049–1057. DOI: http://dx.doi.org/10.15585/mmwr.mm6932a1
188. Panchal, N., Kamal, R., Orgera, K., Cox, C., Garfield, R., & Chidambaram, P. (2020, August 21). The Implications of COVID-19 for Mental Health and Substance Use. Retrieved January 23, 2021, from https://www.kff.org/coronavirus-covid-19/issue-brief/the-implications-of-covid-19-for-mental-health-and-substance-use/
189. Abutaleb, Y., Dawsey, J., Nakashima, E., & Miller, G. (2020, April 04). The U.S. was beset by denial and dysfunction as the coronavirus raged. Retrieved January 24, 2021, from

https://www.washingtonpost.com/national-security/2020/04/04/coronavirus-government-dysfunction/?arc404=true

190. Associated Press. (2020, April 18). Protesters demonstrate against stay-at-home orders that were put in place due to the COVID-19 pandemic, in Huntington Beach, California, April 17, 2020. [Digital image]. Retrieved from https://www.voanews.com/covid-19-pandemic/pro-trump-protesters-push-back-stay-home-orders-0
191. Morris, F. (2020, December 28). 'Toxic Individualism': Pandemic Politics Driving Health Care Workers From Small Towns. Retrieved January 24, 2021, from https://www.npr.org/2020/12/28/950861977/toxic-individualism-pandemic-politics-driving-health-care-workers-from-small-tow
192. Kerr, S. (2020, December 22). I'm tired of wasting energy on anti-maskers. I want to help people who need and want masks. - PublicSource: News for a better Pittsburgh. Retrieved January 24, 2021, from https://www.publicsource.org/covid-help-provide-masks-first-person-pittsburgh-allegheny-county/
193. Miller, B. L. (2020, December 08). Science Denial and COVID Conspiracy Theories-Lessons From Clinical Disease About Possible Neurophysiological Mechanisms. Retrieved January 24, 2021, from https://jamanetwork.com/journals/jama/fullarticle/2772693
194. Georgiou, N., Delfabbro, P., & Balzan, R. (2019, July 22). Conspiracy beliefs in the general population: The importance of psychopathology, cognitive style and educational attainment. Retrieved March 23, 2021, from https://www.sciencedirect.com/science/article/pii/S0191886919304532
195. Barron, D., Furnham, A., Weis, L., Morgan, K. D., Towell, T., & Swami, V. (2017, October 1). The relationship between schizotypal facets and conspiracist beliefs via cognitive processes. Retrieved January 24, 2021, from https://pubmed.ncbi.nlm.nih.gov/29024855/
196. Van Prooijen, J., & Douglas, K. (2017, July). Conspiracy theories as part of history: The role of societal crisis situations. Retrieved March 23, 2021, from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5646574/
197. Dunbar D, Reagan B. (2011) *Debunking 9/11 Myths: Why Conspiracy Theories Can't Stand Up to the Facts*. New York: Hearst Books.
198. Newby, J., O'Moore, K., Tang, S., Christensen, H., & Faasse, K. (2020, July 28). Acute mental health responses during the COVID-19 pandemic in Australia. Retrieved January 24, 2021, from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7386645/
199. Blumenfield, S., & Levin-Scherz, J. (2020, December 09). Digital Tools Are Revolutionizing Mental Health Care in the U.S. Retrieved January 24, 2021, from https://hbr.org/2020/12/digital-tools-are-revolutionizing-mental-health-care-in-the-u-s
200. Savage, M. (2020, October 28). Coronavirus: The possible long-term mental health impacts. Retrieved January 25, 2021, from https://www.bbc.com/worklife/article/20201021-coronavirus-the-possible-long-term-mental-health-impacts
201. Wu, P., Fang, Y., Guan, Z., Fan, B., Kong, J., Yao, Z., . . . Hoven, C. (2009, May). The psychological impact of the SARS epidemic on hospital employees in China:

Exposure, risk perception, and altruistic acceptance of risk. Retrieved January 25, 2021, from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3780353/

202. Srivastava, K., Chaudhury, S., Bhat, P., & Mujawar, S. (2018). Media and mental health. Retrieved May 24, 2021, from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6198586/

203. California Institute for Mental Health. (2013, June). Stakeholder recommendations for mental health and ... Retrieved May 24, 2021, from https://www.cibhs.org/sites/main/files/file-attachments/cimh_bulletin_-_june_2013.pdf

204. Gusmanson. (2018, February 20). Can you beat my score? Play the fake news game! Retrieved May 18, 2021, from https://www.getbadnews.com/#intro

205. Cinelli, M., Quattrociocchi, W., Galeazzi, A., Valensise, C., Brugnoli, E., Schmidt, A., Zola, P., Zollo, F., Scala, A. (2020, October 06). The COVID-19 social media infodemic. Retrieved May 18, 2021, from https://www.nature.com/articles/s41598-020-73510-5

206. Koetsier, J. (2018, July 13). Facebook v. Google in digital video battle: YouTube IS 11X bigger. Retrieved May 24, 2021, from https://venturebeat.com/2015/10/02/facebook-v-google-in-digital-video-battle-youtube-is-11x-bigger/

207. Dickinson, A. (2020, June 14). Politics leads to Facebook 'unfriending'. Retrieved May 18, 2021, from https://www.freep.com/story/life/advice/2020/06/14/politics-leads-facebook-unfriending/5323564002/

208. Bessi, A., Coletto, M., Davidescu, G., Scala, A., Caldarelli, G., & Quattrociocchi, W. (2015, February 23). Science vs conspiracy: Collective narratives in the age of misinformation. Retrieved May 18, 2021, from https://journals.plos.org/plosone/article?id=10.1371%2Fjournal.pone.0118093

209. Zollo, F., Bessi, A., Vicario, M., Scala, A., Caldarelli, G., Shekhtman, L., . . . Quattrociocchi, W. (2017, July 24). Debunking in a world of tribes. Retrieved May 18, 2021, from https://journals.plos.org/plosone/article?id=10.1371%2Fjournal.pone.0181821

210. Vicario, M., Quattrociocchi, W., Scala, A., & Zollo, F. (2019, March 01). Polarization and fake news: Early warning of potential misinformation targets. Retrieved May 18, 2021, from https://dl.acm.org/doi/abs/10.1145/3316809?casa_token=BTL71VnSaeIAAAAA%3Ak0Ej4cYIEXjEmkqQYLzrbYtc7pT1O0gq-OPzbz94hwZ2UKKyR5g_9uQdyEPLz3BW6BAEuYEPZVBD

211. Cinelli, M., Morales, G., Galeazzi, A., Quattrociocchi, W., & Starnini, M. (2021, March 02). The echo chamber effect on social media. Retrieved May 18, 2021, from https://www.pnas.org/content/118/9/e2023301118

212. Young, L. E., Sidnam-Mauch, E., Twyman, M., Wang, L., Jingyi Xu, J., Sargent, M., Valente, T. W., Ferrara, E., Fulk, J., & Monge, P. (2020, November 15). The American Journal of public Health (AJPH) from the American public Health Association (apha) publications. Retrieved May 19, 2021, from https://ajph.aphapublications.org/doi/abs/10.2105/AJPH.2020.306063

213. Harris, C. (2020, March 23). Stay home: Cuomo heads online, enlists celebs to promote social distancing. Retrieved May 24, 2021, from

https://www.timesunion.com/news/article/Stay-home-Cuomo-heads-online-enlists-15151550.php
214. Ives, M. (2021, May 01). Celebrities are endorsing covid vaccines. does it help? Retrieved May 24, 2021, from https://www.nytimes.com/2021/05/01/health/vaccinated-celebrities.html
215. Center for Countering Digital Hate. (2021, March 24). The Disinformation Dozen: Why Platforms Must Act on Twelve Leading Online Anti-Vaxxers. Retrieved May 19, 2021, from https://www.counterhate.com/disinformationdozen
216. Twitter Safety. (2020, December 2). Updating our rules against hateful conduct. Retrieved May 19, 2021, from https://blog.twitter.com/en_us/topics/company/2019/hatefulconductupdate.html
217. Shalvey, K. (2021, March 27). A new study has linked the rise In anti-Asian online hate speech with President Donald Trump's covid-19 rhetoric. Retrieved May 19, 2021, from https://www.businessinsider.com/anti-defamation-league-study-donald-trump-anti-asian-hate-speech-2021-3
218. Timberg, C. (2021, January 14). Twitter ban reveals that tech companies held keys to Trump's power all along. Retrieved May 19, 2021, from https://www.washingtonpost.com/technology/2021/01/14/trump-twitter-megaphone/
219. Denham, H. (2021, January 26). These are the platforms that have banned Trump and his allies. Retrieved May 19, 2021, from https://www.washingtonpost.com/technology/2021/01/11/trump-banned-social-media/
220. Dwoskin, E., & Timberg, C. (2021, January 17). Misinformation dropped dramatically the week after Twitter banned Trump and some allies. Retrieved May 19, 2021, from https://www.washingtonpost.com/technology/2021/01/16/misinformation-trump-twitter/