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## Exploring Mental Health & COVID-19: How a Pandemic Could Become America's Next Mental Health Crisis

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EASTERN KENTUCKY UNIVERSITY

Exploring Mental Health and COVID-19: How a Pandemic Could Become America's Next  
Mental Health Crisis

Honors Thesis  
Submitted  
in Partial Fulfillment  
of the  
Requirements of HON 420  
Spring 2021

By  
Ashley D. Shofner

Mentor  
Dr. Molly A. McKinney  
Associate Professor, Department of Health Promotion and Administration

## An Abstract Of

### Exploring Mental Health and COVID-19: How a Pandemic Could Become America's Next Mental Health Crisis

By  
Ashley D. Shofner

Mentor  
Dr. Molly A. McKinney  
Associate Professor, Department of Health Promotion and Administration

#### Abstract Description:

A pandemic can be described as an epidemic disease that has spread over a large geographical area and has become prevalent in numerous sectors of the globe. In 2020, just over 100 years since our last major pandemic, the 1918 Influenza outbreak, the global community is facing yet another threat: COVID-19. While an individual's physical health has consistently been of concern, research has failed to adequately consider the other dimensions of health. Among these additional dimensions of health is mental health and psychosocial wellbeing.

Pandemics and emerging infectious diseases have become modern influencers of mental health patterns. By analyzing the history of pandemics, like the Spanish Flu, or novel viruses such as Ebola or COVID-19, health care practitioners and other community leaders will come to better understand the correlation between a pandemic and reported mental health status of a community's members. This will improve future mental health education programs and interventions.

The core focus of this thesis project will be to analyze the correlation between COVID-19 and the self-reported mental health status of Eastern Kentucky University students. While many

interdisciplinary academics agree that this novel virus has affected the mental health of college students, the depth and breadth of this impact is still unknown.

#### Purpose:

The purpose of this undergraduate thesis was to explore the connection between the history of pandemics and mental health. The impact of COVID-19 upon Eastern Kentucky University students, primarily of the ages 18-24 years old, will be analyzed through a comprehensive survey instrument. The results of this survey will shed light on the devastation a pandemic may cause in the field of mental health and help future public health professionals, university officials, and policy makers make informed decisions regarding mental health and pandemic or infectious disease preparedness.

#### Methods:

Of the almost 12,000 students enrolled in Eastern Kentucky University, of which 10,000 students are undergraduates, a random sample of 114 students were surveyed using a digital, online survey to maximize survey participation. These participants were primarily of the ages 18-24 years old and attended the main, satellite campus in Richmond, KY. This electronic survey consisted of 32 questions and was administered to campus students through a software named Qualtrics.

#### Results:

Approximately 80.9% of survey respondents identified as female, compared to 19.1% male. Similarly, 78.3% of respondents identified as Caucasian, 7.8% as African-American, 4.35% as Asian, 5.2% as Hispanic, and 2.6% as Pacific Islander. Respondents reported experiencing feelings of depression (78.9%), anxiety (93.5%), loneliness and isolation (86.2%), and changes in sleep-wake cycle over the last six months (78.7%). The gathered data shows an

inverse relationship between reported mental health of university students six months prior to the onset of COVID-19 (March of 2020) and six months post the onset of COVID-19 (September of 2020). A correlation between emerging infectious diseases and mental health status was found.

Conclusions:

There is a correlation between an emerging infectious disease and reported mental health status. Understanding this correlation is essential to proactive public health infrastructure and interventions. As is seen through the COVID-19 pandemic, infectious diseases remain pervasive and societies must continue to actively prepare for future public health crises. Mental health infrastructure and impact should be considered during this preparedness process, especially by university leaders, school faculty and staff, and governmental leadership. This can be achieved through increasing mental health awareness, advocating for better funding and focus on mental health services and treatment, and effective assessment, planning, and implementation of pandemic preparedness interventions.

This thesis is dedicated to all those who lost their lives to COVID-19, who mourn the loss of a loved one due to COVID-19, who have suffered as a result of the pandemic, and those who struggle with mental health daily. You are not alone. You are loved.

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## **Introduction**

### **Defining Mental Health**

Mental health can be defined as our “emotional, psychological, and social well-being.” (MentalHealth.Gov, 2020). Our mental health can impact multiple areas of our daily life, including how we react, think, feel, and socialize. Mental well-being is also a main determinant in how we handle daily stressors, relate to family or peers, and how we ultimately make choices. (MentalHealth.Gov, 2020). It cannot be overstated that our mental health is influential at every stage of development, from childhood to adulthood. Due to the overwhelming influence that mental health has upon all of us, it is dire to understand the connection between our mental functioning and our overall health status.

### **Statement of the Problem**

Among the many influencers of mental health status, infectious diseases have since become a prominent vector. The connection between emerging diseases and mental health issues can be analyzed throughout history. The first example of this dynamic at play can be seen through the 1918 Spanish Flu pandemic. Prior to this pandemic, and the advent of modern psychiatry as a field, there are more examples that demonstrate the power play between an infectious disease that ravages the physical body first, but also the overall functioning of the human mind. By understanding this connection and effectively preparing for future pandemic situations, health care professionals and scientists should be able to mitigate the overall damage and cost of the next imminent mental health crisis.

### **Associated Costs**



There are many costs associated with maintaining an individual's mental health, but there are also numerous costs associated with treating a diagnosed mental illness within an individual. Before one can discuss the associated costs or their impact, one must begin to understand the overall prevalence of mental illness and mental health issues within the United States. This will help to provide context moving forward.

Mental illness can be defined as “a mental, behavioral, or emotional disorder.” (SAMHSA, 2019). Mental illness can range in its impact, from no impairment to mild, moderate, or severe. (SAMHSA, 2019). Once a mental illness begins to “substantially interfere with or limit one or more major life activities,” it is considered a severe mental illness. (SAMHSA, 2019). The average costs of mental health services and treatment each year are astronomical, in the United States alone. These costs can be directly related to medication, treatment programs, therapy or counseling sessions, or other necessary services.

The most recent data displays that mental illness and mental health issues can impact any individual, regardless of their age, race, gender, occupation, education level, or any other identifying characteristic. For example, in 2019 SAMHSA reported that an estimated 49.5% of adolescents had a form of mental disorder. The National Institute of Health (NIH) reports that nearly one in five adults in the United States live with a mental illness, which equates to 51.5 million adults in the year 2019. These numbers are estimated to likely be higher, as conversations regarding mental health can still be considered uncomfortable and taboo, which may lead to individuals not seeking medical help or a diagnosis.

The 2019 National Survey on Drug Use and Health (NSDUH), in conjunction with the Substance Abuse and Mental Health Services Administration (SAMHSA), reports numerous data in relation to prevalence, relevance, and impact of mental health disorders upon Americans.

Within the data include percentages of prevalence of any mental illness by gender, race, and age. This survey reported in 2019 that there was a higher prevalence of mental illness among females (24.5%) compared to males (16.3%). Young adults aged 18-25 years old, the primary target group of this thesis project, had the highest prevalence of mental illness at 29.4%, compared to adults ages 26-49 years old, at 25.0% and adults ages 50 and older, at 14.1%. The prevalence of mental illness was also highest among adults reporting two or more races (31.7%), followed by White adults at 22.2%. (SAMHSA, 2019).

In the year 2019 SAMHSA also collected data in relation to the amount of mental health services and resources used by Americans within the years of 2018-2019. These “mental health services” were characterized as “having received inpatient treatment/counseling or outpatient treatment/counseling, or having used prescription medication for problems with emotions, nerves, or mental health.” (NSDUH, 2019). In 2019, among the 51.5 million adults living with a diagnosed mental illness only 23.0 million (44.8%) received mental health services within the past year. Of those receiving treatment services, 49.7% were females and 36.8% were males. The survey reported an inverse relationship between the age of individual and the percentage of individuals receiving mental health services--38.9% of young adults (18-25 years old), compared to 45.4% of adults ages 26-49, and 47.2% of adults ages 50 years or older.

Before we discuss the associated costs of mental illness and mental health services, it is important to explore reasons why an individual may not seek mental health treatment in the first place. Not only can mental health treatment be very expensive, but it can also be difficult to ask for help, find a provider, and stick to a treatment routine. Barring financial reasons, there are cultural and religious aspects at play that may also prevent an individual from seeking help. Likewise, individuals simply may not have any access, or any understanding, of what forms of

treatment or services may be beneficial for themselves and their daily life. Awareness of these barriers and how to decrease these barriers is essential to increasing utilization of these necessary resources.

But just how much money is being spent on utilization of mental health services? The National Alliance on Mental Health estimates that untreated mental illness costs the United States up to \$300 billion dollars every year due to losses in work productivity. (2019). These costs could easily be mitigated or completely prevented if access to necessary mental health services was more readily available and promoted, especially in the workplace. These costs are not only economic, they are also mortal. While mental illness can lead to a decrease in workplace productivity, it can also lead to more chronic conditions. As the body attempts to cope with continuous stressors, the body becomes more susceptible to communicable or chronic conditions. These chronic conditions can ultimately decrease an individual's overall lifespan.

As mental health and public health services continue to be underfunded, these gaps in health will continue to grow and overburden the already thinly stretched healthcare system.

### **Purpose of Study**

As all individuals, including college students, have begun grappling with the short-term impacts of COVID-19, the long-term physical and mental health impacts are still unknown. College students in particular suffered a dramatic change, almost instantly in Spring of 2020. A one week spring break was extended to two and suddenly students had one week to vacate their campus housing and were asked to finish their semester virtually. Some students were left without stable housing, access to consistent food, and adequate wireless service to complete their courses. Many "firsts" and "lasts" for students, including recruitments and graduations, were

effectively cancelled. These situations alone would cause mental strain, especially as an infectious pathogen as sweeping the nation at an alarming rate.

As universities tried their best to provide displaced students with needed resources, such as emergency funding for housing, food, or medical bills, students were still isolated from their peers and left feeling uncertain. Eastern Kentucky University's response was comprehensive, including weekly emails and access to remote counseling or other necessary services, and additional emergency funding for student needs, through the CARES act. This response will be discussed in depth below.

The purpose of this study is to analyze the impact that COVID-19 has had upon Eastern Kentucky University students over the past year. A comprehensive survey instrument will be used to collect responses regarding this impact. The results of this survey instrument will be tabulated and used to better understand the correlation between the COVID-19 pandemic and reported mental health status of university students. These results will be used to quantify mental health concerns on Eastern Kentucky University's campus and to advocate for better mental health preparedness responses to future emerging infectious diseases.

## **Research Questions and Hypotheses**

### **Research Question 1**

Is there a connection between reported mental health status of Eastern Kentucky University students and the COVID-19 pandemic?

### **Hypothesis 1.1**

The majority of Eastern Kentucky University students who responded to this survey have reported that COVID-19 has impacted their overall mental health status.

### **Research Question 2**

What mental health issues or symptoms are Eastern Kentucky University students reporting that are related to the COVID-19 pandemic?

### **Hypothesis 2.1**

\_\_\_\_\_ The majority of Eastern Kentucky University students who responded to this survey have reported that COVID-19 and subsequent safety protocols have manifested in feelings of anxiety, depression, hopelessness, isolation, and fatigue.

### **Research Question 3**

\_\_\_\_\_ What mental health issues would college students face should another pandemic or emerging infectious disease situation occur in the future?

### **Hypothesis 3.1**

\_\_\_\_\_The majority of college students would face feelings of anxiety, depression, hopelessness, isolation, fatigue, and stress/burn-out related to a future emerging infectious disease and its infection process. This could be prevented through thorough planning and preparedness programs on the behalf of universities.

### **Definition of Terms**

1. Mental Health: defined as “is a state of well-being in which an individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and is able to make a contribution to his or her community.” (WHO, 2018).
2. Mental illness: defined as “a condition that affects a person's thinking, feeling, behavior or mood. These conditions deeply impact day-to-day living and may also affect the ability to relate to others.” (NAMI, 2021).
3. Anxiety: defined as “an emotion characterized by feelings of tension, worried thoughts and physical changes like increased blood pressure.” (APA, 2019).
4. Depression: defined as “classified as a mood disorder. It may be described as feelings of sadness, loss, or anger that interfere with a person’s everyday activities.” (Healthline, 2018).
5. Isolation: defined as “the condition of being separate or alone; not connected to other things or people.” (Cambridge Dictionary, 2019).
6. Hopelessness: defined as :”an emotional state is the feeling that one’s condition in life is poor and will not get better, that things are beyond hope.” (Psychology.org, 2018).
7. Burn-out: defined as “exhaustion of physical or emotional strength or motivation usually as a result of prolonged stress or frustration.” (Merriam Webster, 2019).

8. Prevention: defined as “the action of stopping from happening or arising” or, in health promotion, “action taken to decrease the chance of developing a disease or condition.” (Oxford Dictionary, 2019).
9. Pandemic: defined as “an epidemic occurring worldwide, or over a very wide area, crossing international boundaries and usually affecting a large number of people”. (WHO, 2011).
10. Endemic: defined as “an infection is said to be endemic in a population when that infection is constantly maintained at a baseline level in a geographic area without external inputs.” (CDC, 2012).
11. Disease: defined as “the existence of pathology and an infectious disease is a disease caused by a microorganism.” (NIH, 1996).

### **Limitations**

There are limitations to this study. To begin, this study relies on self-reporting through a virtual survey instrument. Student respondents may feel uncomfortable responding to these questions, due to the sensitive survey content. Similarly, surveying a small amount of campus students limits the generalizability of the survey results to larger populations. The survey instrument only included multiple choice, closed-content questions. Due to the lack of open-ended questions, only the information being asked can be analyzed through the survey responses.

### **Recommendations**

There are recommendations to improve the effectiveness of this survey should be administered on Eastern Kentucky University's campus again. The addition of open-ended questions would improve the overall analysis of the content gathered. The initial instrument was

strictly quantitative, focused on percentages, whereas open-ended questions would increase the qualitative, or perspective focused, data.

This survey should also be administered over a longer period of time to increase the likelihood of response. Mixed survey administration methods should also be employed to increase the response rate and generalizability of the data gathered. Due to COVID-19 and campus restrictions, this initial survey was administered in one way: virtually.

## **Literature Review**

In order to understand the connection between an emerging infectious disease and its impact on mental health, one must first analyze the correlation between the two. Historically, “pandemics” and emerging infectious diseases are not uncommon. Throughout this literature review the history of pandemics, including prevalence, relevance, and connection to mental health, will be discussed at length.

## **History of Pandemics**

A pandemic can be described as an epidemic disease that has spread over a large geographical area and has become prevalent in numerous sectors of the globe. In 2020, just over 100 years since our last greatest pandemic, the 1918 Influenza outbreak, the global community is facing another threat: COVID-19. While physical health has become a paramount concern, the psychosocial effects of COVID-19 have yet to take centerstage in our discussions.

Throughout time, discussions regarding mental health have remained taboo. Only recently have these discussions become more frequent and candid. When an individual is asked to discuss their health, it is usually their physical well being that is first reviewed. Numerous



individuals are unaware that many dimensions of health exist, including not only our physical health but our intellectual, emotional, social, spiritual, occupational, financial, and environmental health. None of these dimensions are fully interdependent. Each dimension impacts one another and ultimately, affects our overall health status.

An analysis of pandemic history is conducted within Damir Huremovic's monograph entitled: "*The Psychiatry of Pandemics*." This monograph creates a framework through which the foundation of this thesis is based: emerging infectious diseases and their vectors will continue to touch the world. Because of this, future health professionals, policy makers, and university leaders must become aware of how pandemics impact our mental health in order to properly prepare for future pandemic situations.

*The Psychiatry of Pandemics* is a historical case study of how pandemics have molded both human history and the social makeup of our communities. This piece, while mainly a commentary on how pandemics have directly impacted the mental health of human societies over time, is also a call to action for policy makers, health practitioners, and governmental leadership. Huremovic uses historical examples spanning from 430 BC to present day in an attempt to show the correlation between an emerging infectious disease and mental health issues, while also making an argument for comprehensive policy engagement surrounding mental health preparedness to a pandemic. It is through four chapters that Huremovic best develops his argument and paints the grim future for the havoc that "Disease X" may cause in the world of mental health.

To begin, Huremovic sets the framework for his argument by discussing how pandemics do occur at relatively regular intervals throughout human history, with the last recorded pandemic--The Spanish Flu of 1918--occurring before the "advent of modern psychiatry" as a

“science and clinical speciality.” (7). This is important due to the fact that “contemporary” psychiatry had very little opportunity to “view” such a “historically important” phenomena through a critical, scientific lens. Similarly, with “communicable diseases” not among the “top five causes of death” in the developed globe, it is clear why research interests regarding emerging infectious diseases, and in particular, the correlation between pandemics and mental health, remains “marginal.” (7). Huremovic moves forward with this claim by citing that “approaches to mental health and psychiatric care” in situations such as an outbreak of communicable disease remain “negligible” and that it is still “unclear” what part of psychiatry as a practice “should” and “could ‘claim’” infectious disease outbreaks as its legitimate study focus. As of present day, two subspecialties within psychiatry, consultation liaison psychiatry and disaster psychiatry, “could” take full claim, but neither completely does. (7).

Next, Huremovic explains the historical timeline behind pandemics in recorded human history, taking into consideration the cultural context that surrounds each human response to said infectious disease process. Huremovic writes, “in long succession...pandemic outbreaks have decimated societies...while also, paradoxically, clear(ing) the way for innovations and advances in science,” however, fairly little attention has been given to the way these “plagues have affected the individual and ‘group psychology’ of afflicted societies.” (10). In short, many aspects of these plagues are still researched and “commemorated” in religious practices around the globe, but the mental health issues of those who have experienced said plagues are not. (10). The writer begins with discussing the Athenian Plague (430-26 B.C.), which claimed the lives of more than 25% of the Athenian population. Next, the Antonine Plague of 165-180 AD, which was documented by a physician, named Galen. (12). This plague “affected ancient Roman traditions” which subsequently led to a “renewal of spirituality and religiousness, creating the

conditions” needed for the spread of new religions, including Christianity. (13). Furthermore, the Justinian Plague is examined in detail. This plague was considered the “first real pandemic” which affected the great Byzantine empire and is one of the earliest examples of Christian traditional interpretation of events happening around them. The Justinian plague is often seen as one of the first examples of a pandemic being “a punishment” for sins in society. (14).

The writer also refers to the “Black Death” of the 14th century, which is one of the last recorded outbreaks before public safety measures such as quarantine or social distancing were introduced in order to reduce the spread of disease. Damir explains that “medieval societies observed the connection between passage of time and the eruption of symptoms,” noting that after a period of observation individuals who had not developed symptoms likely would not in the future. (17). The first known quarantine was enacted in Ragusa (city-state of Dubrovnik) in 1377, some thirty years after the Black Death arrived to ravage Europe. (17). At this point, Huremovic begins to speak of modern pandemic examples, which provide better context for discussing the impact of mental health during an outbreak.

The “Spanish Flu” of 1918-1920 was the “last true global pandemic” that had lasting consequences around the globe. (17). This pandemic was categorized by “uncertainty” as it took place during World War I and was mortally affecting “usually young and previously healthy individuals.” (17). This pandemic was also the “first one where the long-lingering effects could be observed and quantified,” but soon the Spanish flu began to fade from the public and scientific attention. (18). Researchers have speculated that this was due to the “peak” and length of this pandemic, the overshadowing of this disease by global events (i.e. WWI), and the general reaction to global pandemics that humans exhibit--“at first, great interest, horror, and panic...and then, dispassionate disinterest.” (18).

Humervoice then tackles modern day pandemic examples: HIV outbreak in the 1980's, a smallpox outbreak in Yugoslavia in 1972, and the most notable examples of the last 30 years--SARS, H1N1, Ebola, and Zika. The HIV/AIDS outbreak of the 1980's is a prime example of how mental health can (and will) be impacted by the pandemic response process. The HIV/AIDS "initial expansion" was marked by its spread "predominantly among the gay population," which led to "marked social isolation and stigmatization" of the gay community in America. (18,19). It was also recorded that the lifetime prevalence rate for depression in individuals living with HIV is at 22%, which is more than twice the prevalence rate of the general population. (19). Humervoice goes on to write that it is now "understood how depression in individuals living with HIV also shows an association with substance abuse and other issues," including, but not limited to: "stigma, shame, guilt, and difficulty adhering to life-saving treatments." (19). Furthermore, an outbreak of SARS (Severe Acute Respiratory Syndrome) was "among the first acute outbreaks that had mental health aspects studied in the process" and in the aftermath of the outbreak, as many different societies "yielded valuable information on the effects of this outbreak on affected individuals, families, and entire communities." SARS and its data is entirely unique due to the "valuable insights into mental health of patients in isolation" and the data compiled regarding stigmatization of the Asian population that resulted from this pandemic spread. (20). The mental health implications of SARS can be seen today with the COVID-19 outbreak.

H1N1, Ebola, and Zika are also all prime examples of mental health's role in the pandemic process. These three outbreaks were also shrouded with uncertainty, as populations that are usually left uninfected (such as young children, adolescents, or otherwise healthy adults) were impacted. This uncertainty, coupled with an almost daily news/social media presence, led

many individuals to deal with fear and anxiety on a common basis. (21). The public reaction to these three main pandemics led the CDC, WHO, and many other researchers to categorize what they call “Disease X” as the world’s next pandemic, one that will have “devastating effects on humanity.” (21). Preparation for this disease involves basic epidemiological response, but also a new strategy: globalized mental health preparedness and mental health focus.

The third chapter analyzed here will involve the “psychology” of a pandemic, analyzing the parallels between mental health of pandemic outbreaks and the concepts of “insanity” and “plague or contagion.” (27). To begin, Huremovic explains that one process at play here is the “mirroring of the pandemic epidemiological response” within the realm of psychology: reflecting in “thoughts, behaviors, and emotional responses.” (27). Huremovic argues that just as a physical disease has its pathogens, disseminates through vectors, follows modes of transmission..and erupts to overpower the host, so does the “psychological aspects of the outbreak have kernels of misinformation, feed on uncertainty, grow in doubt as they incubate the limbic system, and then, through the vectors of social media and other communication channels, explode in form of individual or mass panic,” threatening to overpower the coping resources of an individual or entire community. (27). By using this analogy, the writer is making clear the correlation between disease as a physical contagion agent, and also as a mental agent.

Furthermore, there is also a parallel between “an infectious disease as an actual contagion and mental illness as a symbolic contagion.” (27). Damir uses a quote from Joseph Heller (*Catch-22*) in which Heller writes, “Insanity is contagious.” This can be seen through the resultant “burdensome stigma and isolation” of both mental illness and infectious disease, which stems from the “fear of contagion.” (27). For example, diseases such as leprosy were so stigmatized throughout history that they could be equated with the “mental illness” of that

timeframe. (27). Huremovic warns that this “perfect storm” of “an infectious pandemic, with mental illness,” and disordered coping mechanisms on top, is sure to lead to what may be categorized as a new “mental health pandemic.” (27).

The fourth and final chapter used within this source analysis involves the effects of public safety measures such as social distancing, quarantine, and isolation. To begin, Huremovic gives validated definitions of these three words in order to provide a baseline context of their purpose. He then goes forward to explain that while these public safety measures are necessary and effective, they can also exacerbate mental illness and negative symptoms among those affected. For example, the writer states that “from a psychological perspective, the consequences of social distancing are summed up in two words--isolation and uncertainty.” (57). Measures of social distancing can be palpable, like physical barriers or protective equipment, or they can be symbolic: separation from loved ones, masked faces, or the inability to experience human contact. (57). All of these factors, combined with the individual’s prior mental health status and symptoms, can contribute to that “perfect storm” the author was alluding to earlier. He uses this segway to begin discussing why “addressing the psychological aspects” of a pandemic will “likely pay dividends not only in the long term, by lower incidences of reported mental illness,” but by increasing motivation and acceptance/adherence of public safety measures. (57).

Within this entire monograph, but specifically these four selected chapters, Huremovic uses multiple different methods of research and sources to validate this argument. To begin, Huremovic describes the two subspecialties of psychiatry that help individuals to understand the mental health response to pandemics. Consultation liaison psychiatry (CLP) “addresses the interface between mental health and other medical specialties, including infectious diseases.” (8). CLP is useful in regards to analyzing the impacts of a pandemic on mental health because it

allows for a “systematic approach” to analyzing epidemiological data such as “neuropsychiatric sequelae (defined as a pathological condition resulting from a disease, injury, etc.), emotional burden, social stigma, and impact on communities.” (8). The other mentioned subspeciality, disaster psychiatry, “lends itself as a primary discipline to outline mental health responses that are, by default, undertaken as emergency mental health responses.” (8). Damir argues that this approach is especially important because it is “applicable to organizing and providing emergency mental health response and services to epidemic outbreaks.” (8).

Another unique connection that Huremovic uses to support the overarching claims of his piece include the connection he makes between the unique features of mental health responses and that of pandemics. He is quoted as saying “there are several crucial idiosyncrasies in pandemic mental health that make it stand out” and make it worth “more serious consideration” in both literature and research. (8). Among these features include: time lapse and disease modeling, quarantine, and neuropsychiatric sequelae among survivors. Time lapse and disease modeling is important because pandemic outbreaks, unlike disasters, have predictable epidemiological models that allow limited, but valuable time for a response. Similar to mental health, accurate diagnosis and adequate resources also buy individuals limited, but valuable time to engage a response. (8). Quarantine is a practice that has been utilized for centuries, but “prolonged isolation and separation” from loved ones can nevertheless have “profound effects” on the target populations. Quarantine and isolation “warrant special mental health attention and considerations” during any infectious disease outbreak. (8). Neuropsychiatric sequelae, a sign of surviving an “infectious illness” may warrant “sustained mental health focus and attention” as the individual comes to terms with complications of an infectious disease. These sequelae, like a

pandemic response, will require dedicated planning and extensive resources during/after the disease has come and gone. (8).

Lastly, Damir employs the use of a historical timeline and historical documents/drawings, etc to give validated background context to his argument. As discussed earlier, the author draws a timeline through humanity's 'pandemic history,' beginning in 430 B.C. to current times, as we combat what some experts have come to identify as our "Disease X," which Damir alludes to throughout his monograph: COVID-19. This historical timeline utilizes statistics from census data, historical drawings, and historical records such as first hand accounts from individuals like Galen. While the majority of his novel could be construed as conjecture or speculation, by using concrete historical context such as past pandemics, Huremovic is able to solidify his overarching claim: that mental health is an important factor regarding pandemics and a pandemic response.

*The Psychiatry of Pandemics* serves as an outline for future mental health, pandemic responses. Huremovic demonstrates that analyzing our past can give us guidance for the future, which is paramount more now than ever. It will take a well thought, well organized, and well facilitated plan in order to decrease the negative impacts a future Disease X may have upon American's mental health status.

## **Relevance**

Earlier in this thesis, the dimensions of health were discussed. These dimensions, especially mental health, can directly impact your physical health through the exhibition of symptoms. Physical symptoms of mental distress include headaches, migraines, muscle tension and soreness, digestive issues or changes, sleep issues or disorders, and general feelings of sluggishness and exhaustion. Much research has been conducted analyzing the connection



between mental distress and display of physical symptoms, but not much research has been completed exploring this connection in relation to the impact of an emerging disease.

It is evident that disease mitigation efforts, such as social distancing, quarantine measures, and the wearing of masks can depersonalize an individual's daily life. This lack of personal connection can be detrimental to humans, as we are social beings at heart. An article entitled "Psychosocial Effects of an Ebola Outbreak at the Individual, Community, and International Levels" explores this very dynamic and demonstrates how a pandemic can impact every facet of an individual's life by exploring the psychological and social environment at multiple levels. It is important to understand that emerging diseases, like Ebola for example, impact individuals and their communities both acutely and in the long term. (1). With this frame of mind, Tine Van Bortel and others analyze the lasting impact of Ebola's traumatic infection process and examine how an individual's social environment may increase or decrease their reported mental health status.

For example, "those affected with Ebola" and those who "witness" the disease process are likely to express "psychological consequences." (1). Among these consequences are feelings of "shame, guilt, and blame," as the individual may feel responsible for transmission of the virus. (1). Individuals impacted by Ebola, or other infectious diseases, may also report feelings of "fear, anxiety, grief" and "distress" due to the separation from their loved ones as the disease progresses. (1). This article demonstrates the need for mental health education at every level--individual, community, and globally--in order to effectively combat the long-lasting psychological repercussions of disease. This is ever important, as we now face one year actively dealing with the COVID-19 pandemic in the United States.

Furthermore, Felipe Ornell and a team of researchers discuss “fear” as a mental health distress indicator in their article “Pandemic Fear and COVID-19: Mental Health Burden and Strategies.” Similar to the claims discussed in “Psychological Effects,” it is commonplace for “health professionals, scientists, and other groups” to focus solely on the “pathogen and its biological risk” instead of the psychological or psychiatric implications. (232). These implications are often “underestimated and neglected” at both “individual and collective levels,” which generates “gaps in coping strategies” and preparedness. (232). Ornell and company discuss this claim further by pointing towards the emotions involved in mental health distress, namely “fear,” and how ‘glancing’ over the mental health burden produced by pandemics leads academics to have a misconstrued image of a community’s needs. This article demonstrates the widening gap between a novel virus like COVID-19 and research regarding how diseases influence mental health patterns.

### **Connection to Mental Health**

Mental health remains a heavily studied research area in regard to adolescents, but in particular, university students. Despite the plethora of data gathered analyzing the connection between college students and mental health status, there is little to none regarding the impact that a pandemic may impart on an University student’s mental condition. It is still unknown whether or not a pandemic exacerbates an average college student’s reported mental health symptoms, or if a direct correlation exists between an infectious disease’s emergence and mental health decline. Despite this, many academics speculate that there may be more to this complex relationship than meets the eye. The following three sources attempt to set the scene and explore the correlation between college students, mental health, and emerging infectious diseases.

The first article, entitled “Public Mental Health Crisis During COVID-19 Pandemic,” explores the effects the initial outbreak of the novel coronavirus had in the country of China. The writer of this article broadly discusses the issues facing China during the time of the COVID-19 outbreak, as the country began “implementing emergency psychological crisis interventions” in order to “reduce the negative psychological impact” on Chinese citizens, including university students. (1616). The author explains that while China was in the process of an emergency mental health response to the virus, challenges still persisted, namely that at first public mental health interventions were not “formally integrated into the public health preparedness and emergency response plans.” (1616). Without “formally” implementing mental health into the country’s public health response, it was evident that all aspects of a community were not being taken into consideration and that the overall emergency response was lacking. If the risk factors impacting a community and its members, such as perceived mental health status prior to the outbreak or family history of mental illness, are not addressed there is a likelihood that barriers may exist that will keep individuals from utilizing the provided interventions.

Dong and Bouey go on to explain the “unique characteristics” of China’s COVID epidemic pattern and “management policy” that prompted the country to implement a “heightened public health response.” (1616). To begin, many Chinese residents still remember the 2003 SARS (severe acute respiratory syndrome) outbreak and its many effects on China’s social life and economy. (1616). The author cites that this memory of SARS, coupled with the “uncertain incubation period of COVID-19, it’s possible asymptomatic transmission, COVID-19’s higher transmission rate and its case-fatality rate of 2.3%,” have caused additional fear and anxiety within the country’s citizens. Next, the “initial downplaying of the epidemic’s severity eroded public trust in the government’s” response, transparency, and competency to

control the virus's spread. (1616). Third, the large-scale quarantine measures in all of China's major cities were likely to have "negative psychosocial impacts" on all residents. Lastly, reports of shortage of medical equipment, including personal protective equipment, and an unique "infodemic"--an overabundance of (mis)information on social media--"posed a major risk" for a public mental health crisis. Because of these many factors, and the data gathered during the 2003 SARS outbreak that suggested that disease outbreaks, "generalized fear and fear-induced overactive behavior," make it difficult to control infection spread, China's government health officials decided that a comprehensive public health approach to this virus was paramount. (1616).

The second article, entitled "Negative Cognitive and Psychological Correlates of Mandatory Quarantine During the Initial COVID-19 Outbreak in China," also explores the correlations between necessary public health measures and the resultant mental health impacts among Chinese civilians. The study discussed inside this article investigates the "associations between mandatory quarantine and negative cognitions/mental health status" and the "associations between said negative cognitions and (reported) mental health status." (607, 608). This study included a cross-sectional, online survey administered to 24,378 students from 26 different Chinese universities. (608). The primary goal of this study was to "investigate the associations between negative mental health status among university students during the initial phase of the outbreak" and mandatory quarantine measures. (609).

The researchers involved in this study describe the correlation between mandatory quarantine status (MQS) and mental health by explaining that "MQS was associated with psychological problems, such as acute stress disorder, depression, alcohol dependency, and post quarantine mental distress." (609). Not all of the students selected to complete this online survey

were subject to mandatory quarantine, however, the researchers still collected information regarding prevalence of “depressive symptoms, self-harm or suicidal ideation, emotional distress attributed to COVID-19, perceived risk of COVID-19 infection, and perceived discrimination from others due to COVID-19.” (610). The results of this study were telling. It was found that “mandatory quarantined status was significantly and positively associated with perceived discrimination ( $d=0.62$ ), perceived high risk of infection ( $OR=1.61$ ), emotional distress ( $OR=0.46$ ), probable depression ( $OR=2.54$ ), and self-harm/suicidal ideation ( $OR=4.98$ ).” (608). It was also found that “associations between perceived risk of infection and mental health variables were significant, but relatively weak” and that “COVID-19 related negative cognitions/emotional distress only accounted for 12-15% of the total effects of quarantined status and probable depression” among those students who completed the survey. (608).

The researchers concluded that “quarantined participants were more likely than others to perceive discrimination and exhibit mental distress” and that it was paramount to “integrate mental health care into the planning and implementation of quarantine measures” moving forward. (608). The next article continues the central argument of this “correlation” survey, as researchers Coyne, Ballard, and Blader focus on initial university responses to the coronavirus pandemic and what this shutdown has taught us in regard to future outbreaks.

The last article explored within this essay, entitled “Recommendations for Future University Pandemic Responses: What the First COVID-19 Shutdown Taught Us,” explores the challenges that the SARS-CoV-2 epidemic caused most universities and academic institutions in the early part of 2020. This article takes into consideration the first hand account of individuals directly impacted from university closures, such as faculty members and current undergraduate/graduate students. The ultimate goal of this article is to “generate a framework for

these discussions and provide views of individuals from the ‘proverbial trenches’,” that will subsequently be impactful moving forward as higher education prepares for future disease-related closures. The authors of this article preface their discussion by beginning with the basic fact that “ultimately, university responses (to the outbreak) were largely successful and that SARS-CoV-2 infections/spread were undoubtedly mitigated...however, these responses were not always executed smoothly, in part because of the unparalleled nature of the pandemic.” (1).

The initial response to COVID-19 was shrouded with uncertainty for a myriad of reasons. While the following measures were taken, “barriers and hurdles began to manifest themselves.” (2). To begin, the pandemic “overlapped with many academic holidays (i.e. spring break) when many students leave their campuses.” (2). The possibility of a campus student being exposed to the SARS-CoV-2 virus while away from campus housing was a likelihood. Second, “students in academic health programs, such as nursing or dentistry, that perform clinical rotations also had a higher likelihood of” potential exposure working with high-risk patients. (2). Lastly, universities were confronted with the challenge that presented itself once “classes were quickly cancelled” and moved to an online format. Among other challenges, the abrupt closures of campus housing left many “students with the reality of finding new housing, with reliable internet connection” in order to finish their coursework. In addition, many students began working longer hours at their job or became caregivers for other family members. Thus, it was seen that “socioeconomic disparities undoubtedly affected students’ opportunities and performances.” Similarly, “mental and physical health resources” such as campus recreation facilities and student health services were no longer available, “preventing students, faculty, and staff from accessing necessary care, treatment,” and preventive actions. (2).

After discussing these impacts, the authors of this article outlined “recommendations” for higher education institutions and their leaders moving forward, as the likelihood of another outbreak of COVID-19 looms. These recommendations are aimed at “developing a framework for leadership and faculty” of universities to use in order to “assess their response” to an impending outbreak. Among these include: “crisis management team preparation, training, and membership; education; communication.” (4, 5).

Crisis management team preparation and training should be undergone by any individuals with “the ultimate responsibility for making and implementing action plans.” These individuals would be presidents, provosts, deans, or any individual who is working closely with a task force or advisory council that is creating plans in response to an infectious disease outbreak on a college campus. (4). By requiring these individuals to complete crisis management training, the university as a whole, but in particular those students attending said institution, can feel comforted knowing the leadership of the university has been properly prepared for a future “unparalleled situation” such as another pandemic. Universities will also need to “develop and distribute situational criteria to determine when, and if, classes should be moved online.” (4). Accommodations should be required to “enable students to participate” fully “in the delivery of online learning instruction.” (4). Students and faculty alike will need to remain flexible with one another, as instruction and scheduling may appear different. Within this new realm of education, “open lines of communication” between students and faculty will be “essential,” as discussions regarding struggles will need to be had without the fear of being “viewed negatively.” (4). This general understanding and transparency within all levels of the institutional hierarchy will be essential to keeping all members of the university community engaged and comfortable.

Similarly, open and transparent communication channels will need to be created and maintained the duration of the disease outbreak. The authors cite that “institutional leaders must provide updates regarding the status of the shutdown” (or impending shutdown) “process, even if those updates are merely ‘we are working on it.’” (5). This open line of communication as the process progresses and decisions are made will keep the students and faculty impacted up to date on what will be coming down the line next. Without this line of communication, the fear and anxiety that is resultant of uncertain times may come to inspire ‘hysteria’ among those impacted, creating more unnecessary mental strain. Failure to enact these three recommendations in future planning of university preparedness responses can possibly result in increased mental health issues reported by university students.

### **Effects of Emerging Diseases on Mental Health**

Emerging infectious diseases can impact an individual’s mental health in a variety of ways. To fully understand these ways, an individual must first explore health and dimensions of health (wellness). Health is complicated. Health is so much more than merely an “absence of disease or illness.” Health can be impacted by numerous factors, including your genetic history, zip code, race, ethnicity, and the following dimensions.

Dimensions of health, otherwise known as dimensions of wellness, are described as “8 mutually interdependent dimensions” that help to promote optimal health in individuals. These dimensions include: mental/emotional, environmental, financial, intellectual, occupational, physical, social, and spiritual health. People are quick to think of wellbeing in terms of solely physical health, such as nutrition, exercise, weight management, or methods. However, health and wellness is a dynamic and holistic combination of all these dimensions, from your job satisfaction to satisfying your quest of knowledge.



As seen through the aforementioned literature review, it is important to understand how these dimensions of wellness build upon one another and how the introduction of an illness, such as an infectious disease, can disrupt an individual's quality of health on multiple levels. SAMHSA provides an example of these dimensions at play through their publication "Creating a Healthier Life: A Step-by-Step Guide to Wellness." SAMHSA describes that "When we worry about money (for example, debt or being able to afford what we need), we sometimes experience anxiety (emotional). This can lead to medical problems (physical), and trouble at work (occupational). When this happens, we may even question our own sense of meaning and purpose (spiritual). At the same time, when we are not working (occupational), we may lose opportunities to interact with others (social), and may not be able to afford the good food and medical care we need to stay well (physical). We may even need to move our home to a place that feels less safe and secure (environmental)." (2016).

COVID-19, the newest infectious disease to impact global communities, is a prime example of how these dimensions interact to create optimal health. COVID-19 has been the cause of loss of health (physical and mental), loss of income, loss of opportunity, and loss of normalcy for so many individuals. The Kaiser Family Foundation reports that "During the pandemic, about 4 in 10 adults in the U.S. have reported symptoms of anxiety or depressive disorder, a share that has been largely consistent, up from one in ten adults who reported these symptoms from January to June 2019." Similarly, "KFF analysis of the Household Pulse Survey finds that throughout the pandemic, a large share of young adults (ages 18-24) have reported symptoms of anxiety and/or depressive disorder – 56% as of December 2020."

This data shows that there appears to be a connection between emerging infectious disease agents and resultant mental health symptoms.

## **University Response to Emerging Infectious Disease**

How a university responds to an emerging infectious disease outbreak is paramount. Universities must attempt to effectively prepare for future diseases and how to minimize the harm within their campuses. Within these preparations must be consideration for both mental and physical health. An example of these considerations can be seen below, as we discuss Eastern Kentucky University's response to COVID-19.

### **Review of COVID-19 Response at ECU**

In response to the COVID-19, university officials at Eastern Kentucky University created the "Colonels Come Back Plan" along with a planning task force, a contact tracing division on campus, and a virtual contact tracing form for students to fill out upon exposure or possible exposure to COVID-19. The addition of these measures helped to ensure that students on ECU's campus had access to needed resources as they navigated this pandemic.

The Colonels Come Back Plan included pertinent information, such as public health guidelines for exposure and mitigation of spread, and governmental guidelines, that were meant to safely bring university students back to campus for courses. ECU created a virtual website that contained all of this information, that was easily accessible to students. Weekly emails were sent regarding COVID-19 spread on campus, local testing sites, and information regarding vaccinations within Richmond. ECU began opening in phases, following state and governmental guidelines.

Other than changes made to university operations, including encouragement of telework for university employees and smaller class sizes, ECU also emphasized mental health services. "ECU offers comprehensive services to support mental health and emotional wellbeing of

students and employees” through offering continuous telehealth services through ECU’s Counseling Center. (Section 12). ECU’s Psychology Center also provided many virtual resources and meetings for students or employees from March of 2020 until present day. These services, including support groups for students who have tested positive for COVID-19 or have dealt firsthand with the virus, are still being offered on campus and in virtual formats.

### **Summary**

Mental health is just as important as physical health. While there is much research regarding mental health status of university students, there still remains room for growth. Trends in mental health are evolving and changing due to the introduction of infectious diseases, such as COVID-19. An understanding of the connection between an emerging infectious disease and perceived mental health status is crucial. If we understand this connection, and its implications, we can improve mental health awareness and programming to better fit the needs of this campus population and beyond.

The purpose of this research study was to answer the following questions:

1. Is there a connection between reported mental health status of ECU students and the COVID-19 pandemic?
2. What mental health issues or symptoms are ECU students reporting that are related to the COVID-19 pandemic?
3. What mental health issues would college students face should another pandemic or emerging infectious disease situation occur in the future?

To help explore these questions further, a 32-question survey instrument was created. This survey instrument was administered to Eastern Kentucky University students virtually, through an online software named Qualtrics. These questions were aimed at establishing a baseline of ECU student's mental health by analyzing the connection between ECU student's mental health and COVID-19, as well as demographic information and self-reported mental health symptoms. This survey was made available to all enrolled undergraduate students at ECU, where a sample of 114 students responded.

The survey results will be discussed here. Of the respondents, 67.7% students reported living off campus versus 32.7% students living on campus. The survey respondents were from varying academic years: 6.4% freshman, 10.9% sophomore, 20% junior, 39.1% senior, and 23.6% graduate level. Currently, 5.4% report taking traditional, face-to-face courses, compared to 35.4% online and 59.1% hybrid. To establish a base-line of change from current courses (Spring of 2021) and courses prior to Fall of 2020 (i.e. Spring of 2020), we asked a question regarding previous methods of instruction: 71.6% traditional, face-to-face courses, compared to 10.1% online and 18.4% hybrid.

Student respondents were from all six colleges on ECU's campus, with the majority of responses resulting from the College of Health Sciences: 55.4% College of Health Sciences, 11.8% College of Science, 10.9% College of Letters, Arts, and Social Sciences, 7.3% College of Education, 7.3% College of Justice and Safety, and 7.3% College of Business and Technology. The survey respondents overwhelmingly identified as female, at 80.9% compared to male, at 19.1%. There was varied cultural representation in this survey sample, with 78.3% Caucasian, 7.8% African-American, 5.2% Hispanic, 4.3% Asian, and 2.6% Pacific Islander. The majority of respondents fell between the ages 21-30 (65.1%), with 29.7% of respondents reporting their age

to fall between 11-20 years old.\* Disclaimer: survey respondents had a minimum age of 18 to complete this survey.

The main focus of this survey was to establish a baseline of mental health for EKU students prior to the onset of COVID-19 (i.e. March of 2020) and six months after the onset of COVID-19 (i.e. September of 2020). More than half (78.9%) of survey respondents reported they had experienced feelings of depression. The majority of respondents (93.5%) also reported experiencing anxiety and feelings of loneliness/isolation (86.2%). A measure of mental health prior to and six months after COVID-19 was also gathered. Survey responses to this question were created on a likert scale, from: negative, slightly negative, neutral, slightly positive, and positive, in an attempt to capture the fluidity of mental health status.

The reported mental health of EKU students prior to COVID-19 was reported as: negative (3.7%), slightly negative (20.8%), neutral (21.7%), slightly positive (29.2%), and positive (24.5%). This is compared to the self-reported mental health of EKU students six months after the onset of this pandemic: negative (29.2%), slightly negative (42.4%), neutral (20.7%), slightly positive (2.8%), and positive (4.7%). The data displays an inverse relationship between a student's reported mental health before and six months post the onset of this pandemic. Further research should be conducted to identify if COVID-19 is the only, or most impactful factor, driving this relationship.

Student respondents reported experiencing changes in their sleep-wake cycle within the last six months (78.7%) and experiencing loss of motivation in their daily activities over the last seven days (57.5%). Over the last seven days, students also reported being bothered by feelings of depression (52.8%) and the inability to stop or control their worrying: several days (30.1%), more than half the week (21.4%), and nearly everyday (20.4%). A positive of these research

findings is that the majority of these respondents reported having access to mental health resources and services (79.6%) compared to 19.4% without access. Similarly, 83.5% of respondents reported having used a healthy coping mechanism within the last year.

The preliminary research shows that COVID-19 seems to have impacted ECU student's mental health, however, a more in depth analysis needs to be implemented in order to clearly state the full extent of this impact. Likewise, COVID-19 itself may not be the sole, or most influential, factor affecting the reported mental health of Eastern Kentucky University students.

The data seems to show that ECU students are reporting feelings of depression, anxiety, isolation and loneliness, an overall lack of motivation, and changes in sleep-wake cycles over the last six months. It cannot be stated enough that this data alone is not concrete or indicative of concrete solutions. Further research should be conducted to increase validity of these preliminary findings.

This survey continues to show promise and the need for further focus and attention on mental health in college students, especially in the wake of COVID-19 and as we work towards our new normal. This thesis project is validation that mental health and emerging disease patterns do have a connection, to some degree. While much progress has been made in the field of mental health, there is still room for improvement.

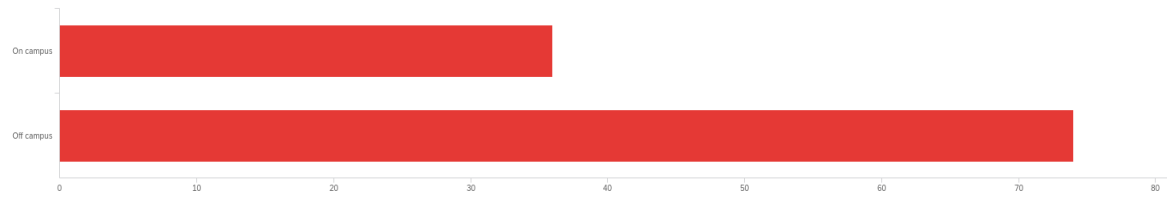
**Results**

Below are survey responses for each instrument item. Figure(s) 1-32 correspond with the survey instrument items.

Figure 1: Do you live on or off campus?

Q2 - Do you live on campus or off campus?

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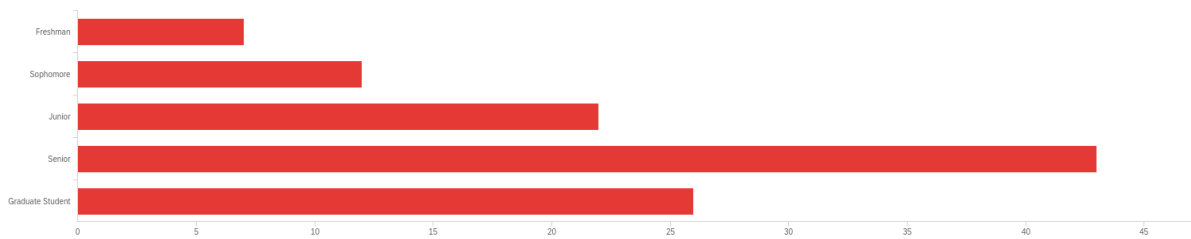


#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Do you live on campus or off campus?	1.00	2.00	1.67	0.47	0.22	110

Figure 2: What year student are you at EKU?

Q3 - What year student are you at EKU?

Page Options ▾



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	What year student are you at EKU?	1.00	5.00	3.63	1.14	1.31	110

Figure 3: What type of classes are you currently taking?



Q4 - What type of classes are you currently taking?

Page Options ▾



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	What type of classes are you currently taking?	1.00	3.00	2.54	0.60	0.36	110

Figure 4: Prior to Fall 2020, what type of classes were you taking?

Q5 - Prior to Fall 2020, what type of classes were you taking?

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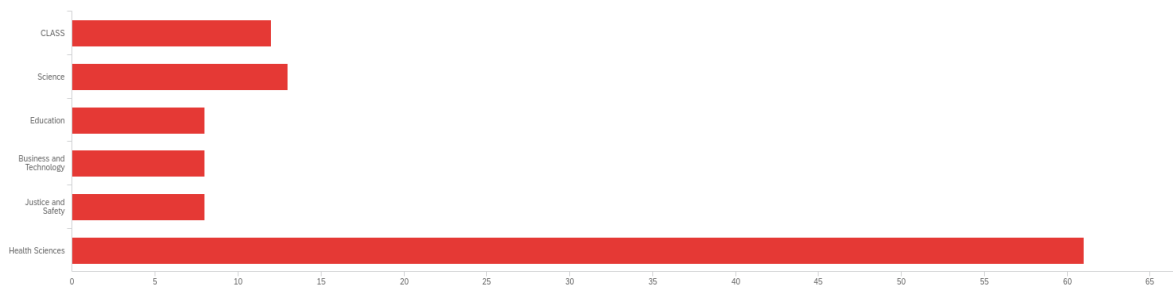


#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Prior to Fall 2020, what type of classes were you taking?	1.00	3.00	1.47	0.78	0.62	109

Figure 5: Which college on campus are you apart of?

Q6 - Which college on campus are you apart of?

Page Options ▾

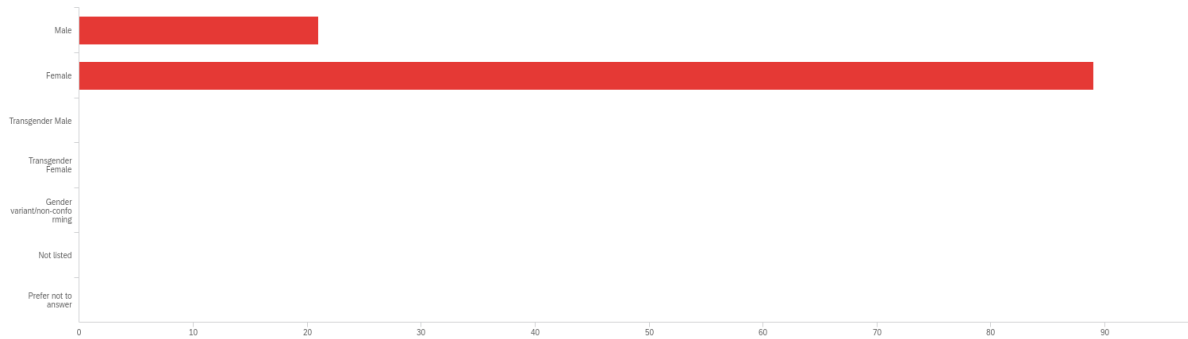


#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Which college on campus are you apart of?	1.00	6.00	4.55	1.88	3.52	110

Figure 6: What gender do you identify with?

Q7 - What gender do you identify with?

Page Options ▾



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	What gender do you identify with?	1.00	2.00	1.81	0.39	0.15	110

Figure 7: What race/ethnicity do you identify with?

Q8 - What race/ethnicity do you identify with?

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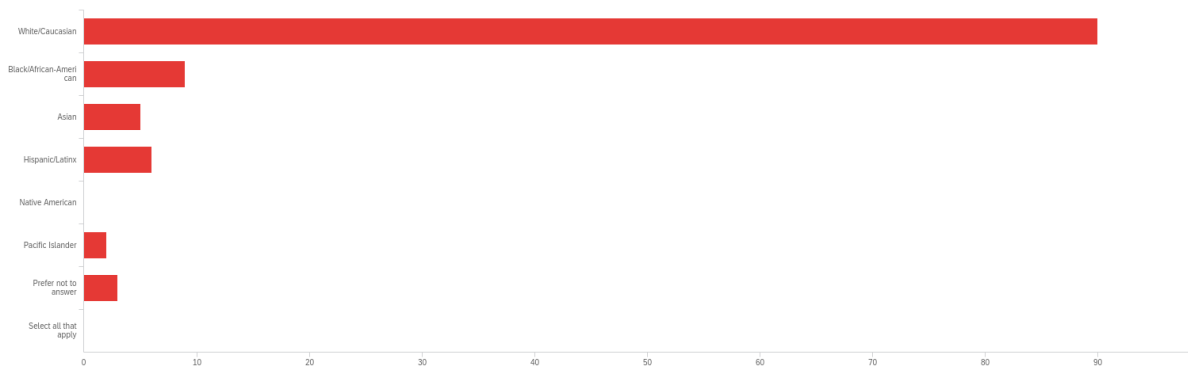
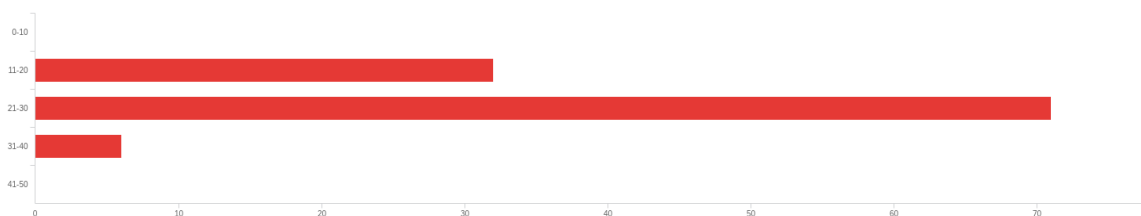


Figure 8: How old are you?

Q9 - How old are you?

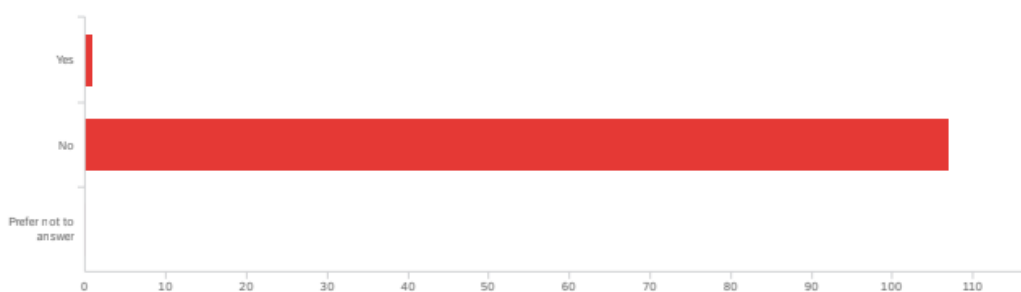
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#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	How old are you?	2.00	4.00	2.76	0.54	0.29	109

Figure 9: Are you a veteran?

Q10 - Are you a veteran?

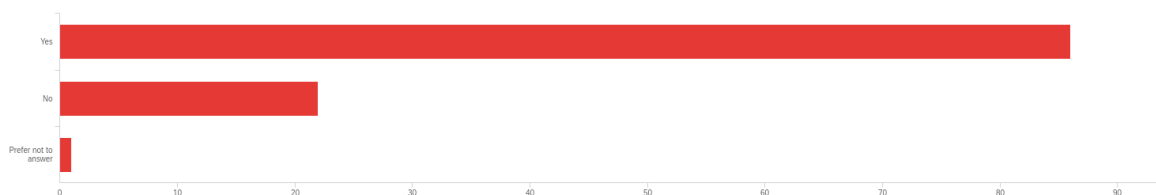


#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Are you a veteran?	1.00	2.00	1.99	0.10	0.01	108

Figure 10: Have you ever experienced feeling depressed?

Q11 - Have you ever experienced feeling depressed?

Page Options ▾



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Have you ever experienced feeling depressed?	1.00	3.00	1.22	0.44	0.19	109

Figure 11: Have you ever experienced feelings of anxiety?



Figure 12: Have you ever experienced feelings of loneliness or isolation?

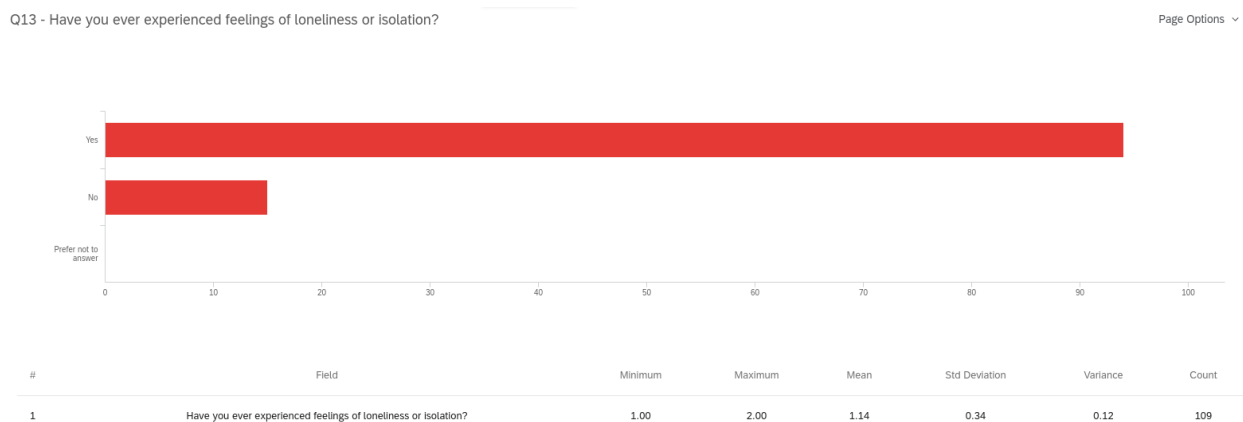


Figure 13: Overall, how would you describe your self-reported mental health prior to COVID-19?

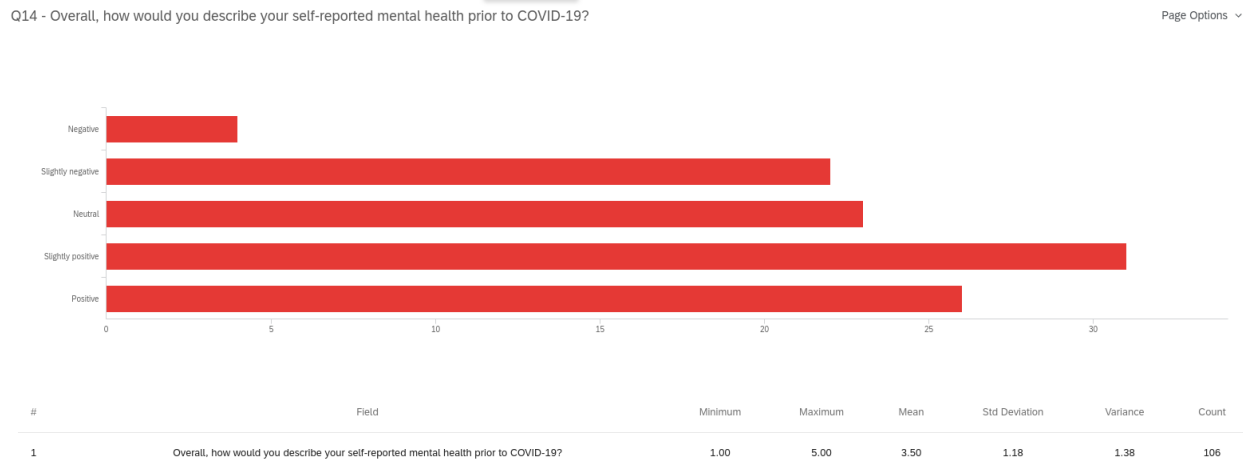


Figure 14: Overall, how would you describe your self-reported mental health six months after the onset of COVID-19 (i.e. March of 2020)?

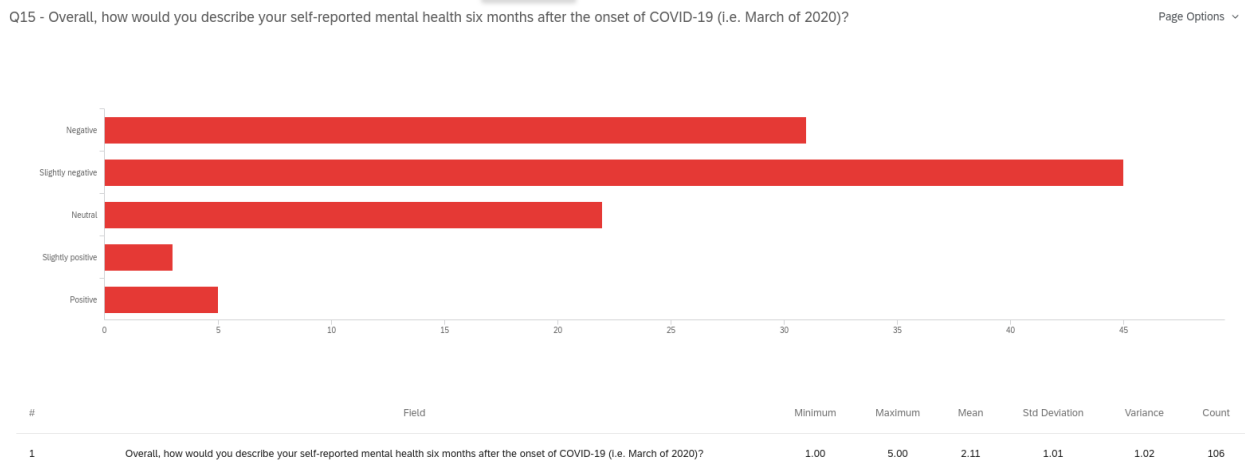


Figure 15: Is there a history of mental illness or mental health issues in your family?

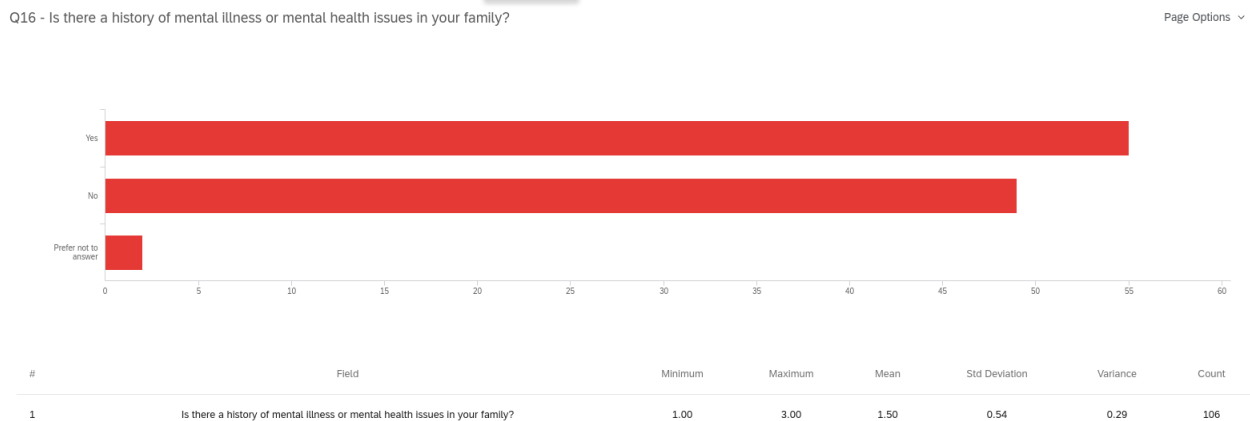


Figure 16: Have you been diagnosed with a mental health disorder?

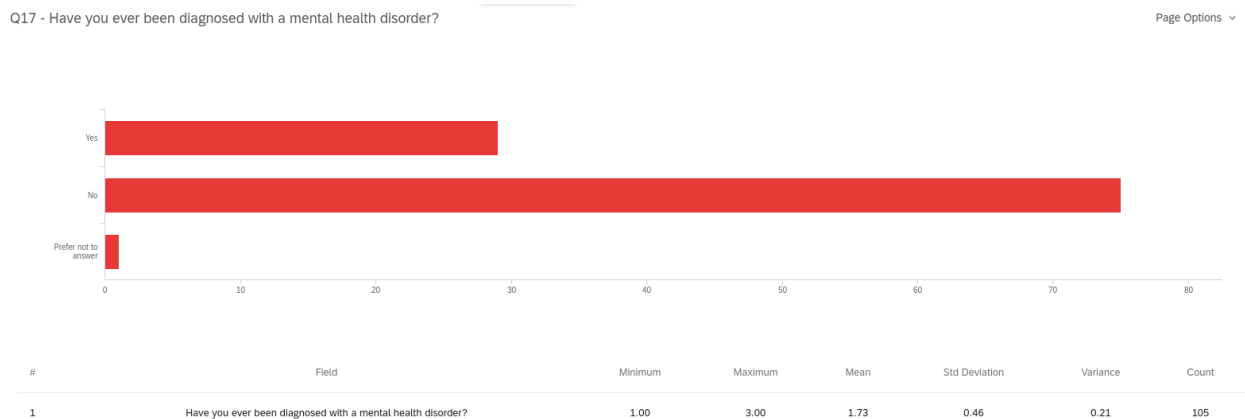
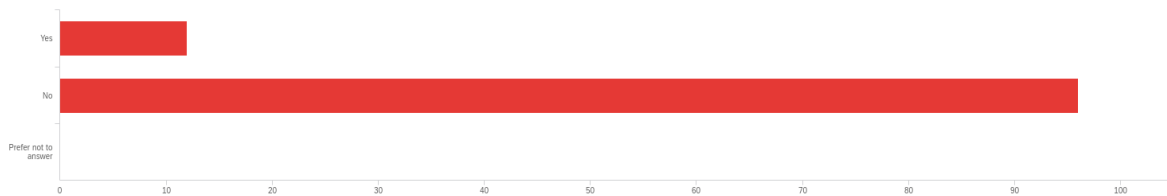


Figure 17: Have you been diagnosed with a mental health disorder in the last six months?

Q18 - Have you been diagnosed with a mental health disorder in the last six months?

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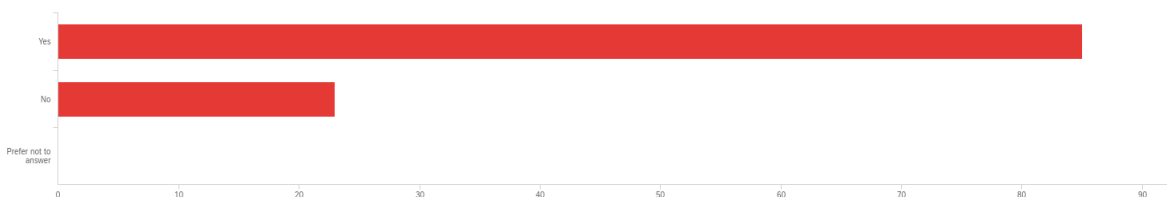


#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Have you been diagnosed with a mental health disorder in the last six months?	1.00	2.00	1.89	0.31	0.10	108

Figure 18: Have you noticed changes in your sleep-wake cycle within the past six months?

Q19 - Have you noticed changes in your sleep-wake cycle within the past six months?

Page Options



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Have you noticed changes in your sleep-wake cycle within the past six months?	1.00	2.00	1.21	0.41	0.17	108

Figure 19: How knowledgeable are you about mental health and mental illness?

Q20 - How knowledgeable are you about mental health and mental illness?

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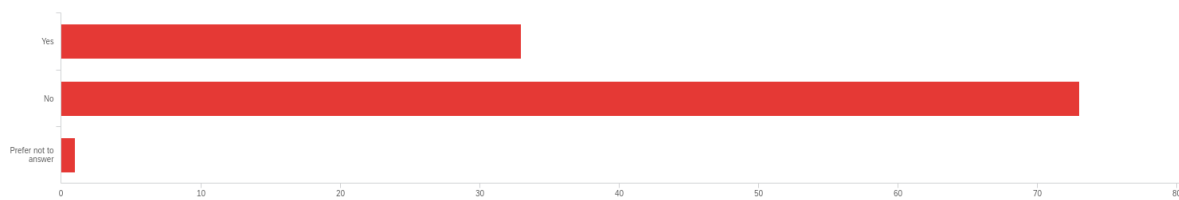


#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	How knowledgeable are you about mental health and mental illness?	1.00	5.00	3.76	1.01	1.02	108

Figure 20: Have you completed a self mental health inventory in the last six months?

Q21 - Have you completed a self mental health inventory in the last six months?

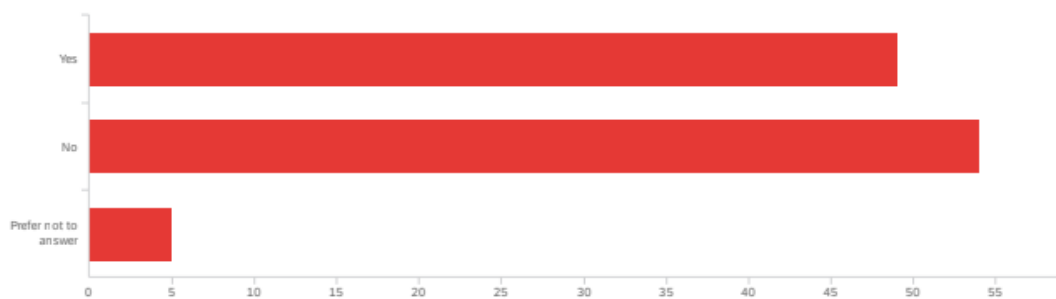
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#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Have you completed a self mental health inventory in the last six months?	1.00	3.00	1.70	0.48	0.23	107

Figure 21: Have you suffered a loss of income due to the pandemic?

Q22 - Have you suffered a loss of income due to the pandemic?



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Have you suffered a loss of income due to the pandemic?	1.00	3.00	1.59	0.58	0.33	108

Figure 22: In the last three days, has depression or depression symptoms impacted your life?

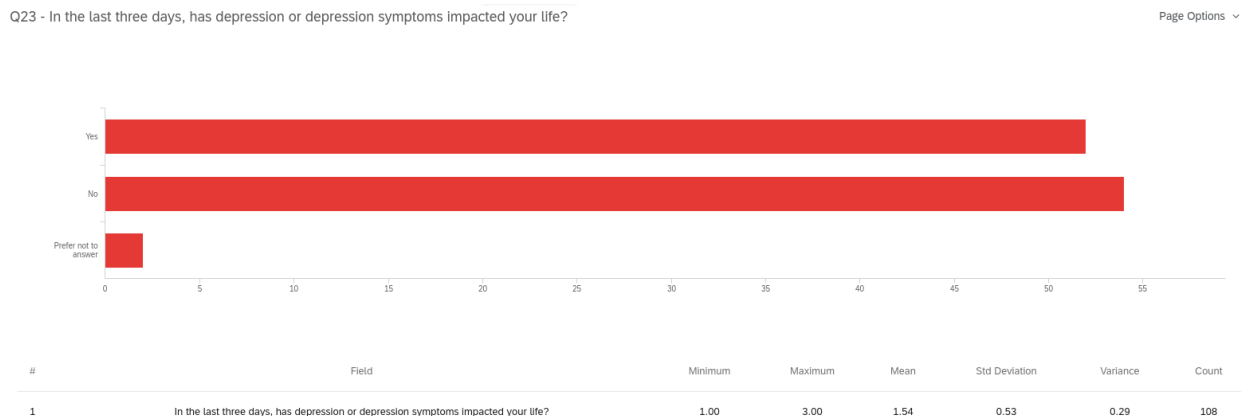


Figure 23: Over the last seven days, how often have you been bothered by any of the following: having little interest or pleasure in doing things?

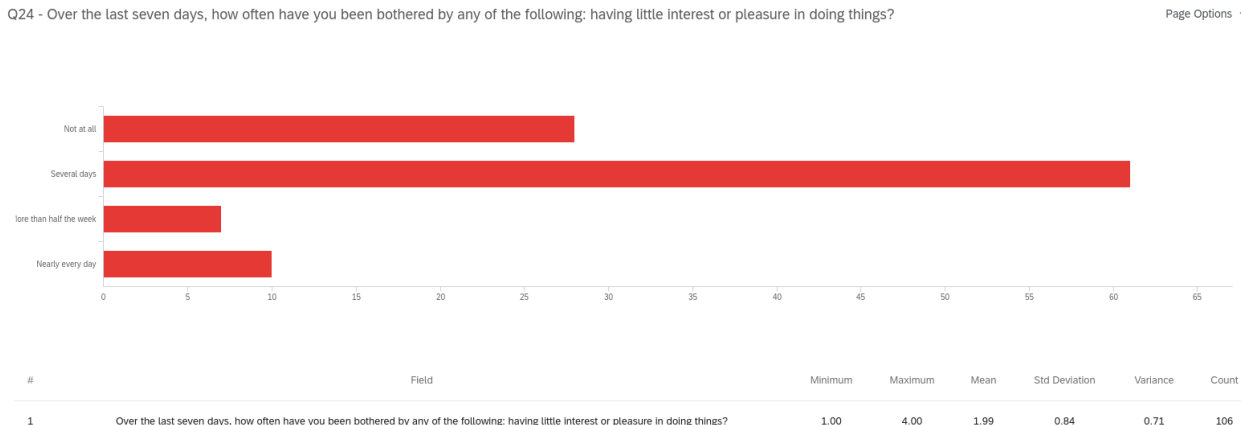


Figure 24: Over the last seven days, how often have you been bothered by feelings of depression?

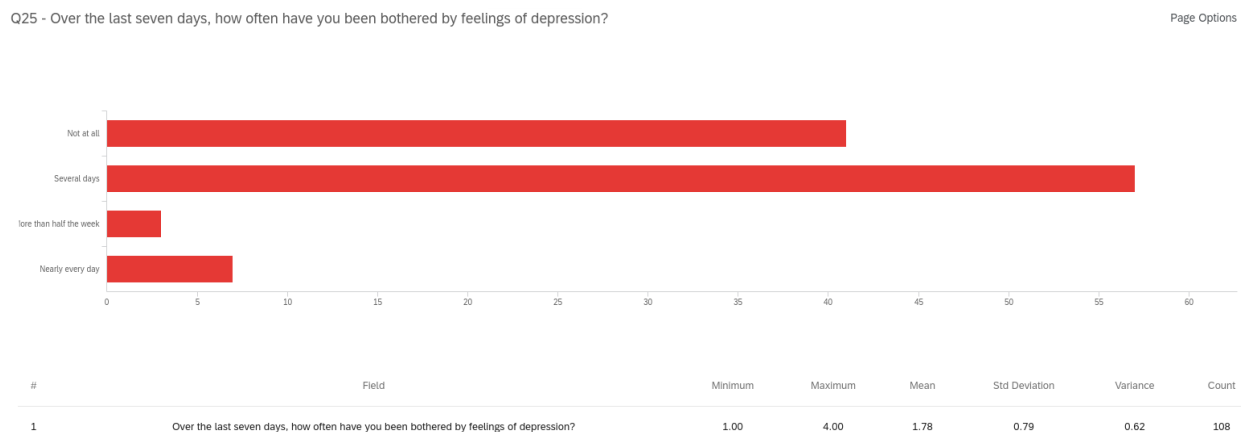




Figure 25: Over the last seven days, how often have you been bothered by feelings of hopelessness?

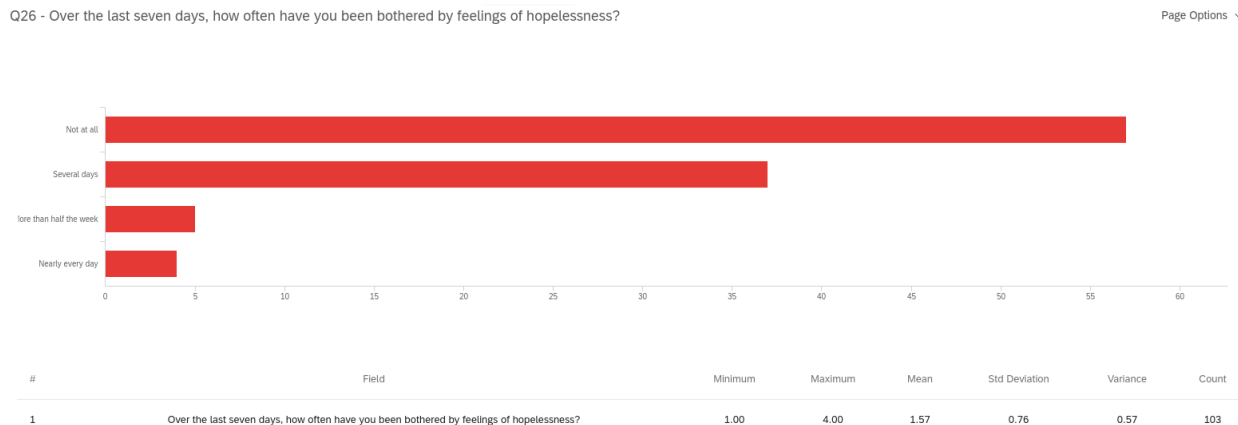


Figure 26: Over the last seven days, how often have you been bothered by the following problems: not being able to stop or control your worrying?



Figure 27: Do you have access to mental health resources and services?

Q28 - Do you have access to mental health resources and services?

Page Options

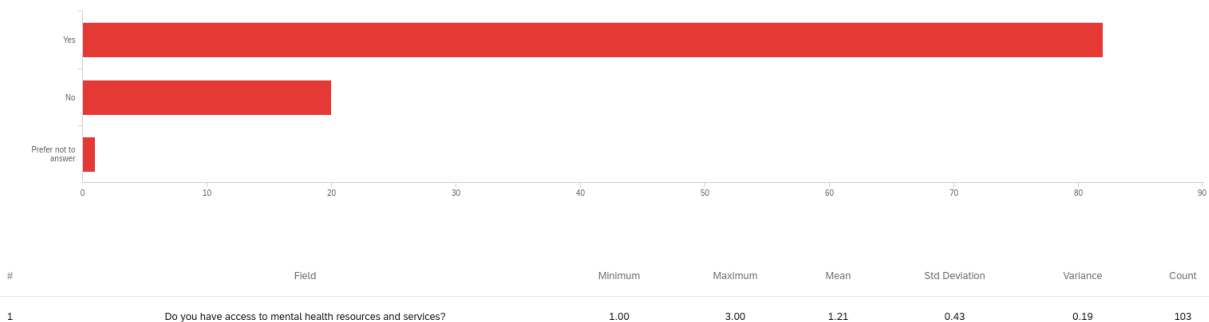


Figure 28: Have you ever used a healthy coping mechanism?

Q29 - Have you ever used a healthy coping mechanism?

Page Options

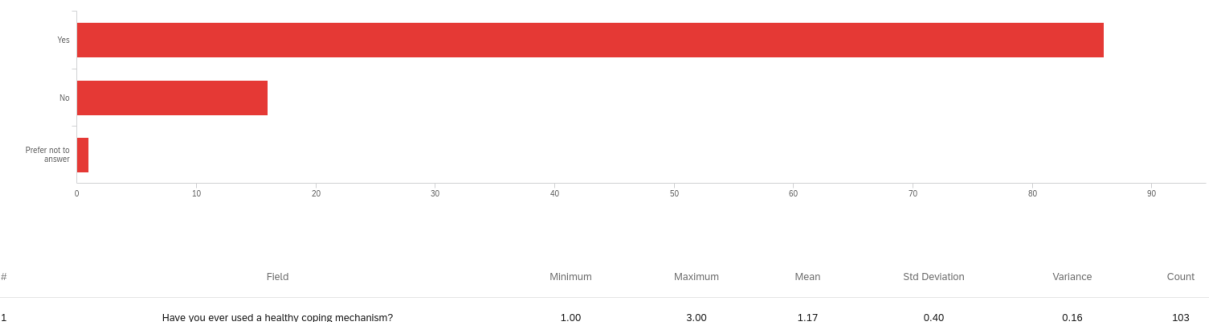


Figure 29: Have you ever used therapy or counseling sessions?

### Q30 - Have you ever used therapy or counseling sessions?

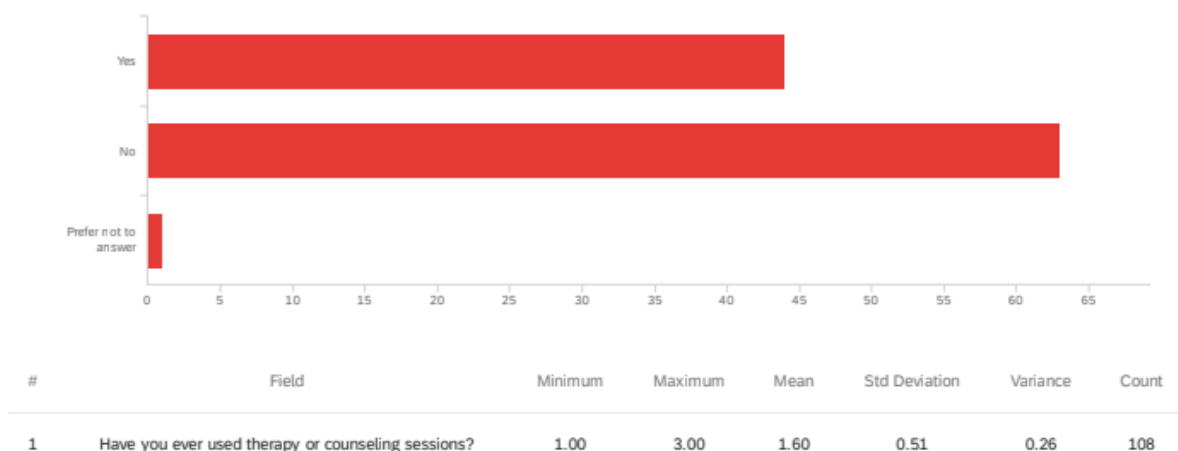


Figure 30: Have you experienced a period of isolation or quarantine in 2020?

Q31 - Have you experienced a period of isolation or quarantine in 2020?

Page Options ▾

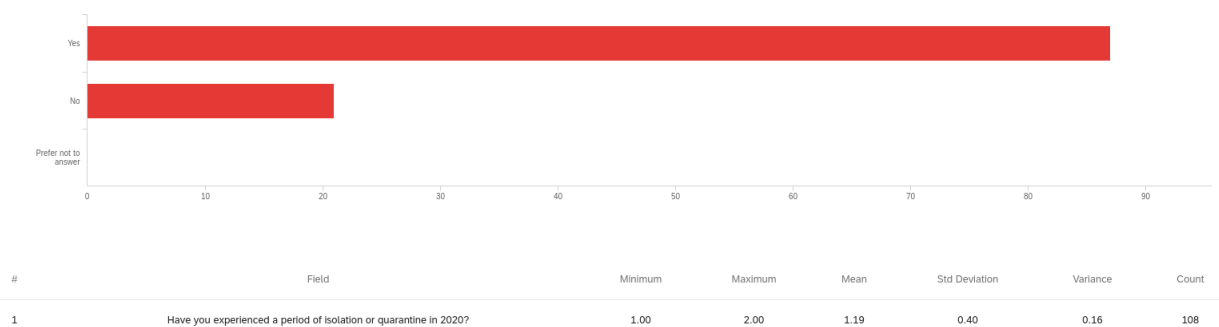


Figure 31: Have you been diagnosed with COVID-19?

Q32 - Have you been diagnosed with COVID-19?

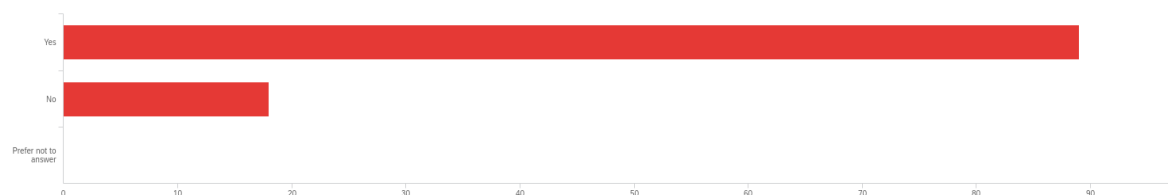
Page Options ▾



Figure 32: Has a family member, loved one, or friend contracted COVID-19 in the past year?

Q33 - Has a family member, loved one, or friend contracted COVID-19 in the past year?

Page Options ▾



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Has a family member, loved one, or friend contracted COVID-19 in the past year?	1.00	2.00	1.17	0.37	0.14	107

## Appendices

### **Institutional Review Board Approval: Research Protocol #3676 as of February 23rd, 2021.**

#### **Recruitment Email**

Hello. My name is Ashley Shofner and I am currently a senior Public Health student here at Eastern Kentucky University. In conjunction with the Honors Program, and with the help of my faculty advisor Dr. Molly McKinney, I will be completing an independent research project, regarding the impact of COVID-19 on the mental health status of ECU college students.

This survey is to be completed in conjunction with an undergraduate thesis presented, entitled: "Exploring Mental Health & COVID-19: How a Pandemic Could Become America's Next Mental Health Crisis."

Participation in this study is voluntary and anonymous. Any and all results gathered from this survey will remain anonymous. Any student completing this survey must consent prior to

survey completion. At any time should you wish to forgo completing this survey, you have every right. All data gathered from this survey will be kept safe and secure by Dr. Molly McKinney and will be destroyed by Dr. Molly McKinney at the completion of this project.

Benefits of this survey may include: a possible overall enhancement of mental health awareness in the EKU/Richmond community, coupled with possible advancements in the prioritization of mental health services in the field of pandemic preparedness.

For further questions, concerns, or for a follow up upon the completion of this survey, you may contact primary researcher Ashley Shofner at [ashley\\_shofner2@mymail.eku.edu](mailto:ashley_shofner2@mymail.eku.edu) or primary faculty mentor Dr. Molly McKinney at [molly.mckinney@eku.edu](mailto:molly.mckinney@eku.edu).

This survey should take 5 to 10 minutes to complete. The link is enclosed below.

Thank you in advance!

---

**Survey Instrument**

1. Are you located on or off campus?
  - a. On campus
  - b. Off campus
  
2. What year student are you at ECU?
  - a. Freshman
  - b. Sophomore
  - c. Junior
  - d. Senior
  - e. Graduate Student
  
3. What type of classes are you currently taking?
  - a. Traditional, face-to-face
  - b. 100% Online learning
  - c. Hybrid (both)
  
4. Prior to Fall 2020, what types of classes were you taking?
  - a. Traditional, face-to-face
  - b. 100% Online learning

- c. Hybrid (both)
5. What college on campus are you a part of?
- a. CLASS
  - b. Science
  - c. Education
  - d. Business and Tech
  - e. Justice and Safety
  - f. Health Sciences
6. What gender do you identify with?
- a. Female
  - b. Male
  - c. Transgender female
  - d. Transgender male
  - e. Gender variant/Non-conforming
  - f. Not listed
  - g. Prefer not to answer
7. What race/ethnicity do you identify with?
- a. White/Caucasian
  - b. Black/African-American
  - c. Asian
  - d. Hispanic/Latinx
  - e. Native American
  - f. Pacific Islander
  - g. Prefer not to answer
  - h. Select all that apply:

8. How old are you?
  - a. 0-10
  - b. 11-20
  - c. 21-30
  - d. 31-40
  - e. 41-50
  
9. Are you a veteran?
  - a. Yes
  - b. No
  - c. Prefer not to answer
  
10. Have you ever experienced feeling depressed?
  - a. Yes
  - b. No
  - c. Prefer not to answer
  
11. Have you ever experienced feelings of anxiety?
  - a. Yes
  - b. No
  - c. Prefer not to answer
  
12. Have you ever experienced feelings of isolation or loneliness?
  - a. Yes
  - b. No
  - c. Prefer not to answer
  
13. Overall, how would you describe your self-reported mental health prior to COVID-19?



- a. Negative
  - b. Slightly negative
  - c. Neutral
  - d. Slightly positive
  - e. Positive
14. Overall, how would you describe your self-reported mental health *six months* after COVID-19? (after March) \*\*
- a. Negative
  - b. Slightly negative
  - c. Neutral
  - d. Slightly positive
  - e. Positive
15. Is there a history of mental illness or mental health issues in your family?
- a. Yes
  - b. No
  - c. Prefer not to answer
16. Have you *ever* been diagnosed with a mental health disorder?
- a. Yes
  - b. No
  - c. Prefer not to answer
17. Have you been diagnosed with a mental health disorder in the *last 6 months*?
- a. Yes
  - b. No
  - c. Prefer not to answer

18. Have you noticed changes in your sleep-wake cycle in the *last six months*?
- Yes
  - No
  - Prefer not to answer
19. How knowledgeable are you about mental health and mental illness?
- Not knowledgeable
  - Slightly knowledgeable
  - Neutral
  - Knowledgeable
  - Very knowledgeable
20. Have you completed a self mental health inventory in the *last six months*?
- Yes
  - No
  - Prefer not to answer
21. Have you suffered a loss of income due to the pandemic?
- Yes
  - No
  - Prefer not to answer
22. In the *last three days*, has depression or depression symptoms impacted your daily life?
- Yes
  - No
  - Prefer not to answer

23. Over the *last seven days*, how often have you been bothered by any of the following:  
having little interest in pleasure in doing things?
- Not at all
  - Several days
  - More than half of the week
  - Nearly every day
24. Over the *last seven days*, how often have you been bothered by feelings of depression?
- Not at all
  - Several days
  - More than half of the week
  - Nearly every day
25. Over the last seven days, how often have you been bothered by feelings of hopelessness?
- Not at all
  - Several days
  - More than half of the week
  - Nearly every day
26. Over the *last seven days*, how often have you been bothered by the following problems:  
not being able to stop or control your worrying?
- Not at all
  - Several days
  - More than half of the week
  - Nearly every day
27. Do you have access to mental health resources and services?
- Yes

- b. No
  - c. Prefer not to answer
28. Have you ever used a healthy coping mechanism?
- a. Yes
  - b. No
  - c. Prefer not to answer
29. Have you ever used counseling or therapy sessions?
- a. Yes
  - b. No
  - c. Prefer not to answer
30. Have you experienced a period of quarantine or isolation in 2020?
- a. Yes
  - b. No
  - c. Prefer not to answer
31. Have you been diagnosed with COVID-19?
- a. Yes
  - b. No
  - c. Prefer not to answer
32. Has a family member, loved one, or friend contracted COVID-19 the past year?
- a. Yes
  - b. No
  - c. Prefer not to answer

## Acknowledgements

I would like to thank the public health professionals, front line workers, and all of those who have worked tirelessly to save lives throughout this pandemic. Your courage to brave the storms, sacrifice your well-being for the overall health of society, and continuance of work in service of others is awe-inspiring.

I would also like to thank Eastern Kentucky University, the institution, for continually serving as a school of opportunity for so many students. Without ECU's guiding mission, based on the tenants of service, opportunity, and wisdom, I would not be where I am today.

Most of all, I would like to extend my eternal gratitude to Dr. Molly Allison McKinney, for her continued guidance, support, and mentorship. Without a professor like you, I would not be where I am today. It has been the utmost pleasure of my life to have you as a mentor throughout this process. You have increased my love of public health and service; You have been a constant reminder of how important mental health is and why we should prioritize our well-being. Thank you.

#### References

- Bortel, T. V., Basnayake, A., Wurie, F., Jambai, M., Koroma, A. S., Muana, A. T., . . . Nellums, L. B. (2016). Psychosocial effects of an Ebola outbreak at individual, community and international levels. *Bulletin of the World Health Organization*, *94*(3), 210-214.  
doi:10.2471/blt.15.158543
- Coyne, C., Ballard, J. D., & Blader, I. J. (2020). Recommendations for future university pandemic responses: What the first COVID-19 shutdown taught us. *PLOS Biology*, *18*(8), 1-6. doi:10.1371/journal.pbio.3000889
- Creating a healthier life - SAMHSA. (n.d.). Retrieved April 12, 2021, from <https://store.samhsa.gov/sites/default/files/d7/priv/sma16-4958.pdf>

- Ding, Y., Du, X., Li, Q., Zhang, M., Zhang, Q., Tan, X., & Liu, Q. (2020). Risk perception of coronavirus disease 2019 (COVID-19) and its related factors among college students in China during quarantine. *Plos One*, *15*(8), 1-14. doi:10.1371/journal.pone.0237626
- Dong, L., & Bouey, J. (2020). Public Mental Health Crisis during COVID-19 Pandemic, China. *Emerging Infectious Diseases*, *26*(7), 1616-1617. doi:10.3201/eid2607.202407
- Elmer, T., Mepham, K., & Stadtfeld, C. (2020). Students under lockdown: Comparisons of students' social networks and mental health before and during the COVID-19 crisis in Switzerland. *PLOS ONE*, 1-23. doi:10.31234/osf.io/ua6tq
- Fegert, J. M., Vitiello, B., Plener, P. L., & Clemens, V. (2020). Challenges and burden of the Coronavirus 2019 (COVID-19) pandemic for child and adolescent mental health: A narrative review to highlight clinical and research needs in the acute phase and the long return to normality. *Child and Adolescent Psychiatry and Mental Health*, *14*(1), 1-12. doi:10.1186/s13034-020-00329-3
- Feng, Y., Dong, D., Zong, M., Yang, Z., & Qiao, Z. (2020). When altruists cannot help: The influence of altruism on mental health during COVID-19 pandemic. *Globalization and Health*, 1-8. doi:10.21203/rs.3.rs-25715/v1
- Gao, J., Zheng, P., Jia, Y., Chen, H., Mao, Y., Chen, S., . . . Dai, J. (2020). Mental health problems and social media exposure during COVID-19 outbreak. *Plos One*, *15*(4), 1-10. doi:10.1371/journal.pone.0231924

- Haider, I. I., Tiwana, F., & Tahir, S. M. (2020). Impact of the COVID-19 Pandemic on Adult Mental Health. *Pakistan Journal of Medical Sciences*, 36(COVID19-S4), 1-6.  
doi:10.12669/pjms.36.covid19-s4.2756
- Huremović, D. (2019). *Psychiatry of pandemics: A mental health response to infection outbreak*. Cham, Switzerland: Springer.
- Imran, N., Zeshan, M., & Pervaiz, Z. (2020). Mental health considerations for children & adolescents in COVID-19 Pandemic. *Pakistan Journal of Medical Sciences*, 36(COVID19-S4), 1-7. doi:10.12669/pjms.36.covid19-s4.2759
- Jaguga, F., & Kwobah, E. (2020). Mental health response to the COVID-19 pandemic in Kenya: A review. *International Journal of Mental Health Systems*, 14(1), 1-7.  
doi:10.1186/s13033-020-00400-8
- Levin, M. E., Stocke, K., Pierce, B., & Levin, C. (2017). Do College Students Use Online Self-Help? A Survey of Intentions and Use of Mental Health Resources. *Journal of College Student Psychotherapy*, 32(3), 181-198. doi:10.1080/87568225.2017.1366283
- Maulik, P. K., Thornicroft, G., & Saxena, S. (2020). Roadmap to strengthen global mental health systems to tackle the impact of the COVID-19 pandemic. *International Journal of Mental Health Systems*, 14(1), 1-13. doi:10.1186/s13033-020-00393-4
- Munk, A. J., Schmidt, N. M., Alexander, N., Henkel, K., & Hennig, J. (2020). Covid-19—Beyond virology: Potentials for maintaining mental health during lockdown. *Plos One*, 15(8), 1-14. doi:10.1371/journal.pone.0236688



- Naser, A. Y., Dahmash, E. Z., Al-Rousan, R., Alwafi, H., Alrawashdeh, H. M., Ghoul, I., . . .  
 Dagash, A. (2020). Mental health status of the general population, healthcare professionals, and university students during 2019 coronavirus disease outbreak in Jordan: A cross-sectional study. 1-13. doi:10.1101/2020.04.09.20056374
- Nordberg, S. S., Hayes, J. A., Mcleavey, A. A., Castonguay, L. G., & Locke, B. D. (2013). Treatment Utilization on College Campuses: Who Seeks Help for What? *Journal of College Counseling, 16*(3), 258-274. doi:10.1002/j.2161-1882.2013.00041.x
- Ornell, F., Schuch, J. B., Sordi, A. O., & Kessler, F. H. (2020). “Pandemic fear” and COVID-19: Mental health burden and strategies. *Brazilian Journal of Psychiatry, 42*(3), 232-235. doi:10.1590/1516-4446-2020-0008
- Silva, A. G., Miranda, D. M., Diaz, A. P., Teles, A. L., Malloy-Diniz, L. F., & Palha, A. P. (2020). Mental health: Why it still matters in the midst of a pandemic. *Brazilian Journal of Psychiatry, 42*(3), 229-231. doi:10.1590/1516-4446-2020-0009
- Tucci, V., Moukaddam, N., Meadows, J., Shah, S., Galwankar, S., & Kapur, G. (2017). The forgotten plague: Psychiatric manifestations of ebola, zika, and emerging infectious diseases. *Journal of Global Infectious Diseases, 9*(4), 151-156. doi:10.4103/jgid.jgid\_66\_17
- Xin, M., Luo, S., She, R., Yu, Y., Li, L., Wang, S., . . . Lau, J. T. (2020). Negative cognitive and psychological correlates of mandatory quarantine during the initial COVID-19 outbreak in China. *American Psychologist, 75*(5), 607-617. doi:10.1037/amp0000692