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A Closer Look at the Relationship Between Superstitious Behaviors and Trait Anxiety

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Humans seek explanations between cause and effect and have tendencies to acquire beliefs in something that cannot be scientifically proven. People tend to assume causation between behaviors and events that are not correlated, this was defined as superstitious behavior by B.F Skinner in 1948 (Chance, 2009). Instances where fallacious causation can be seen are, for example, when athletes perform superstitious rituals before a game, when students carry good luck charms for an exam, or when investors seek psychics' advice for financial matters. According to an article published in the New York Times, "Psychics say their business is robust, as do astrologers and people who channel spirits, read palms and otherwise predict the future (albeit not the winning lottery numbers). Their clients ... are often professional advice-givers themselves, in fields like real estate and investments," (Ferla La, 2008). On campuses, Gallagher and Lewis (2001) found that nearly 70% of college students exhibited superstitious behaviors or rituals before exams or athletic performances (Rudski & Edwards, 2007).

Superstitious behaviors are not only confined to college campuses, athletes, or investors, they can also be found across all cultures. In the Trobriand Islands of New Guinea, anthropologist Bronislaw Malinoswki observed how islanders relied on superstitions at times of uncertainty or dangerous situations, such as when fishermen fished in the deep sea versus the relative safety of lagoons (Rudski & Edwards, 2007). These superstitious behaviors have been a subject of interest for researchers in diverse fields. Superstition is essentially about the illusion of control. In 1975, Langer coined the concept *illusion of control* after conducting a series of experiments. Langer found that people irrationally overestimated their possibility of success if they had a sense that they could control a situation, even if the outcomes were random (Rudski & Edwards, 2007). When facing distressing situations that appear to be out of an individuals' control, a person will rely on superstitious behaviors to create an illusion of control. This coping

mechanism is considered the primary and fundamental force in human life and one of the most important variables governing psychological well-being and physical health (Whitson & Galinsky, 2008).

Rudski and Edwards (2007) examined the relationship between superstition, task difficulty, lack of preparation, and perceived importance of the outcome. The participants in the study consisted of 111 undergraduates who ranged from 18 to 22 years old. Participants completed two surveys. One survey consisted of 25 common superstitions used by students. Participants were asked if they engaged in the superstitious behavior, and they had to indicate its level of effectiveness on a 5-point scale.

In the second survey, participants responded to a total of 54 scenarios in which the researchers examined the degree of difficulty, level of importance of outcome, and level of preparation. The researchers then asked students to indicate their sex, if they were an athlete or a dancer, and if they had at least one lucky object. Participants were also asked to rate how superstitious they thought themselves to be on a 10-point scale.

Their surveys revealed that students reported increases in the probability of using superstitious behaviors when difficulty increases, preparation decreases, and stakes increase in scenarios, such as taking exams or athletic competitions. The need for a particular outcome increased the illusion of control. The results also showed that superstitious behaviors were used more as the difficulty level increased or preparation level decreased. This study demonstrated how people may be motivated to reestablish a sense of control through superstitious behaviors.

Another study sought to understand how lack of control increases the need to utilize superstitious behaviors when faced with tasks of uncertainty and when individuals feel they have

lost control in situations. Whitson and Galinsky (2008) conducted six experiments using multiple methods to examine if lack of control increases illusory pattern perception. The authors defined illusory pattern perception as “the identification of a coherent and meaningful interrelationship among a set of random or unrelated stimuli, such as the tendency to perceive false correlations, see imaginary figures, form superstitious rituals, and embrace conspiracy beliefs, amongst others.” In each of the six experiments, Whitson and Galinsky manipulated lack of control through use of manipulated statements, concept-identification paradigms, and memory recall. The researchers found that recollection of an experience involving lack of control increases superstitious behaviors, lack of control increases the need to see patterns and structures, even if they are illusory patterns, and that an individuals’ need to be or feel in control can alter their environment as an attempt to regain a predictable state of awareness. Individuals facing aversive states may develop false correlations, superstitions, conspiracy theories, or false images and sounds as a means to gain control over their lives.

An underlying common factor in these previous studies appear to be related to forms of psychological distress that can affects one’s health. More specifically, symptoms of anxiety disorders, or possibly other forms of psychopathology disorders, may be relevant to understanding why people tend to have an increase in superstitious behaviors during difficult and distressing times.

In a study by Zebb and Moore (2002), 191 undergraduate students completed measures associated with superstitiousness, obsessive-compulsive symptoms, anxiety disorder symptoms, general psychological distress, and perception of anxiety control. The sample was composed of 41% men and 59% women. The participants completed a superstitiousness questionnaire and 13 specific anxiety measures. Their results show a relationship between superstitious behaviors and

perceptions of control; the lower the perception of anxiety control, the greater the superstitious beliefs and behaviors. In regards to gender, women who perceive themselves as in less control of their environment may be more likely to engage in activities which give the illusion of control and may be more susceptible to anxiety disorders.

A similar study was conducted by Sica, Novara, and Sanavio (2002). 258 students of varying superstitious levels completed Italian versions of measures of obsessive-compulsive symptoms, such as depression and anxiety, and participants completed a superstition questionnaire. Participants who scored below the mean on the superstition questionnaire were considered low-superstition while all those that scored above the mean were considered high-superstition. The superstition questionnaire presented 10 questions in a true or false format about common superstitious beliefs. The results indicated that the high-superstition groups reported more anxiety, depression and worries. The researchers also found higher proportions of women among the high-superstitious group by a 14% difference. This increase in high-superstitious women parallel to Zebb and Moore's findings in regards to women who feel less in control of their environment may rely more on superstitious behaviors and may be prone to developing anxiety disorders (Zebb and Moore, 2003).

The scientific studies discussed reveal that superstitious behaviors are illusions of control at times of uncertainty and distress. Two of these studies discussed revealed that people with an increase in superstitious behaviors also had increases in anxiety symptoms. In our study, we initially hypothesized that the stronger beliefs in superstitious behaviors correlates with the frequency of trait anxiety symptoms. We also hypothesized that females will have higher superstitious behaviors and trait anxiety symptoms.

Method

Participants

Participants were randomly selected from college campuses. The participants ranged in age from 18 to 40 years old. The participants received course-participation credits for filling out the surveys.

Materials

Rudski's (2003) 28-item questionnaire was revised (See Appendix) and the well-validated and the State-Trait-Anxiety-Inventory (Spielberger *et. al.*, 1970) was used to measure anxiety. The trait-version (STAI-X2) of this self-report questionnaire consists of 20 items. A sample item is, "Generally I lack self confidence." Questions were rated on a four-point scale (1 = 'almost never' to 4 = 'almost always').

Procedures

The participants had to fill out a 28-item questionnaire that rates their beliefs in five superstitious factors: Religious Beliefs (i.e., God, the devil), Traditional Superstitions (i.e., black cats, rabbit's foot), Psi Beliefs (i.e., astrology, psychics), Alternative Life Forces (i.e., aliens, telekinesis), and the fifth factor was ghosts and communicating with the dead. A sample item was "I believe that tarot cards can predict what will happen in the future." The participants were asked to put a number next to each item to indicate how much they agreed or disagreed with that item. The rating scale ranged from 1 to 7 (1 = 'very unlikely,' 4 = 'neutral' 7 = 'very likely'). They also recorded their age, gender, and major.

After the participants filled out the survey, they completed the State-Trait-Anxiety-Inventory (STAI-X2), which consisted of 20 items. The participants were asked to indicate how often they experienced specific anxiety symptoms. Each item was ranked on a four-point scale (1 = 'almost never' to 4 = 'almost always').

Discussion

When the participants in our survey were asked to rate their superstitious beliefs out of five factors, they credited the most significant to traditional beliefs, such as crossing fingers for luck, and the beliefs in ghosts and communicating with the dead. Religious beliefs, such as the belief in God or the devil appeared to be rated as the least superstitious beliefs. Women rated the likelihood of religious beliefs higher than men. Also, women had significantly higher scores in traditional superstitious beliefs, which included superstitious behaviors, such as refraining from something that may jinx them or engaging in rituals (carrying good luck charms or dressing a certain way) to improve performance.

These results parallel with the study by Lewis and Gallagher (2003). They reported that women were more likely to refrain from taking an exam on Friday the 13th. The women's ratings in our study also parallels with Zebb and Morre's results in regard to superstitiousness in women. Zebb and Moore reported that "females (M =28.51; S.D. = 20.71) had a significantly higher score males (M = 21.05; S.D = 18.94), $F(1, 181) = 6.21, P=.014$," (Zebb & Moore, 2003).

Our results from the trait anxiety measure (STAI-X2) reveal that women had higher scores than men. The present study supports the findings in Zebb and Moore's analysis of superstitiousness and specific anxiety. They found a correlation between superstitiousness and each specific anxiety measure to be greater .10, with the majority being significant. Zebb and

Moore also found a significant correlation between superstitiousness and anxiety, depression, stress, and perception of anxiety control (Zebb & Moore, 2003).

Our prediction that stronger beliefs in superstitious behaviors correlates to the frequency of trait anxiety symptoms, and that women will have higher superstitious behaviors and trait anxiety symptoms was supported by our results. The results indicate a positive linear relationship between superstitious beliefs and anxiety symptoms. We believe this relationship exists because when people are uncertain or distressed during times of aversive events, or when people feel that they are not prepared for life's events, they will attempt to gain control through superstitious behaviors. Our surveys reflect findings on previous research related to superstitions and anxiety symptoms.

However, we need further analysis on the relationships between age, gender, education level, religious tendencies, family background, and marital status, such as single, married, divorced, or widowed, as well as a larger sample size. Based on prior results, we should hypothesize that an increased age, education level, and life experiences will have a nonlinear correlation to an increase in superstitious behaviors and anxiety symptoms.

In addition to our previously stated limitations, the relationship between superstitious behaviors is not exclusive to measures of specific anxiety disorders. Researchers also found that superstitiousness is also related to depression and stress (Zebb and Moore, 2003). Other researchers found a positive correlation between superstitious behaviors and obsessive-compulsive symptoms (Sica, Novara, and Sanavio, 2002). Future research should include our limitations in this study, as well surveys that analyze mood and obsessive-compulsive symptoms in women. Based on previous research, women may be more susceptible to anxiety disorders, as

well as other psychopathological disorders, such as depression and obsessive-compulsive disorders.

The etiology of superstitious behaviors appears to arise as response to uncertainty or distress when an individual is faced with uncontrollable and random circumstances. Creating an illusion of control may be a quick fix in alleviating an aversive state, but overtime this false sense of control may lead to debilitating psychological disorders. Understanding the significance of the maladaptive coping mechanisms of superstitious behaviors could aid in the prevention or reduction of psychological disorders and increase psychological well-being and physical health.