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Trait Anxiety and Vicarious Anxiety are Not Affected by Personality in the Same Way

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Abstract

The relationship between personality factors from the Big Five Personality Inventory and anxiety has been assessed in previous research, but the only significant consistencies are that low extraversion and high neuroticism correlate with higher anxiety scores. College students are constantly placed in stressful, anxiety-provoking situations. Anxiety can be experienced not only first-hand, but also vicariously when watching another person experiencing anxiety. The current study hypothesized that individuals who score high on neuroticism and low on extraversion, conscientiousness, openness, and agreeableness will experience more vicarious anxiety than others. It was also hypothesized that participants who watched a negative film would show a greater increase in state anxiety than those who watched the neutral film. Participants (n=126) were recruited via email and through Facebook. Participants completed a demographic survey, the Big Five Inventory, and the State-Trait Anxiety Inventory. Participants then watched either a negative or neutral film; subsequently, participants' state anxiety was measured again. Results showed a significant, positive correlation between neuroticism and trait anxiety and significant, negative correlations among trait anxiety and extraversion, openness, and conscientiousness. There was, however, no significant effect on the change in state anxiety by film condition and personality traits. Results show that among this population of college students trait anxiety and vicarious anxiety are not affected by personality in the same way. Future research should explore other potential influences on vicarious anxiety.

Keywords: Personality Traits, Vicarious Anxiety, State Anxiety, Trait Anxiety, Big Five Inventory

Stress response has been more readily tested in recent years since the number of documented disorders in relation to stress has become more prominent (Villada, Hidalgo, Almela, & Salvador, 2016). Stress and anxiety are common among college students. Stressors for college students include academic performance, social status, and work (Holinka, 2015). Stress is healthy in normal amounts, but often students become overwhelmed from the various stressors in their lives. This stress can be short-term or long-term (Holinka, 2015). A common cause of stress and anxiety occurs as a result of performance, whether it be taking a test or making a presentation. This general anxiety often expands as individuals receive negative evaluations from their peers. Xueting, Hong, Bin, and Taisheng (2013) determined that individuals with less perceived social support were more likely to experience depression and anxiety than others. Lindsey (2014) determined that trait anxiety was directly related to approval seeking. Persistent anxiety that results from performance is commonly referred to as social anxiety. Social anxiety disorder is defined as "a persistent fear of one or more social or performance situations in which the person is exposed to unfamiliar people or to possible scrutiny by others" (American Psychiatric Association, 2013). Social anxiety disorder is something many people experience at some point in their lives (Kaplan, Levinson, Rodebaugh, Menatti, & Weeks, 2015). College students are constantly being evaluated by their professors and peers, making them extremely vulnerable to social anxiety disorder.

Opton and Lazarus (1967) stated that there are many reasons personality should be related to stress; therefore, much research has gone into determining exactly what personality traits correlate with stress and anxiety. Social anxiety disorder has been tested along with various personality traits. A five-factor personality theory, The Big Five Inventory identifies five key aspects of personality in every person: extraversion, neuroticism, openness, conscientiousness, and agreeableness (John & Srivastava, 1999). John and Srivastava (1999) noted that individuals high in extraversion are concerned with their external environment and tend to be more talkative, assertive, and outgoing; individuals high in neuroticism tend to be more shy, irritable, and tense; individuals high in openness are curious people who tend to be more imaginative, unconventional, and excitable; individuals high in conscientiousness are organized and thorough people who are self-disciplined and efficient; and individuals high in agreeableness tend to be warm, modest, and compliant. This theory of personality has drawn much attention and John, Donahue, and Kentle (1991), as cited in John and Srivastava (1999), developed a 44-item, self-report questionnaire, named the Big Five Inventory (BFI), to determine the levels of these five personality traits in people.

Previous research has determined that people high in neuroticism and low in extraversion are more likely to have or develop social anxiety disorder (Vreeke & Muris, 2012). Kaplan et al. (2015) attempted to determine if any of the other three personality traits in the Big Five model, openness, agreeableness, or conscientiousness, had any effect on social anxiety disorder. Results showed that agreeableness and openness were negatively correlated with social anxiety; the lower an individual scored on agreeableness and openness, the higher that individual scored on social anxiety. Levy and Lounsbury (2011) found that people high in extraversion and conscientiousness had healthier ways of coping with stress than people low in those personality factors; therefore, people low in extraversion and conscientiousness would be more likely to have unhealthy ways of coping with stress and would be at higher risk of developing anxiety than others.

Spinhoven, Does, Ormel, Zitman, and Penninx (2013) found that individuals suffering from social anxiety disorder scored significantly higher on neuroticism and lower on agreeableness, conscientiousness, and extraversion than individuals not suffering from social anxiety disorder.

Vicarious Emotions

Bos, Jentgens, Beckers, and Kindt (2013) determined that a negative film, one that is intended to be sad, was an effective inducer of physiological responses commonly associated with anxiety. Emotional responses are also present in response to film; Aldao and Wisco (2015) stated that emotional responses are based on the context in which an individual experiences them. This context can be developed using elaborate experimental designs or can be developed by watching film clips. Researchers have tested various emotional and physiological responses of individuals in reaction to film stimuli (Hamilton & Meston, 2011).

Llera and Newman (2010) found that individuals with generalized anxiety disorder experienced physio-

logical changes consistent with worry when watching films containing various emotions. Aldao and Wisco (2015) found that when individuals watched a disgust-eliciting film, they showed an increase in anxiety and experiential avoidance.

Film has previously been used to assess vicarious threats and fearful emotions (Averill, Olbrich, & Lazarus, 1972). Askew, Hagel, and Morgan (2015) found that children exposed to a negative film in which a stick figure child was unable to make a shot in basketball and fell multiple times vicariously experienced more social anxiety than those exposed to a film in which the shot was made and the stick figure went through a basic basketball practice with no problems.

When seeing another individual experience a specific emotion, it is common for a viewer to also experience that emotion (Shu, Hassell, Weber, Ochsner, & Mobbs, 2017). Young, Gandevia, and Giummarra (2016) studied vicarious pain, noting that one-third of people experience pain when watching others experience it. Initially, it was thought that this response was empathetic mimicry, but Young et al. (2016) found that it is more related to self-protective avoidance as a means to evade personal distress. This emotional avoidance is seen not only in fear response, but also in various other emotional responses, such as anxiety.

Through watching others experience anxiety, an individual can experience anxiety related emotions as well; this is referred to as vicarious anxiety (Shu et al., 2017). It has been shown that children learn to be fearful of certain things from their parents through vicarious learning (Dunne & Askew, 2013). These findings support the idea that vicarious anxiety and fear could be learned from others; therefore, watching someone experience anxiety when giving a presentation can cause an individual to be anxious the next time he or she is in front of a large group of people.

Individuals high in trait anxiety have been observed to be more likely to experience vicarious anxiety than others (Shu et al., 2017). Evidence that people experience vicarious anxiety is found in the research of Dunne and Askew (2013), showing that children tend to learn anxiety from seeing portraits of their mother experiencing fear related anxiety when faced with certain animals. Dunne and Askew (2017) also attempted to determine if there was a difference between vicariously experiencing fear with a child or adult figure and found that there was no difference. They concluded that vicariously experiencing anxiety through the observation of a peer's negative experience has just as much effect as through an adult's negative experience. Kendall and Finch (1978) found that those who are empathetic to what others go through experienced a greater increase in state and trait anxiety when watching a guest speaker stumble over words, repeat ideas, and spill his or her coffee during a presentation in front of the class.

Present Study

The proposed study aimed to combine the methodology of Shu et al. (2017), exposing participants to a confederate presenter who repeats phrases, spills their coffee, etc.; Askew et al. (2015), who created a neutral film of a basketball tryout with no failure and neutral statements versus a negative film of a basketball tryout with failure and negative statements; and Kaplan et al. (2015) who investigated how personality correlates with stress and anxiety. Ideas from each of these studies were used to make the present study comprehensive, so that it will be able to determine if there is a relationship between the Big Five Personality Factors and if an individual vicariously experiences anxiety when watching a student give a presentation in front of a class. It was hypothesized that there would be a positive relationship between neuroticism and vicariously experiencing anxiety and that there would be a negative relationship between vicariously experiencing anxiety and extraversion, conscientiousness, agreeableness, and openness. It was also hypothesized that individuals who were exposed to the film containing a student who has trouble giving a presentation and has negative thoughts would experience a greater increase in state anxiety than individuals exposed to the film in which a student gives a presentation with ease who has neutral thoughts.

Methods

Participants

Participants (n=126) were recruited to partake in this online experiment through their school affiliated email and through Facebook (M_{age}=20.4, SD=3.0). The sample consisted of 71.4 percent females and 28.6 percent males. 83.3 percent of participants identified themselves as white, 5.6 African American, 5.6 Hispanic, and 5.5 percent identified as other races. There were fifty-nine participants who were exposed to the neutral film and

sixty-seven exposed to the negative film. Participation in this study was voluntary. As incentive to participate, at the end of the experiment, participants were directed to a separate Google form in which their information was entered into a drawing for a chance to win a $25.00 Visa gift card and receive extra credit in their psychology courses at the school where the experiment was conducted.

Materials

Big Five Inventory. The measure of personality that was used in this study was The Big Five Personality Inventory, developed by John et al. (1991, as cited in John & Srivastava, 1999). This personality inventory is a 44-item questionnaire with a five-point Likert scale ranging from 1-5 in which 1 was disagree strongly and 5 was agree strongly. The questions begin with a "I am someone who…" followed by an adjective, synonym; adjective, definition; or adjective in context (Soto & John, 2017). The questionnaire was derived from the ideas of Goldberg (1981). It was determined that there are five key domains of personality: neuroticism, openness, extraversion, agreeableness, and conscientiousness (John & Srivastava, 1999); they determined that the Big Five Inventory is an appropriate test to use when there is a limited amount of time to conduct a study and the researchers would not like to bore and fatigue the participants. When compared to the NEO-FFI developed by McCrae and Costa (1992) and the TDA developed by Goldberg (1992), the Big Five Inventory developed by John et al. (1991) was found to be the most valid measure for testing all five personality domains efficiently and has proved to be a reliable questionnaire across various languages (as cited in John & Srivastava, 1999).

State Trait Anxiety Inventory. The State Trait Anxiety Inventory (Form Y) was implemented to measure anxiety. This inventory was designed by Spielberger, Gorsuch, Lushene, Vagg, and Jacobs (1983); the scale contains two twenty-item scales: one for trait, or long-term, anxiety; and one for state, or in-the-moment, anxiety. This questionnaire has twenty items correlating with trait anxiety on a four-point Likert scale ranging from 1-4 in which 1 was almost never, and 4 was almost always. It also has 20 items correlating with state anxiety on a four-point Likert scale in which 1 was not at all and 4 was very much so (Spielberger et al., 1983). Trait anxiety, as measured with this scale, is less susceptible to changes during a period than state anxiety, which is why the state anxiety scale tends to be used to measure change in anxiety during various research endeavors (Julian, 2011). The change in state anxiety that can occur between time intervals allows this to be a strong measure when looking at the effects a stimulus can have on a person's anxiety level. To assure the validity and reliability of this inventory, it was derived from various anxiety measures at the time, such as the Taylor Manifest Anxiety Scale and the Cattell and Scheier's Anxiety Scale Questionnaire, and tested using more than 10,000 participants (Julian, 2011).

Film. Two films were created for the experiment: one negative and one neutral. Participants were exposed to the negative film or neutral film. The negative film was intended to induce anxiety; the neutral film was not intended to induce or reduce anxiety. Both films were given by an education major on what makes someone a good teacher or not. The negative film had the speaker say "like" and "um" intermittently and repeat key phrases throughout the presentation. The video then panned over to the other students in the class and then was directed back at the presenter who was staring at the class with an expression of unease on his or her face with a voice-over from the presenter containing negative thoughts. The neutral film had an individual who continued through his or her entire presentation with ease. The video then panned over to the other students in the class and from there was directed back to the presenter who had a neutral expression on his or her face and a voice-over from the presenter containing neutral statements.

Procedure

Institutional Review Board (IRB) approval was obtained prior to data collection for this study. Upon opening the link to the Google form that participants received through email or on Facebook, participants were directed to a page containing a consent form in which they agreed to continue to the experiment by selecting a box stating, "I Agree." Participants were then taken to a demographic survey, which asked age, gender (male or female), ethnicity (White, Hispanic/Latino, Black/African American, Native American/American Indian, Asian/Pacific Islander, or Other), and if they were a student of the college. The only individuals excluded from the study were under the age of 18 and/or non-college students; these individuals were redirected to the sub-

mission page of the form and were not allowed to complete the experiment. Participants who continued with the experiment were then taken to a page where they were asked to complete the 44-item Big Five Inventory to measure their levels of openness, conscientiousness, extraversion, agreeableness, and neuroticism (John & Srivastava, 1999). After completing the personality inventory, participants were taken to a page where they responded to the State Trait Anxiety Inventory (Spielberger et al., 1983). Participants were then asked to choose the answer containing the second letter of their last name (A-M or N-Z). Those who answered with "A-M" were taken to a page where they watched the negative film containing someone who had trouble giving the presentation and who looked uneasy. Those who answered "N-Z" were taken to a page where they watched the neutral film containing someone who gave a presentation with ease with a neutral expression on his or her face. After watching the video, participants were directed to a new page where they responded to the State Trait Anxiety Inventory again, but this time only with state anxiety. Relationships between openness, conscientiousness, agreeableness, extraversion, and neuroticism were tested with change in levels of state anxiety in response to the film stimulus the participants took part in.

Statistical Design

Data was collected and organized in Microsoft Excel 2016 for Mac version 15.40 and from there it was loaded into SAS University Edition on Mac OS Sierra 10.12.6 where the data was analyzed. The demographics of age, gender, and ethnicity were analyzed for means. Independent variables for this study included the Big Five Personality Factors: openness, conscientiousness, extraversion, agreeableness, and neuroticism, as well as the film condition in which the participants took part in: neutral or negative. The dependent variables for this study were trait anxiety and the change in state anxiety from before watching the film to after watching the film. A paired t-test was used to analyze the difference in state anxiety from before and after the negative and neutral films to determine if the change after watching the negative film was greater than the change after watching the neutral film. A correlation analysis was used to assess if agreeableness, openness, conscientiousness, extraversion, and neuroticism, as measured by the Big Five Inventory, are related to an individual's level of trait anxiety as measured by the State Trait Anxiety Inventory. A multiple regression analysis was used to assess agreeableness, openness, conscientiousness, extraversion, and neuroticism, respectively with the negative and neutral films, to determine their influence on an individual's change in state anxiety from before to after the film as measured by the State Trait Anxiety Inventory. Data was validated and verified by another researcher in Microsoft Excel 2016 for Mac, version 15.40.

Results

There was a significant positive correlation between levels of neuroticism and trait anxiety, $r(126) = 0.8233$, $p < .0001$. There was a significant negative correlation between levels of extraversion and trait anxiety, $r(126) = -0.3239$, $p = .0002$. There was a significant negative correlation between levels of openness and trait anxiety, $r(126) = -0.1984$, $p = .0259$. There was a significant negative correlation between levels of conscientiousness and trait anxiety, $r(126) = -0.3665$, $p < .0001$. There was a significant negative correlation between levels of agreeableness and trait anxiety, $r(126) = -0.2890$, $p = .0010$.

A multiple linear regression was calculated to predict change in an individual's state anxiety based on levels of extraversion and the film condition viewed. A non-significant regression equation was found, $F(2, 123) = 0.87$, $p > .4215$, with $R^2 = 0.0139$. A multiple linear regression was calculated to predict change in an individual's state anxiety based on levels of openness and the film condition viewed. A non-significant regression equation was found, $F(2, 123) = 2.02$, $p > .1366$, with $R^2 = 0.0318$. A multiple linear regression was calculated to predict change in an individual's state anxiety based on levels of conscientiousness and film condition viewed. A non-significant regression equation was found, $F(2, 123) = 2.51$, $p > .0856$, with $R^2 = 0.0392$. A multiple linear regression was calculated to predict change in an individual's state anxiety based on levels of agreeableness and film condition viewed. A non-significant regression equation was found, $F(2, 123) = 0.09$, $p > .9119$, with $R^2 = 0.0015$.

There was not a significant correlation between levels of neuroticism and an individual's change in state anxiety from before to after the film, $r(126) = 0.0184$, $p = .8381$. There was not a significant correlation between levels of extraversion and an individual's change in state anxiety from before to after the film, $r(126) = -0.1162$,

p = .1949. There was a significant correlation between levels of openness and an individual's change in state anxiety from before to after the film, r (126) = -0.1787, p = .0476. There was a significant correlation between levels of conscientiousness and an individual's change in state anxiety from before to after the film, r (126) = -0.1976, p = .0266. There was not a significant correlation between levels of agreeableness and an individual's change in state anxiety from before to after the film, r (126) = 0.0331, p = .7132.

There was no significant change in state anxiety between the negative (M = -1.00, SD = 8.29) and neutral (M = -1.27, SD = 5.73) film conditions, t (124) = -0.21, p > .8334.

Discussion

Many college students are at a greater risk of social anxiety than most others because they are constantly evaluated on their performance in every aspect of their lives; they are expected to uphold high academic standards while also maintaining a specific social image (Holinka, 2015). Aside from the pressure students receive from their parents and professors, some students lack social support from their peers. Xueting et al. (2013) determined that individuals with less perceived social support were more likely to experience anxiety. Since the negative film includes peers laughing at the individual who is having trouble presenting, it corresponds with a lack of social support.

There has been concern in research that certain tests, such as personality tests, will elicit an anxiety-related response. This was not a concern in the current study because research shows that in comparison to performance-based tests, self-report tests, such as the Big Five Personality Inventory, do not elicit a strong response (Momenian-Schneider, Brabender, & Nath, 2009); therefore, it is expected that the film alone will provoke anxiety in the proposed study.

It has been determined by previous research that individuals are capable of experiencing emotions vicariously by watching others confront situations that elicit those kinds of emotions; one of the emotions tested by previous research is anxiety (Shu et al., 2017). Some individuals who watched a guest speaker struggle to efficiently give a presentation experienced anxiety in response (Kendall & Finch, 1978). Additionally, children who watched a short film of an individual who was unable to play basketball and felt ashamed showed more anxiety than other children who watched a short film where the individual playing basketball had no performance problems (Askew et al., 2015). This shows that vicarious emotions, specifically anxiety-based emotions, can be experienced in response to film; therefore, the expected results line up with previous research on the basis of anxiety as correlated with personality factors.

Various studies have been done to determine if there is a relationship between personality and levels of anxiety in people. The significant correlations found in the current study between trait anxiety and increased levels of neuroticism and decreased levels of conscientiousness, extraversion, agreeableness and openness, support previous research in the field (Vreeke & Muris, 2012; Kaplan et al., 2015; Levy & Lounsbury, 2011).

Familiarity with a person or even the subject of the presentation could have influenced an individual's change in state anxiety. Dunne and Askew (2013) discovered that a child experienced a greater increase in anxiety when viewing a portrait of his or her mother with an anxious expression on her face in comparison to viewing a portrait of a stranger with an anxious expression. This gives evidence that an individual experiences more vicarious anxiety when the observer knows the person in an anxiety-provoking situation. Since the individual in the video who gave the presentation was a stranger to the participants in the study, it may have been less relatable for them. The content of the video also may have been unfamiliar to participants since it was a topic about education rather than something closer to their field of study.

Understanding how personality affects the way an individual experiences various events is important. Ramos-Grille, Gomà-i-Freixanet, Aragay, Valero, and Vallès (2015) determined that knowing how people differ could aid in individualized treatments for patients suffering from pathological gambling. Not all patients in therapy will reveal everything that is going on their lives to their therapist. Knowing what personality traits are associated with different vicarious emotions could have major implications in the clinical setting, providing aid to a therapist in how to better tend to a patient based on what he or she is feeling but not divulging.

Limitations

A limitation to this study was the small sample size. The small sample is not representative of the college population as a whole. Another limitation is that, since the experiment was conducted online rather than in person, participants may have not followed the directions carefully or watched all the video clip, resulting in data that may not be representative of what participants experienced.

Future Research

Future research should be done to expand the idea of vicariously experiencing anxiety and what personality traits could contribute to an individual having such emotional responses. To further that idea, research should be done on individuals' psychophysiological responses in addition to emotional responses to various film stimuli. Future research should also be done to determine changes in anxiety and other emotions in response to films depicting various social situations.

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