Concern for COVID-19 Related to the Big Five Personality Dimensions and Collegiate Hardiness

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Concern for COVID-19 Related to the Big Five Personality Dimensions and Collegiate Hardiness

Emily Jeannette Booth

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Author Note:

Emily J. Booth, Senior Psychology Major, The College of Saint Benedict and Saint John’s University.

This survey was developed and distributed by Emily J. Booth as part of an honors program Distinguished Thesis and completed voluntarily by the student body at the College of Saint Benedict and Saint John’s University. Special thanks to the participation of the student body and for the guidance and feedback of Dr. Robert Kachelski, Dr. Aubrey Immelman, and Dr. Kurt Hollender while acting as the All-College Thesis Committee for this project.

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CONCERN FOR COVID-19 RELATED TO THE BIG FIVE PERSONALITY DIMENSIONS AND COLLEGIATE HARDINESS

By Emily J. Booth

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Abstract

The spread of the novel coronavirus SARS-CoV-2 to the world in late 2019 and throughout 2020 has presented college students in particular with new stressors and obstacles to their resilience. Previous research suggests that the response to COVID-19 has been accompanied by an influx in reported stress, anxiety, and depression (Bitan et al., 2020). There is a history of personality being correlated with health-related behaviors (Roccas, 2002). The unique build of a college community brings together young adults from a variety of locations, identities, and backgrounds while challenging them to succeed in conditions that may differ from what they are normally exposed to. The purpose of this study is to explore characteristic differences in the level of COVID-19 concern among students of a higher learning institution with consideration to dimensions of personality (measured by the Ten Item Personality Inventory; a measurement used to distinguish characteristics of the Big Five personality typology), student degree of hardiness as a characteristic of personality and indicator of resilient behavior, and demographic factors such as location of origin and socioeconomic status. It was predicted that there would be a number of relationships present among personality dimensions and scales of COVID-19 Concern. Initial results demonstrate that there are significant inverse relationships for some personality characteristics (such as extraversion and neuroticism) with COVID-19 concern, attitudes towards COVID-19 precautions, and hardiness. No significant relationships were shown to exist between COVID-19 concern and socio-economic status or locational status (regional or locational area).

Key Words: Coronavirus, COVID-19, COVID concern, personality, resilience, The Big Five, hardiness
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Concern for COVID-19 Related to The Big Five Personality Types and Collegiate Hardiness

COVID-19 greatly impacted the world when it emerged in Wuhan, China, at the end of 2019 and rapidly spread around the world, eventually changing everyone’s expectations of what 2020 had in store. The high infection rate led to a global pandemic that caused behavioral interventions across the world such as the advisement of social distancing, frequent hand washing, and the wearing of face coverings (Advice for the Public on COVID-19, 2021). Although the impact of COVID-19 was not limited to college students, the purpose of this study is to investigate how college students were impacted by these changes by investigating if there is a relationship between students’ rate of COVID-19 concern, their personality attributes, and their hardiness scores. The consideration of demographic characteristics and their relation to COVID-19 concern is also important.

Previous research suggests that the response to COVID-19 has been accompanied by an influx in reported stress, anxiety, and depression. The correlation between COVID-19 Concern and anxiety was strongest ($r = 0.43, p < .001$), followed by stress ($r = 0.33, p < .001$), and the weakest correlation was with depression ($r = 0.24, p < .001$) (Bitan et al., 2020). Overall, females in the Bitan et al. (2020) study were more concerned about COVID-19 than male participants. Bitan et al. (2020) reported that there was an increase in posttraumatic stress disorder (PTSD) among the Chinese population following the first outbreak of the novel coronavirus, SARS-CoV-2. A study completed by Cao et al. (2020) showed that roughly one in five students in China were experiencing mild anxiety, 2.7% moderate, and 0.9% severe. It is possible that a primary factor in this newfound frequency is fear of the coronavirus—thus the decision to investigate the fear of COVID among students at the College of St. Benedict and St. John’s University.
Concern for COVID-19 Related to The Big Five…

(CSB/SJU). Fear is known to worsen pre-existing mental health conditions, which could then contribute to students’ academic performance and overall wellbeing (Colizzi et al., 2020).

Although youth and adolescents are more likely to recover from COVID-19 than the elderly (“Coronavirus Disease (COVID-19): Adolescents and Youth”), college aged students struggle to balance concerns regarding their own well-being, the health of their friends and loved ones, succeeding academically, missing formative social experiences, and an uncertain future in their careers (Tasso et al., 2021). Tasso et al. (2021) also suggested that student motivation was also impacted by changes related to COVID-19. Son et al. (2020) specifically noted increased difficulty in concentration, changes in student confidence, and changes in reported student stress and anxiety (p. 10). Out of all concerns reported, the highest levels of concern tend to be related to the physical health of individuals and loved ones (p. 10, Son et al., 2020).

Evidence from Roccas (2002) and Parks-Leduc et al. (2015) suggests that personality factors are correlated with motivational goals and health-related behaviors. Roccas (2002) explained that personality traits or factors, that is to say what people are like, are different from personal values which are “cognitive representations of desirable abstract goals” to motivate actions. In Rocca’s study, it was found that high scores in extraversion positively correlated with attributing importance to stimulation, achievement, and hedonism but negatively correlated with tradition values. Other relationships such as agreeableness and benevolence, openness to experience and self-direction, or conscientiousness and achievement were found to exist (Roccas 2002). Vollrath et al. (2008) completed a study focused on Norwegian students which found that those with high scores on extraversion with low constraint or high scores in neuroticism with low constraint seemed to engage in more risky behaviors. Based on these studies, it is possible that a relationship between personality traits and health behaviors during COVID-19 exists.
Personality can be investigated using a variety of measures depending on if you are looking for specific traits or general characteristics. Since the Big Five (Neuroticism, Openness to Experience, Extraversion, Agreeableness, and Conscientiousness) act as an overarching category of more specific traits, they have become somewhat of a standard in personality evaluations through the NEO-PI-R (Roccas, 2002). The NEO-PI-R is an inventory that takes roughly 45 minutes to complete as it breaks down the six facets of each dimension (Gosling et al., 2003). Thus, a shorter measure was required in order to maintain participant attention through measures for multiple aspects of this study. After careful consideration of a number of consolidated measures, the Ten Item Personality Inventory (TIPI) was found to be an adequate short scale that could be integrated into the larger survey.

The goal of the TIPI—found in Appendix A—is to assess the same constructs as the NEO-PI-R or 44-item Big Five Inventory (BFI) in order to provide an idea of what personality factors are most prominent for a given individual. The TIPI measures personality using statements which represent each pole of the 5 dimensions presented with the stem of “I see myself as” so that respondents rate the accuracy of the statement on a seven-point scale ranging from strongly disagree (1) to strongly agree (7) (Gosling et al., 2003). Gosling et al. (2003) found that there was convergent validity between the TIPI and the BFI, establishing the TIPI as an adequate condensed measure. It is important to note that as a measure for Neuroticism, the TIPI collects a measurement of Emotional Stability. Strength in Emotional Stability is seen as the inverse of high scores in Neuroticism. This dimensional relationship is important to the understanding of this research and interpretations of the results.

Individuals with high scores in extraversion were also found to have high scores in hardiness with an inverse relationship between hardiness and neuroticism, according to Parkes
and Rendall (1987). Hardiness is another personality characteristic that is demonstrated in times of stress or challenge—often seen as responsible for maintaining individual’s mental health. Given that COVID-19 has brought many challenges into modern life, it is useful to explore how students who possess varying levels of hardiness differ in their level of COVID-19 concern and their attitudes towards precautions in response to it.

Hardiness and resilience are often thought of as interchangeable and although both are valuable tools in the workplace, there are distinctive differences. Resilience is a learned process which can allow for better planning of resource allocation and informed interventions meant to counteract the impact of challenges on mental health (Barzilay et al., 2020). Hardiness on the other hand more closely resembles an aptitude or personality characteristic in and of itself (Bartone et al., 2012). There is a social desire to obtain a measure of student’s ability to succeed throughout the pandemic given that their learning environment, resources, and expectations were modified. Discovering if fear of COVID is associated with student resiliency or reported hardiness will be of value moving forward. The Dispositional Resilience Scale-15 (DRS-15) was developed by Dr. Paul T. Bartone based off a larger scale (the DRS) which was first utilized within his dissertation in 1989 (Bartone, 2007). The DRS-15 has since been shown to be an effective and reliable measure of hardiness with three subcategories in control, commitment, and challenge. The subscale for control demonstrates that an individual is able to overcome experiences in life or otherwise maintain a sense of control when faced with unexpected events in life. Commitment can be demonstrated through purposeful involvement and a sense of meaning in life. Lastly, challenge is a measurement of how strongly one views challenges as opportunities to expand one’s knowledge or abilities. Collectively these dimensions can be added together as a numerical representation for hardiness.
College not only collects a population from various locations but also brings together students from a variety socio-economic settings. Nicola et al. (2020) breaks down the socioeconomic implications that COVID-19 has brought with it. Such implications range from hardship for the agricultural community facing meat shortages and difficulty transporting fresh produce to global lockdowns on international trade (Nicola et al., 2020). According to Blundell et al. (2020) households in the United Kingdom were struggling financially prior to the outbreak of COVID-19 which then exacerbated the existing disparities. Blundell et all. (2020) expresses that the global community face crises at differing levels with respect to aspects of their life such as age (we know that the elderly are at higher risk than young adults), health status (immunocompromised individuals face more severe outcomes than healthy individuals), geography (those in rural areas have less population density and therefore a lower risk of immediate exposure), and socio-economic status (those with higher levels of income generally have an increased level of healthcare access within the United States). Jones et al. (2020) completed a study which showed that those of a low socio-economic status are at an increased risk of contracting COVID-19.

The level of precautionary measures taken by individuals is also shown to be related to their level of income. Weill et al. (2020) found that adherence to social distancing varied systematically in a positive correlation. The data collection and analysis of location pings that tracked mobility in wealthy and poorer areas displayed systematic differences from weakest to strongest in alignment with the bottom income range to the top income range. There are many potential causes for this behavior that have yet to be individually explored such as a decreased ability for lower income individuals to work from home or otherwise cope with rapidly changing economic or health risks (Weill et al., 2020). According to the National Center for Education
Statistics, over 80% of part time students work during college as of 2018 while roughly half of full-time students take on this responsibility (The National Center for Education Statistics, 2020). While we will not attempt to explore the reasoning behind these causes in depth, an investigation of the potential relationship between CSB/SJU students’ socio-economic status and their degree of COVID-19 concern will be evaluated.

Freedland et al. (2020) stated that the COVID-19 pandemic is unique in the sense that it magnifies the social determinants of health and exceptional disadvantages experienced by those who struggle to access health care. Health care access has been shown to be associated with wealth within the United States (Freedland et al., 2020). In comparison to other countries around the world, the United States is the highest spending high-income country. Surprisingly, this is also accompanied by a low life expectancy, high suicide rate, high obesity rate, and high rate of chronic diseases (Tikkanen & Abrams, 2020). On the other hand, Americans are more likely to receive the flu vaccine than our international counterparts (Tikkanen & Abrams, 2020).

COVID-19 has proven to be a difficult experience for the world but has also disproportionately affected minority communities (“Hospitalization rates…”, 2020). Those that are from a lower socio-economic background have had to deal with less preparation for such a long lasting event leading to the implementation of measures such as the federal eviction moratorium (Arnold, 2021). There have also been increased experiences of racism, racially motivated violence, and discrimination during the pandemic (Devakumar at al., 2020). The overall impact of these additional stressors in minority communities suggest that there are differing experiences throughout minority groups such as race or economic status. African American communities in particular and those that identify as Black within the United States must face the battle of cultural mistrust associated with the COVID-19 vaccine after a history of
biological experimentation (Farquharson & Thornton, 2020). Kira et al., (2020) expresses the need to not only realize and understand the ways that minorities are disproportionately affected by COVID-19, but make steps towards correcting these inequalities.

The Coronavirus has disproportionately impacted people due to social determinants of health such as age and conditions in which they were born, grew up in, or work in (Green-Laughlin, 2020). Black American citizens and residents in particular have continued to experience higher mortality rates related to COVID-19, inadequate access to preventative health care, poor quality education, increased violence, low health literacy, food deserts, and lack of affordable housing which impact their overall well-being (Green-Laughlin, 2020). Other inequities of stress include multigenerational households’ inability to social distance at home, online schooling, and the financial burden associated with the pandemic (Green-Laughlin, 2020). Although these experiences vary from person to person and between social groups, “Social determinants of health are complex and multifaceted; what affects one will ultimately affect us all” (Green-Laughlin, 2020).

CSB/SJU has a student population that is primarily Minnesotan (78.7%) but includes individuals from throughout the United States (16.9%) and abroad (4.4%) (CSB/SJU Fact Book). Although CSB/SJU values community and is primarily composed of residential students, the response to COVID-19 has differed among geographical location and local governments. This has resulted in a variety of COVID-19-related experiences across the student body. The first positive test in Minnesota was confirmed on March 6, 2020 and one week later Governor Tim Walz declared a state of emergency to prevent a severe outbreak. Preventative measures rapidly took hold as colleges, universities, and public school systems shut down and made the switch to distanced learning. CSB/SJU announced their closure on March 13, 2020 with the intent to have
students return to campus after two weeks. Students were thrust into a frenzy of finding ways to return home, applying for limited exemptions, and even booking flights home from study abroad programs (COVID-19 Resources and Fall 2020 Information). These stressors exposed students to different levels of concern based on their individual situation. Instead of returning to complete the Spring 2020 semester on campus, CSB/SJU students did not return to in-person classes until the beginning of the Fall 2020 semester. While residing off-campus from March 2020 to August 2020, students were exposed to a variety of responses to COVID-19 based on their local governments.

Minnesota’s response to COVID-19 varied regionally with mask mandates being implemented most heavily in metropolitan areas. A stay-at-home order was issued on March 25, 2020 and extended repeatedly by Gov. Walz until May 17, 2020. Outdoor recreation was permitted in mid-April and restaurants and bars were slowly allowed to phase into functioning at 50% capacity, beginning with those that were able to provide outdoor seating (The New York Times, 2020). Upon their return to campus, CSB/SJU students have been asked not only to adhere to the Minnesota state government’s COVID-19 regulations and Stearns County ordinances, but also the CSB/SJU COVID-19 guidelines, which include masking, social distancing, limitations of 10 people during indoor interactions, limits of 25 people at outdoor events, and the exclusion of off-campus guests. Students attending CSB/SJU were also instructed to form “pods” of consistent friend groups with whom they socialize to reduce close contacts (COVID-19 Resources and Fall 2020 Information). As of March 2021, CSB/SJU students have been required to participate in a community testing event upon their return to campus, socialize/congregate in groups less than 25 while adhering to social distancing guidelines, and gradually resume in-person club events (COVID-19 Resources and Spring 2021 Information).
In November 2020, Wisconsin’s COVID-19 data showed that it was heading towards becoming one of the states with the highest recorded number of coronavirus-related deaths per capita for 2020. While midwestern states such as Minnesota and Wisconsin were beginning to announce school closures on March 10, 2020, New Jersey lost its first resident to the virus. The reaction in this Northeastern state was more swift and severe than its Midwestern counterparts. March 16, 2020 marked the start of a New Jersey curfew, which closed recreational activities and allowed for food service institutions to function as carry-out only eventually escalating to a stay-at-home order issued on March 21, 2020. New Jersey has continued to be one of the leading states in cases per capita as well as COVID-19-related deaths. Texan Governor Greg Abbott did not wait long to begin reopening—making Texas one of the first states to do so—beginning with a three-phase plan in April 2020. Local and state governments in Texas found themselves at a disagreement multiple times when it came to the implementation or reduction of pandemic-related restrictions and ultimately became one of the first states to reopen without restrictions in 2021. California experienced much earlier exposure to the coronavirus than other states whose COVID-19 responses were explicitly explored. The COVID-19-related death of a 57-year-old woman that had not recently participated in foreign travel shed light on the existence of community transmission as early as December 2019. Governor Gavin Newsom declared a state of emergency in California in early March of 2020. Since then, cases have continued to grow exponentially, resulting in a state-wide mask mandate on June 18, 2020 with limited exceptions. The number of new cases in California began to decline as of October 2020 before spiking again in November 2020. Currently, Minnesota maintains a mask mandate while many other states have reduced restrictions depending on the local governments (The New York Times, 2020).
Not enough information regarding the breakdown of the country of origin of the international student population was provided to enable more in-depth exploration of the experiences of international students while residing off campus from March 2020 to August 2020. For the sake of improving the likelihood of representative responses, all international student data will be considered as one group of locational origin in comparison to the regions of the United States. Additionally, in order to have a higher likelihood of representative and comparable responses, Minnesotan student responses will be separated from regional sections of the United States, including the remainder of the Midwest.

Because this is a global pandemic, society challenges us to continue with the day-to-day responsibilities despite the rise in barriers to mental health. College students specifically are challenged to continue in their completion of degree requirements. Colleges throughout the United States began to send students home throughout the month of March, greatly altering their academic surroundings and access to resources (COVID-19 Resources and Fall 2020 Information). In the context of the CSB/SJU community, this meant a move to online learning in spring 2020, the development of a synchronous hybrid learning plan for the 2020–2021 academic year, and restrictions on the expectations of student gatherings (i.e., meetings, study groups, social events, and the student guest policy).

**Thesis Statements**

There were six predictions (listed henceforth as Hypotheses 1-6) which were made based off of previous research and information regarding COVID-19, the Big Five personality characteristics, health behaviors, racial disparities, socio-economic discrepancies, and self-reported hardiness.
**Hypothesis 1**

It was predicted that those with high scores in conscientiousness would also score highly in response to COVID-19 Concern. Those that scored highly on Extraversion and Openness to Experience were expected to respond with lower levels of concern. Those who scored highly on Neuroticism were predicted to be more likely to score the highest in response to COVID-19 Concern. These predictions were made to investigate the ways in which personality characteristics are related to concern for COVID-19, with regard to whether there was a significant difference in students’ perception of the severity of COVID-19 based on personality traits. Previous research suggested that high scores in conscientiousness and agreeableness were associated with precautionary behaviors while those that scored highly in neuroticism or extraversion would be more likely to engage in risky behaviors (Roccas, 2002).

**Hypothesis 2**

It was predicted that those that scored highly on conscientiousness and agreeableness would also be likely to agree with COVID-19 precautions. It was also predicted that those that scored highly on Extraversion and Openness to Experience were expected to be more likely to challenge COVID-19 precautions. These predictions were made to investigate the ways in which personality characteristics are related to concern for COVID-19, with regard to whether there was a significant difference in students’ likelihood to adhere to guidelines based on personality traits. As stated previously to support Hypothesis 1, Roccas (2002) displayed results which suggest that high scores in conscientiousness and agreeableness were associated with precautionary behaviors while those that scored highly in neuroticism or extraversion would be more likely to engage in risky behaviors.
Hypothesis 3

Hardiness has been shown to be associated with personality factors such as high scores in extraversion having high scores in hardiness with an inverse relationship between hardiness and neuroticism (Parkes and Rendall, 1987). Thus, I predicted that the CSB/SJU student population would report similar relationships as previous research where those that scored highly in extraversion would score highly in hardiness and an inverse relationship would present itself between neuroticism and hardiness. I also wished to explore the existence of a relationship between fear of COVID-19 (measured by COVID-19 concern) and hardiness in students. It was predicted that there would be differing degrees of COVID-19 concern across levels of student hardiness.

Hypothesis 4

Previous research showed that there was a distinct difference in the precautionary behaviors of individuals that are from different socioeconomic groups although it did not explore the reasoning behind those actions (Weill et al., 2020). Within this survey, I was able to evaluate the existence of a relationship between COVID-19 concern and socio-economic status. I predicted that despite the data that showing less precautionary behaviors in poorer socio-economic groups, there would be a higher level of COVID-19 concern. Weill et al. (2020) states that individuals in a lower socio-economic status are less likely to hold jobs which allow for virtual formats, leading to their increased exposure in comparison to wealthier individuals (Weill et al., 2020). It is logical then that the increased exposure may result in heightened concern despite the evident gap in precautionary behaviors.
Hypothesis 5

Based on the differing responses to COVID-19 throughout the nation, students from differing areas of the nation or that are international students may have found that their concern for COVID-19 and attitudes towards precautions differed from their peers. It was observable within the CSB/SJU community that certain groups found more importance in precautionary measures than others as some students attended the bars, some only frequented outdoor venues, and others did not go to social establishments if it was avoidable. This begged the question of whether student’s level of concern for COVID-19 differed based on their location of origin. Based on the timelines and reactions of states from varying regions, it seemed that New Jersey and Texas have experienced similar levels of impact from COVID-19, but that Texan citizens expressed more unrest in the form of anti-lockdown protests. It also seemed that states such as California, that experienced an early introduction to this pandemic and have had precautionary measures enforced, are beginning to experience some stability in the number of new cases. The Midwestern United States had come across as the middle ground with variability in the number of protests or adherence to preventative measures as of November 2020 (Hutchinson, 2020). Thus, it was predicted that the students who report their location of origin as being outside the Midwestern United States would express concern for COVID-19 at a higher rate than those who generally reside within the Midwest. Location by area (urban, suburban, and rural) were also explored for differences due to the variability of social expectations and ways of living.

Hypothesis 6

I predicted that the CSB/SJU student population would report similar relationships as previous research where those that scored highly in extraversion would score highly in hardiness
and an inverse relationship would present itself between neuroticism and hardiness (Parkes and Rendall, 1987).

**Method**

**Participants**

A total of 155 CSB/SJU students completed the survey, with 114 (73.5%) responses from CSB students, and 41 (26.5%) responses from SJU students. Participants were not asked further questions regarding their gender identity. The individuals that responded consisted of 22 (14.2%) first-year students, 37 (23.9%) sophomore students, 36 junior students, 57 (36.8%) senior students, and three (1.9%) students that have completed nine or more semesters of college education. Participants consisted of 109 (70.3%) students from Minnesota, 18 (11.6%) Non-Minnesotan students from the Midwestern United States, seven (4.5%) students from the Southern United States, 11 (7.1%) students from the Western United States, and 10 (6.5%) students from outside the United States. Although an option was available, there were no student respondents from the Northeastern United States. The race/ethnicity of student participants consisted of 126 (81.3%) White students, 10 (6.5%) Black, African-American, or students of African descent, 8 (5.2%) Hispanic/Latinx students, 7 (4.5%) Asian or Asian American students, 2 (1.3%) Biracial or Multiracial students, and 2 (1.3%) students that did not feel the available options described their identity.

**Materials**

In the first section of the survey, I asked students to complete the Ten-Item Personality Inventory (TIPI) in order to measure their personality type. A full representation of the TIPI can be found in Appendix A. Items that were included ask students to respond to a series of two word pairs with the stem of “I see myself as...” using a seven-point scale ranging from disagree...
strongly to agree strongly. It is important to note that “Emotional Stability” appears on this measure rather than the term “Neuroticism” and will thus be used as the inverse representation of neuroticism throughout this paper. Each of the five personality dimensions were represented by a positively and negatively scored item which then required reverse scoring prior to data analysis. This was followed by items designed to assess student’s hardiness and resiliency during the Coronavirus pandemic. Hardiness was evaluated using the Dispositional Resilience Scale-15 (DRS-15) which can be found in the Appendix B. Reverse scoring was also necessary for statements such as “I don’t like to make changes in my regular activities” or “I don’t think there’s much I can do to influence my own future.” Once recoded, the scores were then able to be combined with positively scored items such as “How things go in my life depends on my own actions.” Subscale scores for control, commitment, and challenge were also recorded as specific measurements of hardiness dimensions.

In the next section, I asked students about their degree of concern regarding COVID-19. Questions were adapted from Bitan et al. (2020), into a seven-point scale ranging from strongly disagree to strongly agree. The seven statements provided by Bitan et al. (2020), can be found in Appendix C. This existing scale evaluated COVID-19 concern with respect to “emotional fear reactions” and “symptomatic (or rather physical) fear reactions.” In addition to the existing scale, I developed statements that were designed to ask students to disclose their level of agreement for statements associated with COVID-19 using the stem “Regarding COVID-19, I am concerned about...” such as unknowingly infecting friends or loved ones, personally becoming infected, the social impact it may have on mental health, or financial repercussions it may have on my family or myself. These additional statements can be found in Appendix D as “COVID-19 Statements of Concern.” I also presented a number of resiliency statements where students will be asked to
indicate whether they agreed or disagreed with each statement using a six-point scale ranging from strongly disagree to strongly agree which can be found in Appendix E.

I included several statements about the impact of COVID-19 on student’s Spring 2020 semester, such as “When courses moved online for Spring 2020, I feel that my access to coursework was prioritized by my educational institution” which can be found in Appendix F. Attitudes toward preventative measures—found in Appendix G—were evaluated through statements such as “The establishment of preventative measures (social distancing, facial coverings, etc.) is important to reducing the spread of COVID-19.” There were four items such as “I feel as though preventative measures are being applied excessively” which required reverse scoring. The reliability of this self-made measure, which can be referenced as “Attitudes Towards COVID-19 Precautions,” was found to be strengthened when two items referring to hometown experiences were removed. Additional questions regarding students COVID-19 experience such as “Have you tested positive for COVID-19?” can be found in Appendix H.

The demographic variables included the students’ year in college, race and ethnicity, and whether they were an international student, student from Minnesota, or out-of-state student. I also asked students to give their best estimate of their annual family income. Response options included Less than $20,000; $20,000 to $34,999; $35,000 to $49,999; $50,000 to $74,999; $75,000 to $99,999; over $100,000; and I don’t know. A full collection of demographic inquiries made through this survey can be found in Appendix I.

Procedure

The survey was administered using the CSB/SJU Forms Manager webpage. I distributed the survey through posting to closed group Facebook pages containing only CSB/SJU students, emails to groups I was involved or connected to on campus, in some courses the survey was
promoted as an opportunity for extra credit, in some courses survey engagement was encouraged by myself or professors, and I also asked friends to share the link with other CSB/SJU students. Specific emails were sent to the CSB/SJU Chamber Choir, CSB Student Senate, SJU Student Senate, and members of Johnnie Bennie Media asking for individuals to voluntarily participate in taking the survey. A campus-wide invitation for all CSB/SJU students to complete the survey was distributed by posting a link to the survey on the online bulletin board and Bulletin Mobile App.

Results

Prior to evaluating the relationships between variables, indexes that were created for this survey were tested for reliability. The Cronbach’s alpha for the index named “COVID-19 Statements of Concern” was .71. The scale displayed that students were largely concerned about unknowingly infecting friends or loved ones and the extent to which COVID-19 has been politicized.

<table>
<thead>
<tr>
<th>Table of Means for COVID-19 Statements of Concern</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statements:</td>
</tr>
<tr>
<td>Regarding COVID-19, I am concerned about unknowingly infecting friends or loved ones</td>
</tr>
<tr>
<td>Regarding COVID-19, I am concerned about personally becoming infected.</td>
</tr>
<tr>
<td>Regarding COVID-19, I am concerned about dying from the virus or related complications</td>
</tr>
<tr>
<td>Regarding COVID-19, I am concerned about the impact it may have on my social life</td>
</tr>
<tr>
<td>Regarding COVID-19, I am concerned about the impact it may have on my mental health</td>
</tr>
<tr>
<td>Regarding COVID-19, I am concerned about the extent to which it has been politicized</td>
</tr>
<tr>
<td>Regarding COVID-19, I am concerned about the financial repercussions it may have on my family or myself</td>
</tr>
<tr>
<td>Overall COVID-19 Concern measured by COVID-19 Statements of Concern</td>
</tr>
</tbody>
</table>

This table displays the response means for each item of the COVID-19 Statements of Concern. Each item was rated on a 7-point scale making the total possible score for overall COVID-19 Concern a range from 7 to 49.
Another index called “Attitudes Towards COVID-19 Precautions” was created for the purpose of this survey. The Cronbach’s alpha was originally .807. The scale displayed that the Cronbach’s alpha could be improved by removing two items which referenced students’ hometowns. The adjusted measure showed that Cronbach’s alpha was .89. The scale displayed that students were largely in agreement with existing precautions (M = 29.46, SD = 7.37).

<table>
<thead>
<tr>
<th>Statement</th>
<th>Average Scored Response</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>The establishment of preventative measures (social distancing, facial coverings, etc.) is important to reducing the spread of COVID-19.</td>
<td>4.25</td>
<td>1.14</td>
</tr>
<tr>
<td>I feel it is important to avoid large gatherings until a vaccine has been established for COVID-19.</td>
<td>4.01</td>
<td>1.21</td>
</tr>
<tr>
<td>My actions during COVID-19 impact the community and people around me.</td>
<td>4.30</td>
<td>0.86</td>
</tr>
<tr>
<td>I feel that it is important to avoid high risk settings (such as visiting the elderly in their homes, eating inside restaurants, traveling by plane, greeting friends by shaking hands or hugging, working out at a gym, or going to the bar).</td>
<td>3.93</td>
<td>1.24</td>
</tr>
<tr>
<td>*When I am outdoors, I do not feel the need for any preventative measures.</td>
<td>2.89</td>
<td>1.30</td>
</tr>
<tr>
<td>*I feel as though preventative measures are being applied excessively.</td>
<td>3.08</td>
<td>1.45</td>
</tr>
<tr>
<td>*Getting COVID-19 would not greatly impact my current lifestyle choices.</td>
<td>3.24</td>
<td>1.32</td>
</tr>
<tr>
<td>*My decision to attend social events is not impacted by COVID-19 or the advice of others.</td>
<td>3.86</td>
<td>1.21</td>
</tr>
<tr>
<td>Overall score for Attitude Towards COVID-19 Precautions.</td>
<td>36.74</td>
<td>7.39</td>
</tr>
</tbody>
</table>

* Items were scored using a 5 point scale with reverse scoring of some items. The total possible score for Attitudes Towards COVID-19 Precautions ranged from 8 to 40.

**Hypothesis 1—CORRELATION BETWEEN COVID-19 CONCERNS AND PERSONALITY CHARACTERISTICS**
It was predicted that those that score high on Conscientiousness would also be likely to score highly in response to COVID-19 Concern. No significant relationships were found between Conscientiousness and COVID-19 Concern. Those that scored highly on Extraversion and Openness to Experience were predicted to be more likely to respond with lower levels of concern. The correlation between Extraversion and the Emotional Fear subscale was found to have a significant negative weak relationship, \( r (155) = -.22, p = .006 \). The relationship between Extraversion and the COVID-19 Concern Score was also a significant negative weak relationship, \( r (155) = -.19, p = .02 \). Scores of Openness were not found to have a significant relationship to COVID-19 Concern.

Those who scored highly on a measure of Neuroticism would be likely to have lower scores in the measure of Emotional Stability. Since the TIPI measure utilized Emotional Stability as an inverse measure of Neuroticism, I predicted that those with lower scores in Emotional Stability would be likely to score the highest in response to COVID-19 Concern. Emotional Stability and the Emotional Fear Subscale had a significant negative moderate relationship, \( r (155) = -.41, p < .001 \). Emotional Stability and the Physiological Fear Subscale had a significant relationship

| The Relationship between the Big Five Personality Characteristics and COVID-19 Concern |
|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|
| Extraversion                                 | Emotional Fear Subscale                       | Physiological Fear Subscale                    | COVID-19 Concern Score                        |
|                                               | \(-.22^{**}\)                                 | \(-.09\)                                      | \(-.19^{*}\)                                 |
| Agreeableness                                | \(-.09\)                                      | \(-.04\)                                      | \(-.07\)                                      |
| Conscientiousness                            | \(-.16\)                                      | \(-.11\)                                      | \(-.15\)                                      |
| Emotional Stability                          | \(-.41^{**}\)                                 | \(-.19^{*}\)                                 | \(-.36^{**}\)                                |
| Openness                                     | \(-.12\)                                      | \(-.04\)                                      | \(-.10\)                                      |  

** Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)

This table demonstrates the correlation coefficients of the Big Five personality characteristics and COVID-19 Concern with results from a sample of CSB/SJU students where N = 155. Two separate measures were used to measure concern for COVID-19—the COVID-19 Concern Scale (Björk et al., 2020) and a self-made measure named “Statements of COVID-19 Concern.”

It was predicted that those that score high on Conscientiousness would also be likely to score highly in response to COVID-19 Concern. No significant relationships were found between Conscientiousness and COVID-19 Concern. Those that scored highly on Extraversion and Openness to Experience were predicted to be more likely to respond with lower levels of concern. The correlation between Extraversion and the Emotional Fear subscale was found to have a significant negative weak relationship, \( r (155) = -.22, p = .006 \). The relationship between Extraversion and the COVID-19 Concern Score was also a significant negative weak relationship, \( r (155) = -.19, p = .02 \). Scores of Openness were not found to have a significant relationship to COVID-19 Concern.

Those who scored highly on a measure of Neuroticism would be likely to have lower scores in the measure of Emotional Stability. Since the TIPI measure utilized Emotional Stability as an inverse measure of Neuroticism, I predicted that those with lower scores in Emotional Stability would be likely to score the highest in response to COVID-19 Concern. Emotional Stability and the Emotional Fear Subscale had a significant negative moderate relationship, \( r (155) = -.41, p < .001 \). Emotional Stability and the Physiological Fear Subscale had a significant relationship
negative weak relationship, \( r(155) = -0.19, p = 0.017 \). Emotional Stability also displayed a significant negative weak relationship with COVID-19 Concern Scores, \( r(155) = -0.36, p < 0.001 \). Additionally, the relationship between Emotional Stability and COVID-19 Statements of Concern was statistically significant with a negative weak relationship, \( r(155) = -0.26, p = 0.001 \).

**Hypothesis 2—CORRELATION BETWEEN ATTITUDES TOWARDS COVID-19 PRECAUTIONS AND PERSONALITY CHARACTERISTICS**

<table>
<thead>
<tr>
<th>The Relationship between the Big Five Personality Characteristics and Attitudes Towards COVID-19 Precautions</th>
<th>Attitudes Towards COVID-19 Precautions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extraversion</td>
<td>-0.11</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>-0.04</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>-0.01</td>
</tr>
<tr>
<td>Emotional Stability</td>
<td>-0.23**</td>
</tr>
<tr>
<td>Openness</td>
<td>-0.01</td>
</tr>
</tbody>
</table>

This table demonstrates the correlation coefficients of the Big Five personality characteristics and Attitudes Towards COVID-19 Precautions with results from a sample of CSB/SJU students where \( N = 155 \).

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

It was predicted that those that score high on Conscientiousness and Agreeableness would also be likely to agree with COVID-19 precautions. The relationships for Conscientiousness and Attitudes Towards COVID-19 Precautions was not statistically significant. Agreeableness was not found to have a significant relationship with Attitudes Towards COVID-19 Precautions. Those that scored highly on Extraversion and Openness to Experience were predicted to be more likely to challenge COVID-19 precautions. Neither of these relationships were found to be statistically significant. It was predicted that those who scored low on Emotional Stability would be likely to agree most highly with COVID-19 precautions. The correlation between Emotional Stability and Attitudes Towards COVID-19
Concern for COVID-19 Related to The Big Five…

Precautions was statistically significant with a negative weak relationship, \( r (155) = -0.23, \ p = 0.004 \).

**Hypothesis 3—CORRELATION BETWEEN COVID-19 CONCERN AND HARDINESS**

<table>
<thead>
<tr>
<th></th>
<th>Emotional Fear Subscale</th>
<th>Physiological Fear Subscale</th>
<th>COVID-19 Concern Score</th>
<th>Statements of COVID-19 Concern Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commitment Subscale</td>
<td>-0.18*</td>
<td>-0.04</td>
<td>-0.14</td>
<td>-0.12</td>
</tr>
<tr>
<td>Control Subscale</td>
<td>-0.33**</td>
<td>-0.17*</td>
<td>-0.29**</td>
<td>-0.16*</td>
</tr>
<tr>
<td>Challenge Subscale</td>
<td>-0.17*</td>
<td>-0.10</td>
<td>-0.15</td>
<td>-0.04</td>
</tr>
<tr>
<td>Hardiness Score</td>
<td>-0.32**</td>
<td>-0.15</td>
<td>-0.28**</td>
<td>-0.15</td>
</tr>
</tbody>
</table>

This table demonstrates the correlation coefficients of Hardiness and COVID-19 Concern with results from a sample of CSB/SJU students where \( N = 155 \). Two separate measures were used to measure concern for COVID-19—the COVID-19 Concern Scale (Bjørk et al., 2020) and a self-made measure named “Statements of COVID-19 Concern.”

** Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)

It was predicted that there would be differing degrees of COVID-19 concern across levels of student hardiness. The strongest relationship was found to be Hardiness Scores and the Emotional Fear Subscale which displayed a significant negative relationship of moderate strength, \( r (155) = -0.32, \ p < 0.001 \). Hardiness scores were also found to have a significant negative relationship with COVID-19 Concern Scores that was moderately weak, \( r (155) = -0.28, \ p = 0.001 \).

Subscales of Hardiness consisted of Commitment, Control, and Challenge. The Commitment Subscale and Emotional Fear Subscale shared a significant negative weak relationship, \( r (155) = -0.18, \ p = 0.023 \). The subscale for Control displayed significant relationships with each measure of COVID-19 Concern. Control and Emotional fear had a significant negative weak relationship, \( r (155) = -0.33, \ p < 0.001 \). Control and Physiological Fear Subscale had a significant negative weak relationship, \( r (155) = -0.17, \ p = 0.034 \). Control and COVID-19 Concern Scores shared a
significant negative moderately weak relationship, \( r (155) = -.29, p < .001 \). The correlation between the Control Subscale and COVID-19 Statements of Concern were also statistically significant as a negative weak relationship, \( r (155) = -.16, p = .042 \). Lastly, the Challenge Subscale was correlated with the Emotional Fear Subscale through a significant negative weak relationship, \( r (155) = -.17, p = .037 \).

### The Relationship between Hardiness and Attitudes Towards COVID-19 Precautions

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Attitudes Towards COVID-19 Precautions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commitment Subscale</td>
<td>-.12</td>
</tr>
<tr>
<td>Control Subscale</td>
<td>-.20*</td>
</tr>
<tr>
<td>Challenge Subscale</td>
<td>.05</td>
</tr>
<tr>
<td>Hardiness Score</td>
<td>-.11</td>
</tr>
</tbody>
</table>

This table demonstrates the correlation coefficients of Hardiness and Attitudes Towards COVID-19 Precautions with results from a sample of CSB/SJU students where \( N = 155 \).

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

Hardiness was found to have one statistically significant relationship with Attitudes Towards COVID-19 Precautions. The Control Subscale had a statistically significant negative weak relationship with Attitudes Towards COVID-19 Precautions, \( r (155) = -.20, p = .011 \).

### Hypothesis 4—ANOVA BETWEEN COVID-19 CONCERN AND SES

I predicted that despite the data that showing less precautionary behaviors in poorer socio-economic groups, there will be a higher level of COVID-19 concern. A one-way between subjects ANOVA was conducted to compare the effect of socio-economic status measured by estimated family income on COVID-19 Concern through emotional fear subscales, physiological fear subscales, and overall COVID-19 Concern. There was not a significant effect of socio-economic status on emotional fear \([F (5, 149) = 1.44, p = 0.214]\), physiological fear \([F (5, 149) = 1.71, p = 0.135]\), or overall COVID-19 concern \([F (5, 149) = 1.67, p = 0.145]\).
A one-way between subjects ANOVA was conducted to compare the effect of socio-economic status measured by estimated family income on COVID-19 Statements of Concern. There was not a significant effect of socioeconomic status on COVID-19 Statements of Concern \( F(5, 149) = 1.55, p = 0.179 \).

A one-way between subjects ANOVA was conducted to compare the effect of socio-economic status measured by estimated family income on Attitudes Towards COVID-19 Precautions. There was not a significant effect of socioeconomic status on statements representing Attitudes Towards COVID-19 Precautions \( F(5, 149) = 0.74, p = 0.593 \).
Hypothesis 5—ANOVA BETWEEN COVID-19 CONCERN AND LOCATION

It was predicted that the students who report their location of origin as being outside the Midwestern United States would express concern for COVID-19 at a higher rate than those who generally reside within the Midwest. A one-way between subjects ANOVA was conducted to compare the effect of locational status measured by region in relation to the United States on COVID-19 Concern through emotional fear subscales, physiological fear subscales, and overall COVID-19 Concern. There was a significant effect of locational status measured by region in relation to the United States on emotional fear \([F(2, 152) = 4.00, p = 0.020]\). There was a significant effect of locational status measured by region in relation to the United States on physiological fear \([F(2, 152) = 3.30, p = 0.040]\). There was a significant effect of locational status measured by region in relation to the United States on overall COVID-19 concern \([F(2, 152) = 4.37, p = 0.014]\). Post hoc comparisons using the Tukey HSD test indicated that the mean score for Minnesotan responses to overall COVID-19 Concern (M = 13.89, SD = 5.80) was significantly different than responses from non-Midwestern responses (M = 17.32, SD = 6.09). However, the responses from participants that reported being from the Midwestern United States (M = 16.11, SD = 5.73) did not significantly differ from Minnesotan and non-Midwestern responses.

A one-way between subjects ANOVA was conducted to compare the effect of locational status measured by region in relation to the United States on COVID-19 Statements of Concern.
The effect of locational status measured by region in relation to the United States on COVID-19 Statements of Concern is approaching significance \( F (2, 152) = 2.94, p = 0.056 \).

A one-way between subjects ANOVA was conducted to compare the effect of locational status measured by region in relation to the United States on Attitudes Towards COVID-19 Precautions. There is a significant effect of locational status measured by region in relation to the United States on Attitudes Towards COVID-19 Precautions \( F (2, 152) = 3.10, p = 0.048 \).

Post hoc comparisons using the Tukey HSD test indicated that the mean score for Minnesotan responses to overall COVID-19 Concern (\( M = 35.82, SD = 7.62 \)) was significantly different than responses from non-Midwestern responses (\( M = 39.43, SD = 5.74 \)). However, the responses from participants that reported being from the Midwestern United States (\( M = 38.11, SD = 7.29 \)) did not significantly differ from Minnesotan and non-Midwestern responses.

**LOCATIONAL AREA**

It was predicted that there would be differences in experiences of locational areas (urban, suburban, and rural) and that urban populations would express higher concern for COVID-19 due to higher population volume, higher low SES populations, and less available space for social distancing. A one-way between subjects ANOVA was conducted to compare the effect locational area on COVID-19 Concern through emotional fear subscales, physiological fear subscales, and overall COVID-19 Concern. There was not a significant effect of locational area on emotional fear \( F (2, 145) = 2.72, p = 0.069 \), physiological fear \( F (2, 145) = 1.03, p = 0.361 \), or overall COVID-19 concern \( F (2, 145) = 1.68, p = 0.191 \).
A one-way between subjects ANOVA was conducted to compare the effect of locational area on COVID-19 Statements of Concern. There was not a significant effect of locational area on COVID-19 Statements of Concern \[ F(2, 145) = 1.42, p = 0.245 \].

A one-way between subjects ANOVA was conducted to compare the effect of locational area on Attitudes Towards COVID-19 Precautions. There was not a significant effect of locational area on statements of Attitudes Towards COVID-19 Precautions \[ F(2, 145) = 6.16, p = 0.003 \].

Hypothesis 6—CORRELATION BETWEEN HARDINESS AND PERSONALITY
I predicted that the CSB/SJU student population would report similar relationships as previous research where those that scored highly in extraversion would score highly in hardiness and an inverse relationship would present itself between neuroticism and hardiness. It is clear that Hardiness and the Big Five personality characteristics share a number of significant relationships which can be seen in the above table.

| The Relationship between Hardiness and the Big Five Personality Characteristics |
|----------------------------------|------------------|------------------|------------------|------------------|
|                                  | Extraversion     | Agreeableness   | Conscientiousness | Emotional Stability | Openness to Experience |
| Commitment Subscale              | .38**            | .16*            | .42**            | .41**            | .26**             |
| Control Subscale                 | .17*             | .07             | .40**            | .41**            | .15               |
| Challenge Subscale               | .25**            | .05             | - .03            | .17*             | .39**             |
| Hardiness Score                  | .39**            | .13             | .35**            | .47**            | .41**             |

This table demonstrates the correlation coefficients of Hardiness and the Big Five Personality Characteristics with results from a sample of CSB/SJU students where N = 155.

** Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)

I predicted that the CSB/SJU student population would report similar relationships as previous research where those that scored highly in extraversion would score highly in hardiness and an inverse relationship would present itself between neuroticism and hardiness. It is clear that Hardiness and the Big Five personality characteristics share a number of significant relationships which can be seen in the above table.

**Discussion**

**Hypothesis 1: COVID-19 Concern and Personality**

The predictions made are partially supported. It was predicted that high scores in conscientiousness would also score highly in response to COVID-19 concern. There was not a significant relationship found between these factors. The second prediction in this hypothesis stated that those scoring highly on Extraversion and Openness to Experience were expected to be more likely to respond with lower levels of concern. The results supported this statement by displaying significant relationships related to Extraversion but did not display significant relationships for Openness to Experience. The responses show that people with high scores in extraversion are less likely to be emotionally fearful of COVID-19 and overall concern for
COVID-19. Perhaps this is due to differing levels of interaction with COVID-19 in terms of having been infected with COVID-19, interacting with others as a close contact of an infected person, or situationally having less exposure to at risk individuals. It is also possible that those who are more extraverted care more about maintaining in-person social interactions than those who scored lower in Extraversion.

The relationships between COVID-19 Concern and Personality Characteristics were present between Emotional Stability and each measure of COVID-19 Concern. Those that scored highly in Emotional Stability were found to be consistently less concerned with COVID-19 or vice versa. The relationship between Emotional Stability and the Emotional Fear Subscale displayed that less emotional stability is present when there is more emotional fear. Considering that fear can come from worries of what has the possibility to occur in addition to immediate circumstances, it is possible that those who are able to keep a steady mind and regulate their emotions may display less fear than those who are inherently more anxious. Considering this possibility and investigating it further could allow us to focus outreach on targeted groups when looking to increase emotional stability or address health related behaviors such as adherence to COVID-19 precautions.

Hypothesis 2

The prediction was that high scores in Conscientiousness and Agreeableness would be likely to agree with COVID-19 precautions. The results related to this prediction were not found to be significant. Those that scored highly on Extraversion and Openness to Experience were expected to be more likely to challenge COVID-19 precautions. This prediction was not found to be statistically supported. Emotional Stability was predicted to agree most highly with COVID-19 precautions. This relationship was the only statistically significant outcome from Hypothesis
2. Looking at how closely related Hypothesis 1 and Hypothesis 2 have the potential to be, we can see that attitudes towards precautions share a relationship with Emotional Stability. This suggests that we should observe the relationship between COVID-19 Concern and Attitudes Towards COVID-19 Precautions directly. We can also consider that situations in which people may lack emotional stability include circumstances of codependency and social reliance which are made more difficult by social limitations enforced by COVID-19 precautions.

**Hypothesis 3**

It was predicted that there would be differing degrees of COVID-19 concern across levels of student hardiness. The data shows that increased hardiness was generally accompanied with less concern for COVID-19 with specific attention being given to the emotional fear subscale. This was most significant with the subscale for control which demonstrates that less control is generally paired with increased fear or concern for COVID-19. There was only one significant relationship between hardiness and Attitudes Towards COVID-19 precautions. The significant subscale for hardiness was control. It is possible that this is due to the unexpected nature of COVID-19 and a desire to feel in control of our own lives.

**Hypothesis 4**

I predicted that despite the data showing less precautionary behaviors in poorer socio-economic groups, there will be a higher level of COVID-19 concern. There were no significant relationships discovered between these responses. It is possible that the sample size was too limited since the survey was distributed only to CSB/SJU students. It is possible that opening the survey up to include the nearby state schools, tech schools, community colleges, and college aged community members would result in more meaningful data. It is also possible that socio-
economic status and concern are not directly related but share a relationship with another unmeasured variable such as risk exposure.

**Hypothesis 5**

It was predicted that the students who report their home location as being outside the Midwestern United States would express concern for COVID-19 at a higher rate than those who generally reside within the Midwest. The only significant relationship was found to be between regional location (State) and emotional fear. There is a possibility that this is related to events that occurred alongside COVID-19 such as the protests against police violence, riots at the United States Capitol building, etc. It would be of value to re-evaluate these results and separate out the international student responses despite the fact that they were limited in number. There is a possibility that analyzing these responses as Minnesotan responses compared to Midwest responses and all others combined led to a skew in the data. It was also predicted that those living in Urban areas would express higher concern for COVID-19 due to higher population volume, higher low socio-economic populations, and less available space for social distancing. These results had no statistically significant relationships. It is possible that the participants were not diverse enough to fit the needs of analyzing this aspect. It is also possible that no relationship exists between locational area (urban or non-urban setting) and COVID-19 Concern.

**Hypothesis 6**

I predicted that the CSB/SJU student population would report similar relationships as previous research where those that scored highly in extraversion would score highly in hardiness and an inverse relationship would present itself between neuroticism and hardiness. Results display numerous correlations between these factors which support the prediction. The consistent
relationship between hardiness and personality may be related to how our personality is actively displayed. For example, when we do things for the well-being of others there is a possibility it is out of graciousness but there is also the possibility that it is motivated by a desire to please others or perform agreeable actions.

**Limitations**

There are many possible limitations of this study that could be remedied in future or continued research. First, there is a limitation in the number of student responses since I received responses from 155 students out of nearly 4,000 possible student participants. These students have the potential to fully represent the experiences or attitudes of the CSB/SJU student body, but responses were disproportionate in most recorded aspects. A majority of the responses were from CSB students rather than an even distribution between the CSB/SJU community. Responses were primarily from White students and racially diverse student responses had to be grouped together for the purpose of data analysis. There is also a limitation in the comparisons made between geographical origin as some locations are better represented than others and no breakdown was provided for international students to designate where they are from. Data also needed to be combined regarding location responses due to a limited number of participants and an unequal distribution of responses from various regions outside of the Midwestern United States.

Since this survey was distributed over time, there is a possibility that precautionary measures, personal circumstances, and personal attitudes shifted over time. The survey was initially distributed in December 2020 and closed to additional comments in March 2021. This means that there is a limitation in the reliability of measures for COVID-19 Concern and Attitudes Towards COVID-19 Precautions since COVID-19 and responses to it are dynamic and
may shift during the time that the survey is active. Ideally there would be enough responses from representative participants to track these differences within the sample population. Future research could counter this limitation by modifying this study into a longitudinal distribution format.

There is a limitation in the reliability of the personality measure due to the use of a condensed measure. In future work, it may be beneficial to utilize the BFI or NEO-PI-R, especially in cases where participants may be compensated for their participation rather than gathered voluntarily. Providing such incentives for participation would allow for more extensive measures which could give more detailed information regarding any significant relationships. Incentivized participation could also allow for repeated evaluation to occur incrementally throughout the investigated event (such as the COVID-19 pandemic) which would assist in minimizing the impact of changing precautions on the generability of results.

Conclusion

The main hypotheses were supported, while secondary hypotheses did not display meaningful results. The data showed significant relationships between personality characteristics and COVID-19 Concern. Emotional stability was the only significant relationship found between Attitudes Towards COVID-19 Precautions and personality characteristics. Hardiness and each of its subscales were found to have significant relationships to Concern for COVID-19. Attitudes Towards COVID-19 precautions was related to hardiness through the control subscale. Hardiness and personality were also found to have a number of statistically significant relationships. These findings are supported by previous research and display the interconnected nature of personality characteristics in our daily lives.
COVID-19 Concern and socio-economic status did not display any significant relationships. It is possible that the limited CSB/SJU community is skewed towards a particular socio-economic build and therefore a representative population was not possible. Further research is encouraged across socio-economic classes in order to determine if significant results exist in other populations of participants. COVID-19 Concern and Location showed significant relationships for regional expressions of location (state of household location) but not for locational area (urban and non-urban settings). These results are also subject to limitations however since all non-Minnesotan and non-Midwestern responses were combined into one data group, for a total of three groups. Further research should maintain separation of international student responses and pursue a more representative collection of participants.

Relevancy

This sort of dramatic change to education and social life has not been witnessed previously. This study shows how external factors are related to student reactions to the coronavirus, advised precautions, and student reported hardiness. In some cases, COVID-19 Concern prevented students from returning to an on-campus experience for Fall 2020 or produced a break in educational pursuits. In other cases, coronavirus concerns did not effect a change in student behavior beyond what the state of Minnesota and CSB/SJU have mandated. The investigation of personality traits in this study will help to identify possible correlations with specific responses. Since COVID-19 has impacted us all in different ways depending on the personal privileges we hold, I believed that it would be of value to look at the differences in COVID-19 Concern related to student demographics such as socioeconomic status and status of student origin (Home Location). The differences in responses to the outbreak across the country made it clear that there would be differences within our own student population, but a majority
of respondents were from Minnesota or the Midwestern United States, so these results display more geographically localized attitudes.

CSB/SJU, among many other colleges and universities, have encouraged students to work towards their degree goals despite the added challenges that coronavirus has brought. The successfulness of students in this time can be related to their hardiness and resilience. It was of value to investigate the presence of a relationship between hardiness and concern for COVID-19 within the student body so that the institution can move forward with these outcomes in mind. Acknowledging where hardiness and resiliency are struggling to persevere allows students to be better supported moving forward.

**Future Research**

I was interested in finding out if perceived social responsibility differs in relation to personality dimensions with respect to COVID-19 but did not directly measure social responsibility. Future research may engage in exploring any connections between social responsibility, health behaviors, personality, and hardiness. It would be most relatable if they were to do so with respect to the COVID-19 pandemic specifically. One could also research how personality directs to motivated behaviors and if there are differences in how motivational behaviors are related to health behaviors.

There is a lot of interesting data that was collected but was not specifically analyzed. This includes the reflective questions regarding student experiences during Spring 2020. It would be of interest to myself and of value to CSB/SJU as an institution to look at this data further. Doing so offers the potential to reveal the ways in which students felt supported by CSB/SJU throughout the unprecedented changes of the initial reaction to COVID-19. It would also allow
CSB/SJU to better understand the most pressing areas of improvement when dealing with large scale impacts to the student body and overall function of the institution.

Lastly, there were many attempts to observe these results in a way which compared a variety of demographic variables but effectively and accurately doing so would require a larger and more representative sample size. If I were given the opportunity to replicate this study across many college campuses throughout the world, it could be interesting to reveal the ways in which differing populations reacted to COVID-19 while undergoing the universal pursuit of a college degree.
Appendices

Appendix A—Ten-Item Personality Inventory (TIPI) from Gosling et al. (2020)

Appendix A. Ten-Item Personality Inventory-(TIPI)

Here are a number of personality traits that may or may not apply to you. Please write a number next to each statement to indicate the extent to which you agree or disagree with that statement. You should rate the extent to which the pair of traits applies to you, even if one characteristic applies more strongly than the other.

<table>
<thead>
<tr>
<th>Disagree strongly</th>
<th>Disagree moderately</th>
<th>Disagree a little</th>
<th>Neither agree nor disagree</th>
<th>Agree a little</th>
<th>Agree moderately</th>
<th>Agree strongly</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

I see myself as:
1. _____ Extraverted, enthusiastic.
2. _____ Critical, quarrelsome.
3. _____ Dependable, self-disciplined.
4. _____ Anxious, easily upset.
5. _____ Open to new experiences, complex.
6. _____ Reserved, quiet.
7. _____ Sympathetic, warm.
8. _____ Disorganized, careless.
9. _____ Calm, emotionally stable.
10. _____ Conventional, uncreative.

TIPI scale scoring ("R" denotes reverse-scored items): Extraversion: 1, 6R; Agreeableness: 2R, 7; Conscientiousness: 3, 8R; Emotional Stability: 4R, 9; Openness to Experiences: 5, 10R.
Appendix B—The Dispositional Resilience Scale-15 (DRS-15) from Bartone et al. (2007)

DRS-15 (v 3.2)

Instructions: Below are statements about life that people often feel differently about. Please check a box to show how much you think each one is true for you. Give your own honest opinions... There are no right or wrong answers!

1. Most of my life gets spent doing things that are meaningful (CM)
2. By working hard you can nearly always achieve your goals (CO)
*3. I don't like to make changes in my regular activities (CH)
*4. I feel that my life is somewhat empty of meaning (CM)
5. Changes in routine are interesting to me (CH)
6. How things go in my life depends on my own actions (CO)
7. I really look forward to my daily activities (CM)
*8. I don’t think there’s much I can do to influence my own future (CO)
9. I enjoy the challenge when I have to do more than one thing at a time (CH)
10. Most days, life is really interesting and exciting for me (CM)
*11. It bothers me when my daily routine gets interrupted (CH)
12. It is up to me to decide how the rest of my life will be (CO)
*13. Life in general is boring for me (CM)
*14. I like having a daily schedule that doesn’t change very much (CH)
15. My choices make a real difference in how things turn out in the end (CO)

Response options: 0 = Not at all true; 1 = A little true; 2 = Quite true; 3 = Completely true.

Scoring:

*Asterisks indicate items that are negatively keyed and must be reversed before scoring, as follows: 0 = 3; 1 = 2; 2 = 1; 3 = 0.

To obtain scale and subscale scores, sum responses to items and appropriate subscale items.
CM=commitment (1,4*,7,10,13*); CO=control (2,6,8*,12,15); CH=challenge (3*,5,9,11*,14*)
Total hardness = Sum of (CM+CO+CH)

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Appendix C—COVID-19 Concern Scale from Bitan et al. (2020)

COVID-19 Concern Scale from Bitan et al. (2020)

Instructions: Respond to the following statements on a scale of 1 (strongly disagree) to 5 (strongly agree).

*1. I am most afraid of the coronavirus.

*2. It makes me uncomfortable to think about the coronavirus.

3. My hands become clammy when I think about the coronavirus.

*4. I am afraid of losing my life because of the coronavirus.

*5. When watching news and stories about the coronavirus on social media, I become nervous or anxious.

6. I cannot sleep because I’m worrying about the coronavirus.

7. My heart races or palpitates when I think about getting the coronavirus.

* Asterisks denote statements that cumulatively account for the Emotional Fear Subscale. Statements which do not have an asterisk cumulatively account for the Physiological Fear Subscale.

The totals of each subscale can be combined to account for overall COVID-19 Concern.
Appendix D—COVID-19 Statements of Concern

COVID-19 Statements of Concern

Please score the following statements according to what most accurately describes your concern using a seven-point scale ranging from strongly disagree (1) to strongly agree (7) where neither agree nor disagree is a possible response (4).

1. Regarding COVID-19, I am concerned about unknowingly infecting friends or loved ones.
2. Regarding COVID-19, I am concerned about personally becoming infected.
3. Regarding COVID-19, I am concerned about dying from the virus or related complications.
4. Regarding COVID-19, I am concerned about the impact it may have on my education.
5. Regarding COVID-19, I am concerned about the impact it may have on my social life.
6. Regarding COVID-19, I am concerned about the impact it may have on my mental health.
7. Regarding COVID-19, I am concerned about the extent to which it has been politicized.
8. Regarding COVID-19, I am concerned about the financial repercussions it may have on my family or myself.

Scaled responses should be totaled for a numerical score for COVID-19 Concern. This measure has been shown to have a Cronbach’s alpha of .71. Additional investigation of subscales within this measure has not yet been completed.
Appendix E—Self-Reflection Questions

Self-Reflection Questions

Participants were asked to respond to the following statements according to what most accurately described their experience coping with the changes presented by the COVID-19 pandemic using a five-point scale ranging from strongly disagree (1) to strongly agree (5) where neutral is a possible response (3).

1. Although changes in Spring 2020 were unexpected, I feel I was able to complete courses to the best of my ability.

2. I feel that Spring 2020 was valuable to my educational experience despite the altered form of instruction.

*3. I feel less prepared for my future due to online instruction during Spring 2020.

*4. I feel that my familial responsibilities (social family time, chores, etc.) impacted my academic performance during Spring 2020.

*5. I feel that my familial expectations (social family time, chores, etc.) impacted my emotional well-being while completing coursework in Spring 2020.

6. I was able to continue a work-life balance during Spring 2020.

7. I feel that online learning during Spring 2020 positively impacted my time management skills.

8. I try to look on the bright side of things at all times.

9. My relationships with others greatly impact my feeling of success.

10. I feel that I was able to complete Mod A of Fall 2020 in a way that accurately demonstrated my academic ability.

11. I feel that I achieved a healthy work-life balance during Mod A of Fall 2020.

12. I feel that I was able to complete Mod B of Fall 2020 in a way that accurately demonstrated my academic ability.

13. I feel that I achieved a healthy work-life balance during Mod B of Fall 2020.

* Asterisks indicate items that are negatively keyed and must be reversed before scoring as follows (1 = 5; 2 = 4; 4 = 2; 5 = 1)

This measure has not yet been evaluated for inter-item reliability.
Appendix F—Questions about Spring 2020

Questions about Spring 2020

Participants were asked to respond to the following statements according to what most accurately described their experience coping with the changes presented by the COVID-19 pandemic using a five-point scale ranging from strongly disagree (1) to strongly agree (5) where neutral is a possible response (3).

1. When courses moved online for Spring 2020, I feel that my access to coursework was prioritized by my educational institution.

2. During Spring 2020, my instructors were readily available to answer questions or address concerns.

3. After my education adopted an online format in Spring 2020, I found it easy to continue with my usual responsibilities.

*4. While completing coursework in Spring 2020, I also spent considerable time (10 hours per week or more) working to earn money.

5. I felt that I was well supported by friends during online instruction in Spring 2020.

6. I felt that I was well supported by family during online instruction in Spring 2020.

* Asterisks indicate items that are negatively keyed and must be reversed before scoring as follows (1 = 5; 2 = 4; 4 = 2; 5 = 1)

This measure has not yet been evaluated for inter-item reliability.
Appendix G—Attitude Towards COVID-19 Precautions

Attitude Towards COVID-19 Precautions

Participants were asked to respond to the following statements according to what most accurately described their attitudes towards the COVID-19 precautionary measures using a five-point scale ranging from strongly disagree (1) to strongly agree (5) where neutral is a possible response (3).

1. The establishment of preventative measures (social distancing, facial coverings, etc.) is important to reducing the spread of COVID-19.

2. I feel it is important to avoid large social gatherings until a vaccine has been established for COVID-19.

3. My actions during COVID-19 impact the community and people around me.

4. I feel that it is important to avoid high risk settings (such as visiting the elderly in their homes, eating inside restaurants, traveling by plane, greeting friends my shaking hands or hugging, working out at a gym, or going to the bar).

**5. In my hometown, preventative measures (social distancing, facial coverings, etc.) were enforced throughout the summer.**

**6. CSB/SJU has acted with more concern of COVID-19 than my hometown.**

*7. When I am outdoors, I do not feel the need for any preventative measures.*

*8. I feel as though preventative measures are being applied excessively.*


*10. My decision to attend social events is not impacted by COVID-19 or the advisement of others.*

* Single asterisks indicate items that are negatively keyed and must be reversed before scoring as follows (1 = 5; 2 = 4; 4 = 2; 5 = 1)

** Double asterisks indicate a statement that was removed from data analysis to improve the reported inter-rater reliability measured by Cronbach's alpha from .807 to .89.
Appendix H—Interactions with COVID-19

Interactions with COVID-19:

Have you tested positive for COVID-19? Yes  No

Do you personally know someone who has tested positive for COVID-19? Yes  No

Have you had to be quarantined because of close contact with someone who tested positive for COVID-19? Yes  No

Appendix I—Demographic Questions

DEMOGRAPHICS:

I attend:

-CSB  -SJU

I am a (College Year According to cohort)

-FY  -SO  -JR  -SR  -SR+

I am from:

-The Northeastern United States (Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont)

-Minnesota

-MON MINNESOTAN Midwestern United States (Illinois, Indiana, Iowa, Kansas, Michigan, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin)

-The Southern United States (Alabama, Arkansas, Delaware, D.C., Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia)


-Outside of the United States

With what do you identify?

-White  -Hispanic/Latino  -Native American  -Black

-Asian/Pacific Islander  -Two or more races  -Other
The estimated household income of my family is:

- Less than $20,000
- $20,000 to $34,999
- $35,000 to $49,000
- $50,000 to $74,999
- $75,000 to $99,999
- Over $100,000
- Unknown

When living at home, I am expected to contribute to household expenses such as groceries, rent, utilities (etc.)

- True
- False

My family home is located in an area that would be described as:

- Urban
- Suburban
- Rural
- Other
References


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