The Mediating Effects of Personality on COVID-19 Anxiety and Rumination

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1. ABSTRACT

The purpose of this non-experimental study (N=228) was to explore the relationship between the big five personality traits, general anxiety, COVID-19 Anxiety, and rumination. An online questionnaire consisting of 4 scales was administered to undergraduate students. Scales assessed participant’s personality traits, general anxiety, COVID-19 Anxiety, and rumination. Hypotheses were tested using Hayes Process Macro (2020). All four of the hypotheses were partially supported. Results indicated that the personality traits of extraversion and neuroticism had a significant influence on rumination and that relationship was either mediated by COVID-19 Anxiety and moderated by general anxiety. Findings also indicated a link between COVID-19 Anxiety and general anxiety on rumination.

Keywords: COVID-19 Anxiety, personality, rumination, general anxiety

1. INTRODUCTION

The latest threat to humanity at a global scale is the ongoing outbreak of the respiratory disease known as Coronavirus Disease 2019 (COVID-19). COVID-19 was recognized in December 2019 (Fauci, et al., 2020) and it was found to be structurally similar to the virus that causes severe acute respiratory syndrome (SARS). Due to the rapid spread of COVID-19, the outbreak has posed critical challenges for public health, research, and medical communities. Furthermore, the outbreak has led the World Health Organization (WHO) to declare a global emergency resulting in the mass quarantine of countries around the world (Sohrabi, C., et al., 2020). Without a clear picture of what the future holds individuals are left in a state of confusion, unpredictability, and uncertainty leading to 53% of adults reporting that their mental health has been negatively impacted, 32% reporting
difficulty sleeping, and a 12% increase in alcohol consumption or substance abuse (Panchal, N., et al., 2020).

COVID-19 poses a great risk to the mental health of people considering that before the COVID-19 pandemic, the Substance Abuse and Mental Health Services Administration (SAMHSA), Center for Behavioral Health Statistics and Quality has reported that nearly one in five US adults (47 million) reported having a mental illness in the past year, and over 11 million had a serious mental illness characterized by functional impairment and limitation of daily life activities. In prior years more than 17 million adults and an additional three million adolescents had a major depressive episode in the past year. An influx of mental health-related issues poses a great risk to communities and places additional challenges on mental health professionals. Communities around the globe and the US have seen an increase in criminal activity and gun violence (Schleimer, J. P., et al., 2020; Hodgkinson, T., et al., 2020) and mental health professionals have seen an increase in the demand for mental health services and an increase in mental health-related issues (Fiorillo, A., et al., 2020).

Research in the area of global mental health has become a top priority (Brooks et al., 2020; Holmes et al., 2020) and the stressors of this pandemic may be heightened for adolescents due to their increased desire for autonomy and peer connection (Brown & Larson, 2009), which are both impacted when they are forced to physically distance from friends and remain home. Furthermore, school closures have had a widespread impact on academic development and mental health services for adolescents (Ellis, Dumas, & Forbes, 2020). Ellis, Dumas, and Forbes (2020) conducted a study examining the effects of the pandemic on the mental health of adolescents and found that 43% of adolescents are “very concerned” about the pandemic and reported difficulties adjusting and greater incidence of depression and loneliness. Furthermore, they reported being concerned about family finances and infection for themselves and loved ones. This fear has caused an increase in anxiety for the population.

**Pandemic Anxiety**

Emerging studies are finding that young adults and adolescents are some of the most impacted individuals struggling with mental health consequences, experiencing symptoms of anxiety. (Torales, O’Higgins, Castaldelli-Maia, & Ventriglio, 2020; Vindegaard & Benros, 2020). Therefore, Hawes, Szenczy, Klein, Hajak, and Nelson (2021) were interested in the changes at the within-person level, exploring whether or not anxiety symptoms increased from before the start of the pandemic to when it peaked and found across participants that there was an increase in general anxiety and social anxiety symptoms during quarantine. Females specifically showing an increase in panic and depression symptoms and home confinement was related to an increase in general anxiety and a decrease in social anxiety symptoms (Hawes et al., 2021). Leading to an increased risk of young adults developing anxiety disorders.
THE INFLUENCE OF COVID-19 ON GENERAL ANXIETY AMONG COLLEGE STUDENTS

The population of college students that are finding themselves challenged through social responsibilities (e.g., academia, workforce, interpersonal relationships) has been well documented (Pedrelli et al., 2015). An increase in responsibilities and stressors causes college students to develop General Anxiety Disorder (GAD) as the most prevalent psychiatric disorder (11.9%) (Pedrelli et al., 2015). Specifically, incidences of general anxiety disorder have been documented to begin around age 20 (Pedrelli et al., 2015). While it is known that the experience of stress is greater amongst anxious individuals, the sensitivity of stress is heightened when more stressors are added (Ruscio M., et al., 2015). The new stressors in this case being COVID-19 Anxiety which led to an increase in mental health concerns. Lee, S. A. (2020) developed a scale to measure COVID-19 Anxiety that could be utilized as an efficient and valid tool for clinical research and practice.

RUMINATING ON NEGATIVE THOUGHTS

Individuals prone to anxiety disorders tend to look for methods of coping with their anxiety. However, a commonly used method involves self-focused attention (Lyubomirsky & Nolen-Hoeksema, 1993). According to Response Styles Theory (RST; Nolen-Hoeksema, 1987), it is characterized by self-reflection (Morrow & Nolen-Hoeksema, 1990) and as a repetitive and passive focus on one’s negative emotions (Nolen-Hoeksema, 1991, 2000) known as rumination. Studies on rumination, a negative form of repetitive thinking on past and present failures, are finding an association to anxiety (Ruscio M., et al., 2015), thus furthering our curiosity of anxious behaviors impacting stressful events. A study conducted by Ruscio M. and colleagues (2015) at the University of Pennsylvania confirmed past findings of stressful events increasing maladaptive cognitive strategies (e.g., rumination) leading to an increase in GAD symptoms. Depending on the severity of individuals with GAD would reveal a more constant rumination cycle presenting a case-by-case scenario. Regarding college students with anxiety, lengthy cycles of rumination prolong the stressor long after the stressor has resolved (Ruscio M., et al., 2015).

Incidence of rumination has been found to increase when uncertainty is high because there is a high level of uncertainty amongst Americans. Studies have found that certain individuals are more prone to be impacted by uncertainty, therefore, the following study decided to examine whether certain personality traits have been more impacted by the COVID-19 pandemic specifically among college students experiencing rumination and GAD symptoms.

The COVID-19 pandemic has impacted families around the world with an unprecedented level of uncertainty for the future. Stressors such as unemployment, monthly rent, food shortage, and hospital-bed shortages are COVID-19’s repercussions. For the elderly or individuals with low immune systems, their adaptation to a new social ecology depended on their safety and well-being. Thus, individuals near epicenters of COVID-19 were more susceptible to acute and chronic types of stress (Ye et al., 2020). Individuals began to disengage from their traditional pleasant activities, causing
hopelessness, social withdrawal, and avoidant coping (Ruscio M., et al., 2015). For individuals unable to properly manage stressful situations, COVID-19 created a feeling of anxiousness amongst individuals not susceptible to stressors. Ye et al., (2020) found that stressors of COVID-19 such as fear of getting infected by COVID-19 were positively associated with stress consequences (such as lack of eating) and this relationship was mediated by rumination. The cycle of fear prolongs the state of mind of anxiety, generating a stressful situation repeated back into rumination.

THE RELATIONSHIP BETWEEN PERSONALITY AND ANXIETY SYMPTOMS

Personality is made up of a set of traits that define and help to differentiate differences among individuals. One of the most prominent personality models is the Five-Factor Model of Personality (McCrae and Costa, 1996), which identifies five higher-order traits: extraversion, agreeableness, openness, conscientiousness, and neuroticism. Studies have found a relationship between the Big Five personality traits and depressive and anxiety symptoms (Griens et al., 2002; Reich et al., 1989). Since we can use the Big Five Personality traits to measure individual characteristics the present study decided to measure whether certain personality traits were impacted by the pandemic regarding their mental health. Further, Schmiedeberg and Thönnissen (2021) tested the influence of the Big Five personality traits on perceptions of positive or negative aspects of the COVID-19 pandemic. Finding that there were individual differences to how stress levels were impacted based on an individual's thoughts, feelings, and actions. Due to the uncertainty of the pandemic, emotional adaptiveness was associated with greater emotional regulation (Branzuk, 2019). Furthermore, Barańczuk (2019), conducted a meta-analysis to examine the relationship between the Big Five personality traits and emotion regulation strategies. Finding that Lower levels of neuroticism and higher levels of extraversion, openness to experience, agreeableness, and conscientiousness were associated with greater adaptive emotion regulation strategies and lower typically maladaptive emotion regulation strategies, showing how individuals respond to stressful situations which as a result have a greater impact on their mental health.

The Big Five Personality trait of extraversion has been linked to an individuals' drive for stimulation and social interaction to create a positive emotional experience and better emotional regulation (Barańczuk, 2019). Although extraverted individuals have been found to have lower levels of stress and better-coping skills (Gubler A., et al., 2020; Schmiedeberg & Thönnissen, 2021), recent findings show that extraverts in times of crisis displayed higher levels of stress during the COVID-19 pandemic (Schmiedeberg & Thönnissen, 2021). However, there were additional mixed findings on loneliness within extraverts; Gubler A. et al. (2020) found that extraverts with neurotic traits displaying adaptive regulation might be a causing factor to higher loneliness. Another reason for these findings is the accessibility of social networking during stressful situations (Schmiedeberg & Thönnissen, 2021). As for college students, virtual workshops, events, and meetings were held to continue social interaction. In contrast, introverts were shown to profit from their well-being through low maladaptive regulation (e.g., rumination), presenting lower loneliness (Gubler A., et al., 2020). Depending on the individual's living
circumstance they may experience the feeling of satisfaction without stress or loneliness if social connectedness is present by family members or friends.

Individuals high in agreeableness are characterized as altruistic, modest, trustworthy, and tender mindedness (Barańczuk, 2019). Many studies found little to no significance on the trait of agreeables to stress and perception (Schmiedeberg & Thönnissen, 2021) and emotion regulation strategies; however, lowering maladaptive emotion regulation is possible. Based on previous research, it was known that high agreeable individuals had low anxiety and stress tolerance caused by the pandemic stressors (Schmiedeberg & Thönnissen, 2021).

Individuals that score high on Openness to experiences are characterized as having a greater emphasis on imagination, liberalism, openness to feelings and emotions, and are hypothesized to be in the interest of others’ emotion regulation strategies (Barańczuk, 2019). High openness was linked to lower anxiety symptoms and distress, during the pandemic. Researchers found that COVID-19 Anxiety increased among individuals high on openness due to the fear of infection with careless and risky behaviors (Schmiedeberg & Thönnissen, 2021). In contrast, individuals with openness displayed a positive perception aspect during COVID-19 in Germany while placing fewer negative thoughts in stressful situations (Schmiedeberg & Thönnissen, 2021).

Individuals that score high on Conscientiousness are characterized as individuals who are achievement-striving, self-disciplined, and orderliness with planned and persisting characteristics (Barańczuk, 2019). Studies have found that conscientious individuals positively influence adaptive behaviors and have a strong frustration tolerance. In addition they act as a protector to COVID-19 Anxiety (Schmiedeberg & Thönnissen, 2021) and have effective coping mechanisms and emotional regulation strategies (Barańczuk, 2019).

Individuals that score high on Neuroticism tend to experience an increase of stress resulting in a high probability of encountering negative emotions (e.g., anger, sadness, and anxiety) (Barańczuk, 2019), including fear, depression, and guilt with an oversensitivity to cues of social rejection (Gubler A., et al., 2020). In contrast to extraverts, during times of peace and normality, individuals high in neuroticism face similar characteristics at times of complications. During negative experiences, highly neurotic people use avoidance and suppression; rarely beneficial making rumination more probable to the situation (Barańczuk, 2019). In times of stress, much of the focal point is on the stressors while less is on effective coping mechanisms developing an impulsive behavior (Barańczuk, 2019) while perceiving the situation as threatening (Schmiedeberg & Thönnissen, 2021). According to Gubler et al. (2020), the strongest correlated trait of personality is neuroticism in reducing well-being and increasing loneliness. Further, the study found that stress levels of impact are altered through the individual's personality traits, forming a lengthier duration of rumination affecting loneliness and well-being. The term well-being refers to low levels of anxiety. While introverts focus on internal emotional processes and extroverts depend on social interaction. During rumination, introverts place more importance on changing the meaning of the emotional event (Gubler A., et al., 2020).
COVID-19 impacted individuals high in neuroticism with fear and rumination as emotional regulation strategies, while individuals high in extroversion grew into stress on social life restrictions in finding more adaptive strategies on problem-solving (Gubler A., et al., 2020).

2. Research Question and Hypotheses

Based on the review of the literature the present study seeks to answer the following questions:

- **Research Question # 1-** Does General Anxiety moderate the relationship between the Big Five Personality traits and Rumination?
- **Hypothesis 1a:** General Anxiety moderates the relationship between anxiety and rumination.
- **Research Question # 2-** Does COVID-19 Anxiety moderate the relationship between general anxiety and rumination?
- **Hypothesis 2a:** COVID-19 Anxiety moderates the relationship between general anxiety and rumination.
- **Research Question # 3-** Do the Big Five Personality traits influence rumination through their influence of COVID-19 Anxiety and does general anxiety moderate this relationship?
- **Hypothesis 3a:** COVID-19 Anxiety mediates the relationship between neuroticism and rumination.
- **Hypothesis 3b:** General anxiety moderates the relationship between neuroticism and rumination.

3. Methods

**Participants**

A power analysis using G-power 3.1, was used and it determined that a sample size of 114 was needed to achieve an effect size of .15, and a power of .90 with three effects being measured. However, sufficient data were collected from 233 (n=48 males, n=185 females) participants. Participants were eligible to participate in the present study if they were 18 years or older. Participants were undergraduate students from California State University Channel Islands and were recruited using Sona, a cloud-based research and participant management solution for universities.

**Design**

The present study was a non-experimental multi-mediational/moderation design. The personality traits of neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness are the independent variables. Both general anxiety and COVID-19 Anxiety are mediator/moderator variables depending on the hypothesis, and rumination is the dependent variable.
MEASURES

Four established scales were used to comprise a questionnaire containing 78 items. To measure the Big Five personality traits the present study utilized the BFI scale (44 items; John, O. P., Naumann, L. P., & Soto, C. J. 2008). To measure general anxiety, the General Anxiety Disorder 7-item (GAD-7) scale was used (Spitzer RL, Kroenke K, Williams JBW, Lowe B, 2006). COVID-19 Anxiety was measured using the coronavirus anxiety scale (CAS) which consists of 5-items (Lee, S. A., 2020). Rumination was measured using the Ruminative Response Scale which consists of 22-items (Treynor, Gonzalez, and Nolen-Hoeksema, 2003).

BIG FIVE PERSONALITY TRAITS

The BFI scale was developed to measure the Big Five personality dimensions. The BFI (John & Srivastava, 1999) consists of 44 short-phrase items, rated on a 5-point Likert scale ranging from 1= Disagree Strongly to 5= Agree Strongly. Sample Items are: “Is talkative” (extraversion), “Is helpful and unselfish with others” (agreeableness), “Does a thorough job” (conscientiousness), “Is depressed, blue” (neuroticism), “Is original, comes up with new ideas” (openness). The items were selected using both consensual expert judgment and empirical item analyses to represent the core traits that define each Big Five domain. The BFI items are assigned to five scales measuring Extraversion (E; 8 items), agreeableness (A; 9 items), Conscientiousness (C; 9 items), Neuroticism (N; 8 items), and Openness to experience (O; 10 items).

The BFI demonstrates sufficient reliability with an internal consistency for each dimension; Extraversion (.86), agreeableness (.79), conscientiousness (.82), neuroticism (.87), openness (.83), and an overall mean reliability score of .83 (John, Robins, & Pervin, 2008). The BFI scale also demonstrates sufficient convergent validity with the TDA, NEO, and FFI personality scales for each dimension; Extraversion (r=.83), agreeableness (r=.83), conscientiousness (r=.91), neuroticism (r=.76), openness (r=.78) (John et al., 2008).

GENERAL ANXIETY

The GAD-7 is a 7-item questionnaire developed to identify probable cases of general anxiety disorder and measure the severity of GAD symptoms (Spitzer RL, et al., 2006). The GAD-7 items include: 1) nervousness; 2) inability to stop worrying; 3) excessive worry; 4) restlessness; 5) difficulty in relaxing; 6) easy irritation, and 7) fear of something awful happening. The GAD-7 asks participants to rate how often they have been bothered by each of these 7 core symptoms over the past 2 weeks. Response categories are “not at all,” “several days,” “more than half the days,” and “nearly every day,” scored as 0, 1, 2, and 3, respectively. The total score of the GAD-7 ranges from 0 to 21. Among primary care patients and the general population, the GAD-7 has demonstrated good internal consistency, test-retest reliability, and convergent, construct, criterion, and factorial validity (Spitzer RL, et al., 2006, Lowe B, et al., 2008). In the original validation study performed in the primary care clinics, the cutoff score of 10 or higher (recommended cutoff score) provides a sensitivity of 89% and a specificity of 82%.
COVID-19 Anxiety

The coronavirus anxiety scale (CAS) is a self-report mental health screener of anxiety associated with the coronavirus crisis. Because a significant number of people experience clinically significant fear and anxiety during an infectious disease outbreak, the CAS was developed to help clinicians and researchers efficiently identify cases of individuals functionally impaired by coronavirus-related anxiety (Lee, S. A., 2020).

Independent studies of adults residing across the United State have demonstrated that the CAS is a reliable instrument (α > .90), with solid factorial (single-factor; invariant across socio-demographics) and construct (correlated with anxiety, depression, suicidal ideation, and drug/alcohol coping) validity. The diagnostic properties of the CAS (90% sensitivity and 85% specificity) are comparable to related screening instruments, such as the Generalized Anxiety Disorder-7 (Lee, S. A., 2020).

Each item of the CAS is rated on a 5-point scale, from 0 (not at all) to 4 (nearly every day), based on experiences over the past two weeks. This scaling format is consistent with the DSM-5’s cross-cutting symptom measure. A CAS total score ≥ 9 indicates probable dysfunctional coronavirus-related anxiety. Elevated scores on a particular item or a high total scale score (≥ 9) may indicate problematic symptoms for the individual that might warrant further assessment and/or treatment. Clinical judgment should guide the interpretation of the CAS results (Lee, S. A., 2020).

Rumination

The Ruminative Responses Scale Rumination was measured using the Ruminative Response Scale (Nolen-Hoeksema & Morrow, 20063). The 22-item measure consists of statements of behaviors related to rumination (e.g., “Think about how sad you feel”), which are rated on a four-point scale of frequency from 1 (“almost never”) to 4 (“almost always”). The sum of items indicates the frequency of engaging in various aspects of rumination, such that higher sums indicate greater engagement in rumination. The internal consistency of the scale is good (α=0.89).

Procedures

The questionnaire utilized in the present study was created using an online survey Generator (Qualtrics), so all participants were able to complete it using the same medium. Participants were recruited using Sona, a cloud-based research and participant management solution for universities. The survey began with questions to ensure that participants meet the requirements necessary to take part in the study. Then, participants were required to give consent before taking the questionnaire electronically. Participants had the option to provide their name and contact information if they wanted to receive a summary of the research results. If not, their identity remained anonymous. Once participants signed the informed consent, read the directions, and answered demographic information, the main survey began. The main survey consisted of self-report questions that measured the big five personality traits, general anxiety, coronavirus anxiety, and
rumination. The entire survey consisted of 78 questions. Once participants completed the survey, they received a brief message thanking them for their participation.

**Data Analysis**

Before analyzing the results, the data were prepared carefully. Data were screened for missing values because nearly all statistical methods presume complete information for all the variables in the analysis. The data were screened for outliers as well as testing for assumptions of normality, homogeneity of variance, and homoscedasticity. Inter-item reliability and Pearson bivariate correlations were conducted to determine if any study variable demonstrated poor internal consistency and showed no significant relationship with other variables. Data were analyzed using SPSS 27. All hypotheses were tested at the p=.05 level of significance.

**4. Results**

**Pearson's Correlation Analyses**

A Pearson's correlation analysis was conducted on the research variables, and it was found that rumination had a moderate correlation with neuroticism (r=.60, p<.01), general anxiety (r=.69, p<.01), and a weak correlation with COVID-19 Anxiety (r=.26, p<.01). General anxiety had a strong correlation with neuroticism (r=.67, p<.01), and a moderate correlation with COVID-19 Anxiety (r=.52, p<.01).

**Hypothesis 1.**

![Diagram](image1.png)

*Figure 1*

The interaction term was statistically significant (b=.3682, 95% C.I. (.06, .66), s.e.=.1514, p=.0136) in our model, indicating that general anxiety was a significant moderator of the effect of extraversion on rumination. To determine at what values of the moderator the association between extraversion and rumination become statistically significant and not the Johnson-Neyman technique was used. It was determined that the transition points for general anxiety ranged between -6.26 and 10.20.

**Hypothesis 2**
The interaction term was statistically significant (b=-.1037, 95% C.I. (-.1982, -.0091), s.e.=.04, p<.05) in our model, indicating that COVID-19 Anxiety was a significant moderator of the effect of general anxiety on rumination. Since the interaction effect in our model was statistically significant we wanted to probe the interaction to better interpret the moderated relationship between general anxiety (X) and rumination (Y) at three levels of the moderator (W).

At -1 s.d. (-1.99) representing low COVID-19 Anxiety, the relationship between general anxiety and rumination was statistically significant (b= 2.20, 95% C.I. (1.87, 2.53), s.e.= .16, p<.01). At the mean (0) on the centered moderator variable (medium COVID-19 Anxiety) the relationship was statistically significant (b= 2, 95% C.I. (1.71, 2.29), s.e.= .14, p<.01) Finally, at +1 s.d. (2.77) representing high COVID-19 Anxiety the relationship was statistically significant (b= 1.71, 95% C.I. (1.30, 2.12), s.e.= .20, p<.01).

Hypothesis 3

The interaction term was statistically significant (b=.3948, 95% C.I. (.09, .68), s.e.= .15, p<.05) in our model indicating that general anxiety was a significant moderator of the effect of extraversion on rumination. However, the indirect effect of extraversion on rumination was not significant (C.I. (-.37, .52), s.e.= .03, p>.05) indicating the COVID-19 Anxiety was not a significant mediator between the relationship of extraversion on rumination.
Extraversion was found to negatively affect rumination $t(228) = -2.17, p < .05$, COVID-19 Anxiety was found to influence rumination $t(228) = -2.72, p < .01$, and general anxiety was found to positively influence rumination $t(228) = 2.63, p < .05$.

**Hypothesis 4**

![Diagram showing relationships between Neuroticism, General Anxiety, Covid-19 Anxiety, and Rumination]

**Figure 4**

Neuroticism was found to be significantly associated with COVID-19 Anxiety $t(228) = 4.37, p < .01$, and rumination $t(228) = 3.93, p < .01$. However, the interaction between neuroticism and general anxiety on rumination was not significant ($b = -.28$, 95% C.I. (-.58, .02)), s.e. = .15, p = .06. It was found that COVID-19 Anxiety was a significant mediator in the relationship between neuroticism and rumination ($ab = -.68$, 95% C.I. -1.43 to -.03).

**5. Discussion**

**Findings**

The present study had three research questions and four hypotheses. Hypotheses one and two were fully supported and hypotheses three and four were partially supported.

**Hypothesis 1**

The aim of hypothesis one was to determine whether general anxiety moderated the relationship between the big five personality traits and rumination. Of the five personality traits that were tested only extraversion and neuroticism were found to be significant predictors of rumination. These findings were consistent with those of (Gubler A., et al., 2020; Baraniczuk, 2019). However, general anxiety was only found to significantly moderate the relationship between extraversion and rumination. The reason for this could be that neuroticism has been found to have a stronger association with depressive symptoms (Baraniczuk, 2019). Furthermore, Karsten et al., (2012) found that neuroticism tends to decrease among individuals diagnosed with a panic disorder and agoraphobia whereas extraversion tends to increase. Similarly, little information is known on the role personality traits have on individuals with general anxiety disorder. Healthy individuals find themselves balanced in social, physical, and psychological needs; however, individuals with...
high neuroticism feature a predicting onset and changes in anxiety symptoms with moderate changes in extraversion on anxiety and vice versa (Karsten et al., 2012). Furthermore, individuals with anxiety disorders were not associated with changes in traits score for agreeableness and openness (Karsten et al., 2012).

The findings of the present study highlight the importance to continue to assess the influence that personality traits have on anxiety symptoms and rumination

**HYPOTHESIS 2**

The aim of hypothesis two was to determine whether COVID-19 Anxiety moderated the relationship between general anxiety and rumination. The findings supported the hypothesis indicating the COVID-19 Anxiety as a significant moderator on the relationship between general anxiety and rumination. This is significant because COVID-19 Anxiety is a new concept that individuals are struggling with and is not going away soon. The findings indicate that there are situation-driven anxieties that are separate from general anxiety and the interaction among these variables is significant in influencing an individual's mental health.

**HYPOTHESIS 3 AND 4**

The aim of hypothesis three was to determine whether COVID-19 Anxiety (mediator) and general anxiety (moderator) influenced the relationship between the big five personality traits and rumination. The overall model was found to be statistically significant F(4, 223) = 58.13, p<.01 however, COVID-19 Anxiety was not a significant mediator for extraversion. COVID-19 Anxiety was a statistically significant mediator on the relationship between neuroticism and rumination. Interestingly general anxiety was a significant moderator for extraversion but not for neuroticism. These findings are consistent with Barańczuk’s (2019) finding that neuroticism had a stronger association with depressive symptoms. Furthermore, studies have found that rumination has a stronger relation with depression than with general anxiety (Nolen-Hoeksema, S., Wisco, B. E., & Lyubomirsky, S. 2008). Which explains why neuroticism was found to influence rumination but the interaction with general anxiety was not statistically significant.

**IMPLICATIONS**

The college study population consists of diverse ethnicities, ages, experiences, and personality traits. The present study will benefit government officials and board members of universities to determine the implications COVID-19 had on college students. Our study focused on the individual's personality traits to identify student's strengths, weaknesses, and likelihood in controlling their behaviors in difficult situations. The present study displayed how stressors may prolong the symptoms of anxiety resulting from the role rumination contributes to each personality. Furthermore, an essential need for accurate information is critical. As the information of this study assists healthcare providers in supporting clients to understand their feelings and actions. Not to mention, a significant amount of misinformation and conflict about the pandemic through social
media and health agencies along with an increase of violence in America (Hodgkinson, T., et al., 2020), and an increased behavior of anxiety can result in chaos. In addition, a majority of colleges and universities are opening for in-person events, lectures, and services starting the Fall semester of 2021. Administrators need to monitor the mental health of students and at-risk groups influenced by stressors. Future research needs to examine the effect of returning to in-person college on student’s academic path, which may affect drop-out rate. Thus, it is highly recommended that additional psychological interventions, stress management, and debriefing and coping sessions are needed to return to the in-person academic year.

**Limitations**

First, the coronavirus anxiety scale was found to have conflicting scores with the general anxiety scale. For instance, participants with high scores on general anxiety scales displayed low coronavirus anxiety scores. Thus, the coronavirus anxiety scale indicates an impact of criterion validity by the inability to predict similar results of a clinical sample to a non-clinical sample. Furthermore, the scores obtained could have influenced participants to score higher than initially due to the fact the anxiety had already occurred, which could demonstrate fear and anxiety of past events causing an increase of anxiety during the coronavirus anxiety scale section. Second, the present study was based on self-reported measures affecting the study by response bias (e.g., participants views and effects due to the pandemic), introspective ability (e.g., a population with high rumination and anxiety will display a lack of self-awareness), and questionnaire interpretation (e.g., an issue of overthinking or underthinking what the question is asking). Additionally, there are issues with reliability regarding the usage of different personality scales.

6. Future Research

The findings from the present study contribute to future research by providing new knowledge about the impact of the mediating effects of personality on the COVID-19 pandemic, Anxiety, and Rumination. Researchers can use this information to understand the challenges individuals face adapting to online environments and the effect on their mental health. The uncertainty of the virus and the role the media plays in portraying information adds a layer to explore its potential impact on anxiety. Furthermore, due to the limitations of the present study, it would be beneficial to consider the development of a new personality scale that addresses weaknesses in personality research. The purpose of personality research is to capture individual characteristics and find commonalities among the population. Regardless, there are individual differences in how people respond and react to their environment. Therefore, due to the uncertainty of the COVID-19 pandemic further research needs to be done to determine its long-term impact.

7. References


