The Manifestation of Stress and Its Implications on Decision-Making

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ABSTRACT

Research since the 1940s has focused on the impact of stress, fear, and anxiety on the rationality of the decisions made. Various sources have determined that aspects such as a lack of comprehension of statistics, and the inability to predict future outcomes clearly have been heightened due to fear and uncertainty. However, researchers have also identified the necessity for an optimal stress level to ensure the rationality of decisions. To explore what differentiates motivational and inhibitory stress, this study identifies the elements that manifest positive and negative stress to identify the optimal conditions in which students make the most rational decisions. With a focus on academic performances, I analyze participant responses from students at Obra D. Tompkins High School. Through this analysis, some stressors resulted in the overestimation of fear. Furthermore, it became apparent that individuals were often influenced by past affirmations and comfort which either elevated or lowered the quality of their performance.

Introduction

The 1940s initiated a boom in research about the influence of Nazi fear tactics on the decisions made by German citizens. In the early 2000s, there was significant progress in research about fear rhetoric due to the war on terror and subsequent propaganda within speeches that established an us vs. them dynamic between Western and Middle Easterners. The fear of an "other" affected the opinions of individuals. Overall, these fear tactics led to a decrease in the rationality of decision-making. Although the influence of fear is clear in the political sphere, researcher George H. Roberts, Northeast Louisiana University, found that fears impact individuals similarly in academic institutions where their decision-making skills (Roberts, 1989).

To completely understand the material of this paper, it is necessary to define a few terms. The Allais Paradox refers to a classic hypothetical choice problem in behavioral economics that exposes human irrationality. Conventions tell us what decisions are reasonable even when they do not prescribe a precise decision rule, or the method used to accept or reject the null hypothesis. Finally, positive stressors are defined as stressors that motivate individuals to make logical decisions. On the other hand, negative stressors can be defined as stressors that inhibit individuals and cause them to misinterpret the possible futures.

Arguments

After the early 2000s, various arguments have surfaced about how stress, a primary result of fear, impacts individuals. Studies have shown that decisions are impacted by a variety of factors, including surroundings, stress levels, and the visualization of future scenarios. Before an individual makes a decision, they need a clear understanding of the statistical concepts and the implications a statistic has on possible futures. However, it is

also important to note that in situations where quick reactions are necessary, it is better to make intuitive decisions rather than statistical ones. Although stress encourages rationality through the emphasis on the importance of a decision, stress can also lead to the inability for rational thinking to occur due to the pressure of the decision.

One of the most influential research, conducted by Lisa Schwartz and Lucas Cuadros of Wingate University, found that there was an optimal stress level for individuals to make an informed, rational decision (Schwartz & Cuadros, 2017). Furthermore, they found that the environment impacted how stress manifested. With a focus on adolescent environments, I believe it is necessary to identify elements that manifest positive and negative stress. In the process of doing so, it is important to determine the optimal conditions for individuals to make the most rational decisions.

Literature Review

To establish the optimal conditions for making rational-decisions, it is important to discuss current research on fear and decision-making. The assessment of the role of human biology and evolution provides an important context for the function of human decision-making. A paper by Paul Rubin (2001), Professor of Economics at Emory University, revealed that, due to evolutionary factors, humans have evolved to "pay excessive attention to identifiable factors." Though the observation of tangible factors, focusing on immediate necessities, was essential for survival when individuals were associated with relatively small groups, within larger societies today, this behavior leads to the prevalence of irrational decision-making as individuals are unable to assess abstract concepts such as the future (Rubin, 2001). Rubin's claim is furthered by research on the late-1930s and early-2000s fear rhetoric as these historical examples provide a basis on how fear politics is used to convince individuals to behave irrationally (Nicholson & Howard, 2003; Yourman, 1939). Nicholson and Howard (2003) elaborate by describing the use of framing, a method used by elites and media sources to define the essence of a controversy or debate by highlighting/emphasizing specific details, when instilling polarized and highly biased views. However, though fear can lead to irrationality, it is also evident that there is an optimal level of stress needed to make a rational decision (Schwartz & Cuadros, 2017). Nevertheless, it is clear that fear and stress have an impact on the decision-making process.

Defining Rationality

However, it is necessary to first establish a definition of rationality, specifically that in rational decision-making. Scott Ashworth, Professor and Director of the University of Chicago Harris School of Public Policy Ph.D. program, Ethan Bueno de Mesquita, Professor and Deputy Dean at the Harris School of Public Policy at the University of Chicago, and Amanda Friedenberg, Professor of Economics at the University of Arizona, define rationality as an occurrence where individuals make a decision based on long-term prospects rather than short-term issues alone (Ashworth et al., 2018). Furthermore, Professors of Political Science and Biology at Rutgers University, the California Institute of Technology, and the University of Delaware support Ashworth et. al's work as they claim that a rational decision is measured in accordance with an individual's beliefs (Lau et al., 2008). Contrastingly, Rose McDermott, Professor of International Affairs at Brown University, claims that rational decision depends on interpretable statistics as well as emotions, beliefs, and memories (McDermott, 2004). This is explained through an examination of the neurological perspective as it uncovers the relationship between decision-making and parts of the brain. In her research, McDermott (2004) found that damage to the ventromedial cortex negatively impacts rational decision-making. This occurs because the ventromedial cortex controls fear responses, a factor that is highly influential in decision-making. Through the following analysis, it is evident that rational decision-making is defined as a decision made while considering memories, emotions, and statistics to create an optimal solution. Additionally, it is clear that emotions are necessary to acknowledge in rational decision-making since the emotional centers of the brain affect the frontal cortex. Overall, this was

necessary to establish what constitutes rational decision-making and narrow the factors that must be considered when analyzing rationale.

A Historical Examination of Rational Decision-Making in Stressful Situations

To better understand the way fear impacts decision-making, a historical analysis of rational decision-making and previous research on this field may provide a potential pattern that leads to rational decision-making. An analysis of multiple speeches by politicians and political activists post-9/11 found that, according to appraisal theory, a psychological assessment of the perception of an event and its corresponding emotion, and framing, these speeches often contained fear rhetoric and specific diction that influenced individuals to act in accordance with the speakers' message (Nicholson & Howard, 2003; DeCastella & Musgrove, 2009). In a particular study about Prime Minister Howard during the war on terror, it was found that 24 out of 27 of his post 9/11 speeches contained evidence of fear politics that emphasized an "evil" other that must be stopped (DeCastella et al., 2009). Though this type of fear politics is present throughout the beginnings of society, WWII caused a boom in research on fear politics and its influences on decision-making. In a source on Nazi fear tactics by Julius Yourman, a sociologist who graduated from New York University, it was found that Nazi Germany used strategies that utilized "an us versus them" mindset to convince to follow an extremist ideology (Yourman, 1939). Although these sources explore the negative impacts of stress on rational decision-making, an article by Walter Gmlech (1983) introduced the "U-shape[d]" distribution of performance and stress. This indicated that, due to a lack of stimulation in low-stress and high-stress situations, individuals had a minimum stress level required to perform at an optimal level and make critical decisions (Gmlech, 1983). However, to make critical decisions in high-stress situations, Rolf Roth, Commander of the Royal Norwegian Navy, cited various historical examples in battle/warfare that indicated that using the rational analytical approach of decision-making, a method that has been utilized in military training, is the optimal method to make decisions as it allows individuals to gather all available information and use their creativity and intuition to formulate the best course of action (Roth, 2004). Through this analysis, it becomes clear that intuitive and statistical thinking are both necessary to ensure that individuals are able to make rational decisions in stressful or fear-evoking situations.

Factors that Influence Decision-Making

To better understand the way fear impacts decision-making, it is necessary to study decision-making within a variety of scenarios and get a holistic view of the issue. According to Olivier Chanel, researcher of Applied Microeconomics at Aix-Marseille University, and Graciela Chichilnisky, Professor of Economics at Columbia University, the influence of fear can be seen even when individuals make political decisions. In a study that compared individuals' beliefs and their voting patterns after the occurrence of a catastrophic event, it was found that many individuals dwelled on these catastrophes and voted based on that fear instead of voting for a better long-term politician (Chanel & Chichilnisky, 2009). This demonstrates the impact a looming threat has on the priorities of individuals and influences them to make decisions that are less beneficial in the future. To further this study, Lisa Schwartz, Professor of Finance at Wingate University, and Lucas Cuadros, School of Business at Wingate University, established that the stress levels of certain environments affect the rationality of decisions made. Advancing research conducted by Gmlech in 1983, this study also emphasized the presence of an optimal stress level to make an optimal decision (Schwartz & Cuadros, 2017). Additionally, research by Paul Rubin, Professor of Economics at Emory University, revealed that, when facing uncertain situations where individuals were unable to interpret the context of probability, individuals are unable to identify possible futures and make contradictory choices (Rubin, 2001). This phenomenon is also known as the Allais Paradox, the principle that humans make inconsistent decisions when compared to predicted utility theory results. Furthermore, Rubin (2001) recognizes the difficulty individuals have when analyzing statistical values, indicating that

humans are better built to make intuitive decisions, decisions made on instinct, rather than purely rational ones based on logic. Finally, Sacha Bourgeois-Gironde, Professor of Economics and Cognitive Sciences at the University of Paris, found that regret also plays a role in the decision-making process as it encourages individuals to avoid decisions with a greater likelihood of feeling regret, and therefore enhances rationality (Bourgeois-Gironde, 2010). Through the analysis of these factors, it becomes clear that decision-making in stressful, uncertain, or fearful situations is heavily influenced by the clarity of possible futures, and a lack of future fear and anxiety.

Overview

The following analysis on the various subtopics regarding fear, fear politics, and decision-making has made it clear that research in this area is largely focused on factors that influence decision-making and analyzing fear rhetoric. However, given the role intuition plays in decision-making, the reduction of stress in familiar environments, and the necessity for the presence of a certain stress level to increase rational decision-making, the following question arises: What elements manifest positive and negative stress and what are the optimal conditions for individuals, specifically adolescents, to make the most rational decisions? To answer this question, it becomes necessary to analyze participant responses as it relates to their decision-making skills.

Methods

I approached this study using a mixed-method approach containing a survey followed by interviews. To best communicate how this research was conducted, this section carefully outlines the procedure used to determine the optimal conditions for individuals to make rational decisions. Furthermore, this section documents the design and purpose for the use of this method.

Design

My research was conducted through a survey followed by interviews that analyzed common fears associated with social anxiety in an academic setting. Part one of the survey included the general fear assessment inspired by the Fear Survey Schedule (FSS), a tool used to measure general fear ratings, while part two was a questionnaire inspired by the American National Election Studies (ANES), a survey used to measure the rationality of political decisions. Furthermore, the stressors tested in the questionnaire were inspired by stressors found by Researcher George Roberts of Northeast Louisiana University (Roberts, 1989). Using this data, I was able to conduct interviews to further explore these answers. In these interviews, I asked the participants about their specific answers and about their reasons why certain situations led to less stress while others led to more stress.

The majority of research conducted when studying the decision-making process was dependent on survey data largely due to ethical concerns with other forms of experimentation. Initially, I utilized the general fear assessment, a series of questions used to measure anxiety levels in individuals and assess potential phobias of participants, as a tool to determine discomfort and anxiety from a list of stimuli (Arrindell et al., 1984). This was important to establish a baseline quantity of anxiety, fear, and discomfort that the participant feels regarding a certain situation. Furthermore, through research by Professors of Political Science and Biology at Rutgers University, the California Institute of Technology, and the University of Delaware, I was able to identify the ANES as a potential database to gather ideas for survey questions (Lau et al., 2008). The ANES is highly politicized which would not aid in the course of my research; however, I used the general structure of the questions as a foundation when formulating my survey as these questions were useful when analyzing the actions of individuals. Furthermore, the stressors found in Researcher George Roberts' study of stressors that

impacted developmental education were used as inspiration to restructure the ANES questions (Roberts, 1989). The combination of these two surveys allowed me to cross-reference participants' fear responses with their responses on corresponding ANES questions to determine what actions the audience would take in a situation.

Variables

The participants who were interviewed functioned as the independent variable while the discrepancy in survey answers and the explanations for these discrepancies represented the dependent variables. Through these variables, I was able to determine the existence of positive and negative stressors. My independent variable allowed me to choose individuals that could provide important information in my study. Additionally, this enabled me to ask the participants questions regarding their responses to their fears and what decision they would make to determine which positive and negative stressors affected them and if the concept of positive and negative stressors even exists.

Method

A mixed-method approach was used to conduct this research with a survey and follow-up interviews. I used a survey to gather preliminary data for the expected and predicted behaviors of the participants. Through the data, I was able to formulate questions to ask the participants about any discrepancies in their answers. Specifically, I compared common fears in each question on the ANES and used the participant's responses to question why this stressor affected or had a negligible effect on the choice they made in the scenario at hand.

In regards to the style of my research, I included a combination of qualitative and quantitative research methods. A qualitative approach was necessary to determine the exact/closest course of action that an individual would/has taken when facing stress. Furthermore, the use of a quantitative approach to examine fear levels allowed me to compare stress levels among different factors to determine which factors aid and which factors inhibit rational decision-making. Finally, a qualitative interview allowed me to gather the most authentic response from the participant as it allowed the participants to answer each question closest to their experience in great detail.

Participants

Since my research attempts to answer whether there are positive and negative stressors and what differentiates them from each other, a sample of Obra D. Tompkins High School school students allowed me to gauge how aspects of the environment at the school impact the ability of these adolescents to make rational decisions. However, due to the rather small population size, I expect to encounter issues with external validity as the atmosphere at Tompkins may deviate from the environment at other schools. This will likely lead to my results being applicable to individuals in a similar environment like the one at Tompkins High School.

Procedure

My research is conducted through a mixed-method approach involving a survey and interviews that follow. Initially, I asked the participants for their name, phone number, email, gender, age, grade level, and ethnicity. Though the demographic information of specific participants was not discussed within the actual report to maintain anonymity, I required this information to analyze how gender, grade level, and ethnicity affected my results. Furthermore, it was necessary to collect the name and contact information of the participants to contact individuals for the interview portion of my research.

I conducted my survey in two portions. The first was through the use of questions from the FSS. For the purpose of my research, I selected the questions pertaining to social fears since the majority of stress from decision-making occurs due to societal fears. These are questions 5, 8, 9, 10, 15, 20, 27, 33, 41, 44, 47, 51, and 52 on the Fear Survey Schedule. The second part of my survey was conducted using the general format of questions from the ANES to determine the actions of individuals in a stressful environment. The following questions would include: Have you performed well when speaking to the public? Do you perform well when taking tests? Which scenario did you perform the best in? Eventually, the disparities between the responses of the general fear assessment and questionnaire were analyzed using a difference of proportions using a 90% confidence interval to determine the differences in perception of fear and the manifestation of fear.

$$(\widehat{p1} - \widehat{p2}) \pm z * \sqrt{\left(\frac{\widehat{p1}(1 - \widehat{p1})}{n1}\right) + \left(\frac{\widehat{p2}(1 - \widehat{p2})}{n2}\right)} \qquad (1)$$

The variables in this equation were defined as $\widehat{p1}$ and $\widehat{p2}$ representing their respective sample proportions. The values for $n1$ and $n2$ represent each sample size respective of the $\hat{p}$ value. Finally, the $z*$ is the critical z-score value to provide a region of rejection. For a 90% confidence interval, this $z*$ value would be 1.645.

This difference in proportions was used to predict the range of values that were 90% likely to contain the true difference in population proportion of the two statistics. Moreover, through a comparative analysis of these two surveys, I chose individuals who selected mostly consistent answers and those with highly inconsistent results. In these interviews, I referred to questions from the survey, particularly the questions where the participant had the highest and lowest levels of consistency. This allowed me to determine which stressors the individual rated on the fear assessment helped them perform better in the scenarios they tested on the ANES style questions.

A thorough analysis of the data collected by using this method is necessary to identify factors that influence the manifestation of positive and negative stressors in a stressful environment.

Results

Since the values in my findings could be communicated best when paired with the analysis, I found it necessary to combine these two elements in my results section.

Survey

The survey results yielded three distinct graph distributions: left-skewed, right-skewed, and roughly symmetric which demonstrate the most common fear ratings of individuals.

Left-Skewed Data Set
Of the 13 questions on the fear assessment, 5 of the prompts resulted in a left-skewed graph.

Table 1. Fear Prompts that Resulted in a Left-Skewed Distribution

Fear Prompt	Mean	Median	Mode
Failing	4.25	4	5

Rejection	3.775	4	4, 5
Receiving Disapproval	3.65	4	4, 5
Being Ignored	3.71795	4	4
Being Perceived as Foolish	3.74359	4	5

       Failure, in particular, had the most noticeable skew, the results indicating a left-skew with a mean score of 4.25, and with a median value of 4. Interestingly, the most chosen fear rating was a 5, demonstrating that the majority of individuals who took the survey had high rates of fear in regards to failure. Furthermore, failure had the largest proportion of individuals (19 out of 40) who chose a 5 on the Likert scale when compared to other prompts on the fear assessment. This was closely followed by being perceived as foolish which had 17 out of 39 participants who chose a 5. Overall, the data suggest that failure is one of the highest-rated fears in adolescents at Obra D. Tompkins High School as the large majority of individuals rated failure on the high end of the Likert scale.

Right-Skewed Data Sets
Of the 13 questions asked on the fear assessment, 5 of the prompts resulted in a right-skewed distribution.

Table 2. Fear Prompts that Resulted in a Right-Skewed Distribution

Fear Prompt	Mean	Median	Mode
Entering Last in a Room	2.75	2.5	2
Strangers	2.725	3	2
Authority Figures	2.6	3	1,3
Receiving Criticism	2.85	3	2
Making a Mistake	3.41026	3	3

       The most notable skew was found in the responses for strangers, which indicated that the average fear rating for strangers was 2.725 while the middle value was 3. Despite this, the majority of individuals chose to rate this fear of strangers as a 2, suggesting that strangers as a whole were a mediocre, low fear. Meanwhile, the most interesting skew was found in making a mistake. With a mode of 3, a mean of 3.41041, and a median of 3, this stressor had no response marking it as a 1, making it a particularly noteworthy case. This is notable since, although most individuals found that making a mistake was a relatively average fear, it was never negligible enough to be rated as a fear that was not disturbing for adolescents.

Symmetric Distributions
The other distributions present in the fear assessment appeared to be roughly symmetric with both approximately bimodal and approximately normal relationships.
       The bimodal distribution appears with the prompt people watching you work. This distribution contains a mean of 3.05, a median of 3, and a mode of 4. This indicates that the middle value and the average value

for responses were 3 while the majority of individuals chose 4 as their fear rating for people watching you work. This data suggests that this fear of being watched is rather polarizing, either affecting individuals highly or being relatively negligible.

With a mean of 2.85, a median of 3, and a mode of 3, an approximately normal distribution is formed in the responses for being teased. Similar to the distribution for being watched, being teased had an average and a middle score of 3. However, unlike previously, the most chosen fear rating was also 3, meaning that the majority of individuals were mediocrely affected by being teased. Since this distribution was approximately normal, the majority of the data is centered around the mean, 3, indicating that, while being teased didn't produce a negligible amount of fear, it wasn't often rated highly (4-5) either.

Confidence Intervals

To compare the difference in proportions between the questionnaire and the general fear assessment, it is necessary to calculate the difference in the predicted population proportions of questions that correlate with each other as seen in (1).

With a confidence level of 90%, the true difference in the proportion of people who marked public speaking highly while performing well when public speaking is between -0.370516 and -0.007689. This indicates that the proportion of individuals who perform well when public speaking is likely greater than the proportion of individuals who rated public speaking like a 4-5 on the fear assessment. Additionally, after cross-examining the participants who rated fear as 4-5 with their performance in public speaking, it was found that 4 out of 15 of the participants reported that they performed well when public speaking even though the fear rating was on the higher end of the spectrum. Comparatively, 4 out of 15 individuals reported that they did not perform well when public speaking and 7 out of 15 reported that they performed somewhat well when public speaking. The data suggests that the majority of individuals who rated their fear of public speaking highly still performed well or somewhat well when performing in public, creating a disparity between the perceived fear of public speaking and perception of how well they completed their performance.

With a confidence level of 90%, the true difference in the proportion of people who marked authority figures with a fear rating of 4-5 and those who were negatively affected by the presence of authority figures is between -0.413369 and -0.062272. This indicates that the proportion of participants who rated authority figures at a fear rating of 4-5 is less than those who rated authority figures as negatively impacting performance, meaning that even though people tend to rate their fear of authority lower than 4, they still tend to have a negative impact by the presence of an authority figure. Of the people that chose a 4-5 rating on the fear assessment, 9 out of 11 participants reported that the presence of an authority negatively affected their performance while 2 out of 11 reported that the presence of an authority figure did not impact their performance. Unlike the previous population proportion calculation, this calculation indicates that individuals reported their fear in the presence of an authority figure in accordance with their perception of their performance in the presence of an authority figure.

Overall, the true difference in proportion for both confidence intervals verifies the existence of the Allias paradox, as the difference in perception and the true quality of work is significant. With this confirmation, it became apparent that further inquiry was required to address why the discrepancies between the fear rating and the performance occurred.

Interview

Though the fear rating and stressors of each individual differed in the course of this survey, the participants often reported similar reasons for stressors being motivational and inhibitory. Of the participants interviewed, many individuals were influenced by their life experiences with positive experiences leading to better impacts on performance. Comfort was a large reason many participants performed in a certain manner, participant 42,

in particular, citing that the reason why audience size was their most impactful stressor was related to them "being comfortable," with smaller audiences. While this response was in contrast with participant 13, who performed better with a larger audience as it becomes, "a sea of people to the point where [they] can't see or point out a face," the reason this stressor was impactful was similar to the reasoning of participant 42 where comfort and control played a significant role in performance. Participant 13 claimed that they performed negatively when in the presence of an authority figure due to the authority figures being able to, "control things." Other than comfort, many participants were influenced by past memories, whether positive or negative, when discussing their performance. According to participant 3, a large cause for their fear of authority figures has been due to negative experiences with teachers. This is also reflected in the responses of participant 38 who reported that, after taking AP Seminar, an advanced speech credit, in their sophomore year, they "had a horrible fear of public speaking." Contrastingly, participant 14 reported that having a great support system encouraged them to perform better academically. Through these interviews, it became clear that past experiences and comfort are significant when determining the stressors that impacted performance.

Though the results of the study provided various pieces that contributed to answering my research question, it is necessary to contextualize the information as part of the body of research.

Conclusion

Through the exploration of motivational and inhibitory stressors in adolescents, I aimed to verify the difference in the effects of stressors, identify common motivational and inhibitory stressors, and determine what caused the difference in the manifestation of stress. Although I was unable to identify stressors that were consistently motivational or inhibitory across participants, my survey found a significant difference in stressors that have a positive and negative impact on the behaviors and decision-making. Participant responses indicated that there was a noticeable difference between the perceived fear level and the actual quality of decisions made during a stressful performance. Moreover, the positive or negative aspects of stressors are largely impacted by the past experiences of participants and the comfort an individual feels when performing. This data verifies and furthers findings from Professors of Finance and Business at Wingate University who determined that there is a necessary stress level necessary to make rational decisions (Schwartz & Cuadros, 2017). By determining that certain stress levels lead to motivated decisions based on comfort level and positive past affirmations, I was able to find the causes of the phenomenon noted by Schwartz and Cuadros.

Limitations

Although I was able to identify common factors that influenced the manifestation of fear, my research did include a few drawbacks, specifically with the demographics of the participants. All the participants in my study were from Obra D. Tompkins High School, which introduced a potential bias in terms of the relevance of the data as it fails to apply to adolescents outside of the public education system and in less privileged schools. Furthermore, the demographic distribution of the participants was skewed with 28 females, 10 males, and 1 nonbinary participant. This is also reflected in the racial distribution with 27 Asian, 8 White, 2 Hispanic or Latino, and 1 Black/African American participants. Due to a large portion of data arriving from Asian women, the data collected in my research could have included more diversity which would have allowed for me to cross analyze the responses on individuals based on gender and race. This would have led to an increase in understanding trends of how cultural upbringing had an impact on the way stress manifested. Moreover, the questions on the survey were worded vaguely. This can be seen in questions that asked about the impact of a stressor but failed to mention whether it was a positive or negative impact. Although this was initially done to examine varying interpretations of the word "impact," this eventually led to misunderstandings during the survey as

individuals focused mainly on the negative stressors when given the word "impact." Overall, limitations in this study include the lack of diversity in the pool of participants and the phrasing of certain questions.

Implications

While limitations are present in the research, it is still necessary to note the uses of the findings and themes explored in this paper. Overall, the purpose of this research was to identify the elements that led to the manifestation of stress in a positive or negative manner to understand potential solutions to help stress motivate individuals rather than debilitate them. Through the trend of comfort and positive past affirmations improving performance and rational thinking in stressful situations, it becomes clear that there should be a focus on building positive and comfortable environments where individuals are able to perform well academically without their stress overwhelming them because environments were shown to be influential in determining stressors.

Future Directions

To further explore potential methods to increase comfort and determine the average optimal level of positive experiences necessary to improve performance, research on how the repetition of tasks impacts their performance could be beneficial to research. Moreover, understanding how comfort impacts the stress individuals experience can be found through research on the differences in brain activity that occurs based on the participant's perceived level of comfort. Through the investigation of the inner workings of stress and how stress can be optimized to maintain rational thought, we may be able to better understand how to manage our own stress and how to make meaningful, important decisions in stressful situations.

Acknowledgments

References

Arrindell, W. A., Emmelkamp, P. M., & Van der Ende, J. (1984). Phobic dimensions: Reliability and generalizability across samples, gender, nations. *Advances in Behavior Research and Therapy*, *6*(4), 207–254. https://doi.org/10.1016/0146-6402(84)90001-8

Ashworth, S., De Mesquita, E., & Friedenberg, A. (2018). Learning about voter rationality. *American Journal of Political Science, 62*(1), 37-54. http://www.jstor.org/stable/26598749

Bourgeois-Gironde, S. (2010). Regret and the rationality of choices. *Philosophical Transactions: Biological Sciences, 365*(1538), 249-257. http://www.jstor.org/stable/40538195

Chanel, O., & Chichilnisky, G. (2009). The influence of fear in decisions: Experimental evidence. *Journal of Risk and Uncertainty, 39*(3), 271-298. http://www.jstor.org/stable/41761402

De Castella, K., McGarty, C., & Musgrove, L. (2009). Fear appeals in political rhetoric about terrorism: An analysis of speeches by Australian Prime Minister Howard. *Political Psychology*, *30*(1), 1–26. http://www.jstor.org/stable/20447182

Gmelch, W. H. (1983). Stress for success: How to optimize your performance. *Theory Into Practice*, *22*(1), 7–14. http://www.jstor.org/stable/1476234

Lau, R., Andersen, D., & Redlawsk, D. (2008). An exploration of correct voting in recent U.S. Presidential Elections. *American Journal of Political Science, 52*(2), 395-411. http://www.jstor.org/stable/25193820

McDermott, R. (2004). The feeling of rationality: The meaning of neuroscientific advances for political science. *Perspectives on Politics,2*(4), 691-706. http://www.jstor.org/stable/3688538

Nicholson, S., & Howard, R. (2003). Framing support for the Supreme Court in the aftermath of Bush v. Gore. *The Journal of Politics, 65*(3), 676-695. https://doi.org/10.1111/1468-2508.00207

Roberts, G. H. (1989). Personal and academic stressors affecting developmental education students. *Research and Teaching in Developmental Education*, *5*(2), 39–53. http://www.jstor.org/stable/42801755

Roth, R. (2004). The rational analytical approach to decision-making: An adequate strategy for military commanders? *Connections, 3*(2), 71-92. http://www.jstor.org/stable/26323035

Rubin, P. (2001). How humans make political decisions. *Jurimetrics, 41*(3), 337-356. http://www.jstor.org/stable/29762709

Schwartz, L., & Cuadros, L. (2017). The effects of the environment on decision-making. *Journal of Financial Education, 43*(2), 223-242. https://www.jstor.org/stable/26573523

Yourman, J. (1939). Propaganda techniques within Nazi Germany. *The Journal of Educational Sociology,13*(3), 148-163. https://doi.org/10.2307/2262321