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Slippery Slope: How Individual Differences Predict Conspiratorial Thinking

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SLIPPERY SLOPE: HOW INDIVIDUAL DIFFERENCES PREDICT CONSPIRATORIAL THINKING

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ABSTRACT

This study examined the propensity to engage in conspiratorial thinking by probing factors previously identified as correlating with conspiratorial thinking, including analytical reasoning, attachment, personality, political affiliation, religious fundamentalism, and trust in science. English-speaking participants aged 18 years or older, not targeting any specific demographic, were recruited via various social media platforms to complete questionnaires, including a demographic questionnaire and scales which assessed measures of reasoning style, attachment, personality, political affiliation, religious fundamentalism, and trust in science. Based on the collected data, this study supported multiple hypotheses, including that individuals with high levels of negative emotionality, a conservative political affiliation, religious fundamentalism, and a lack of trust in science were more likely to endorse conspiracy theories. Significant predictors were assessed to account for variance in conspiratorial thinking, and trust in science accounted for the most variance in conspiratorial thinking. These findings add to the body of research examining the individual factors associated with conspiratorial thinking and suggest that improving trust in science may reduce the spread of conspiracy theories.

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LITERATURE REVIEW

In the United States, belief in the paranormal and pseudoscience is widespread, with studies showing that approximately 70-80% of the population believes in at least one type of paranormal occurrence (Dyer & Hall, 2019). Studies have additionally demonstrated that belief in the supernatural has been associated with endorsing conspiracy theories and science denial (Dyer & Hall, 2019; Federico et al., 2018). While belief in the paranormal and pseudoscience may provide individuals with a sense of meaning and understanding, it is crucial to examine the evidence for these claims critically.

Humans have an innate need to make sense of their surroundings and strange events that seem to lack explanation (van Prooijen & van Veugt, 2018). This need can cause individuals to attribute meaning to random events, regardless of the veracity of that meaning (Hampton, 2010). Conspiracy theories explain events when the given explanation is inadequate or there is no explanation (Drinkwater et al., 2020). Conspiracy theories often assume false explanations for events despite other causes being more probable and having a low threshold for evidentiary support for their explanations (Drinkwater et al., 2020).

Understanding the motivations behind belief in conspiracy theories and the potential predictors of such thinking is crucial to effectively reduce the prevalence of conspiracy theories and promote scientific literacy. This study explored the most commonly identified predictors to

determine the strongest predictor of conspiratorial thinking, including attachment, personality, analytical reasoning, trust in science, religious fundamentalism, and political affiliation. The findings from this study could contribute to a more informed and rational society by informing future interventions that aim to decrease the incidence of conspiracy theories.

Conspiracy theories have long been a topic of interest and debate, as they involve believing in covert operations and manipulating events by influential agents. The critical ingredients and characteristics of conspiracy theories are widely studied and discussed in literature. While there is no single accepted definition of conspiracy theory, the term broadly refers to the belief that powerful entities are secretly manipulating events to achieve malevolent goals, such as the usurpation of power, violation of rights, or concealing vital information (Drinkwater et al., 2020; Edelson et al., 2017; Kovic & Füchslin, 2018). While the subject matter varies greatly, conspiracy theories contain five critical ingredients (van Prooijen & van Vugt, 2018). First, conspiracy theories attempt to draw connections and make sense of the causal relationships between people, objects, or events: essentially establishing a pattern (van Prooijen & van Vugt, 2018). Second, conspiracy theories specify that the conspirators carry out their plans deliberately (van Prooijen & van Vugt, 2018). Third, the conspirators involved in the plot work in conjunction as members of a coalition or group (van Prooijen & van Vugt, 2018). Fourth, the conspirators' actions are commonly conceptualized as harmful or deceitful, implying a threat (van Prooijen & van Vugt, 2018). Finally, conspiracy theories are covert actions carried out by the conspirators, which makes the truthfulness of the conspiracy theories challenging to confirm or refute (van Prooijen & van Vugt, 2018). Conspiracy theories assume false and outlandish explanations for events despite other causes being more probable (Bensley & Lilienfield, 2020; Brotherton et al., 2013; Kovic & Füchslin, 2018). This does not mean all

conspiracy theories are wrong or false but require evidentiary support. However, the threshold for this evidence is often ambiguous, and the evidence provided is often disconfirming or points to a lack of evidence as support (Edelson et al., 2017). The very nature of conspiracy theory suggests secretive activity which would conceal evidence, making seemingly unrelated information explanatory (Edelson et al., 2017). While some conspiracy theories are relatively harmless and have little impact on society, others can have more significant effects.

Conspiracy theories can range from harmless to concerning, having far-reaching impacts on society. Some conspiracy theories are relatively innocuous, and belief in them has little impact on society, such as the belief that aliens built the pyramids (Dyer & Hall, 2019). Others circulate regarding pseudoscience and distrust in institutions, such as the belief that the moon landing was faked or condensation from jet streams are chemicals put into the air by the government to control society (Dyer & Hall, 2019; Oliver & Wood, 2014). Outside of pseudoscience, some conspiracy theories lean into science fiction, such as the belief that a race of lizard people from outer space occupy positions of power within the government (Bensley & Lilienfield, 2020). Many conspiracy theories involve the government, such as the United States government orchestrating the 9/11 terrorist attacks, and similarly suggest the British government had planted the bombs on 7/7 (Brotherton et al., 2013). Nearly one-third of all Americans believe Barack Obama ascended to the presidency unconstitutionally, a belief held as the “birther movement” endorsed by the Tea Party and arguably led by former president Donald Trump (Bond & Neville-Shepard, 2021; Dagnall et al., 2015). From beliefs about extraterrestrials to accusations of government control and cover-ups, the realm of conspiracy theories is vast and varied. Despite their differing subjects, the impact these theories can have on society cannot be ignored. The endorsement of conspiracy theories influences the perception of current and

historical events and lessens the trust in governmental and scientific institutions. This can cause a biased perception of events, and it can be challenging to dismiss these theories as they are not consistently disproven.

A hindrance to dismissing conspiracy theories is that they are not consistently disproven, such as the Watergate scandal, which began as a conspiracy theory that proved to be true. These exceptions bolster the beliefs held by conspiracy theorists, regardless of the strength of evidence available for any other theories (Drinkwater et al., 2020). However, even when conspiracy theories are proven true, this should not deter the importance of critically examining evidence and scrutinizing information. The endorsement of conspiracy theories can lead to a distorted perception of reality and undermine trust in a number of institutions (Drinkwater et al., 2020; Kovic & Füschlin, 2018). Previous research has also shown that the endorsement of conspiracy theories is associated with perceptual and attentional bias, influencing the assessment of current and historical events (Drinkwater et al., 2020; van Elk, 2015). Biased perception of events and a lack of trust in governmental and scientific institutions are especially concerning in high-impact scenarios where the consequences can be far-reaching and significant. While antivaccination theories have always abounded, in the face of a global pandemic, refusing safe and effective vaccinations contributed to the pandemic's length and lethality (Bensley & Lilienfield, 2020). The consequences of a lack of trust in governmental and scientific institutions were demonstrated during the COVID-19 pandemic, which resulted in the death of 94,640 unvaccinated individuals from April through December 2021 (Drinkwater et al., 2020; Kovic & Füschlin, 2018; Johnson, 2022). Despite the appeal of conspiracy theories to specific groups of individuals, it is essential to critically examine the evidence and scrutinize the information presented to maintain a healthy and functioning society. The endorsement of conspiracy theories

can lead to a distorted perception of reality and undermine trust in government and scientific institutions, potentially resulting in dire outcomes.

The belief in political conspiracy theories can have serious consequences, as evidenced by the events surrounding the 2020 United States Presidential election. Political conspiracy theories are common around elections, often alleging unsubstantiated election fraud by both parties (Bond & Neville-Shepard, 2021). These beliefs can contribute to the rise of political extremism. When this happens, there is a risk of violence as a result (Bond & Neville-Shepard, 2021). Hence, it is essential to understand the origin of these beliefs to mitigate the adverse consequences. (Bartlett & Miller, 2010) Following the election of Donald Trump, a theory emerged from the social network 4chan when a user named "Q Clearance Patriot" claimed to be a high-ranking military official who knew of an underground cabal of public figures who are bloodthirsty and waging war on the general public (Aliapoulios et al., 2021; Bond & Neville-Shepard, 2021). This belief evolved from a theory of the "deep state," and followers believe Donald Trump is the appointed savior leading the fight against the cabal (Aliapoulios et al., 2021; Bond & Neville-Shepard, 2021). While such a claim could be debunked as outrageous, this belief became deadly when adherents of the QAnon conspiracy committed sedition against the United States government by storming the Capitol building at the urging of Donald Trump to "stop the steal" of the 2020 election (Aliapoulios et al., 2021,;Bond & Neville-Shepard, 2021). This directly resulted in the deaths of four insurrectionists and one police officer at the Capitol, and four additional officers committed suicide following the attack (United States Congress, 2022). Understanding the origins and consequences of such political conspiracy theories is crucial in preventing their negative impacts on society. The adverse effects of political conspiracy theories extend far beyond the events of the 2020 United States Presidential election,

impacting public health and policy and exacerbating societal tensions in times of crisis and uncertainty.

The proliferation of conspiracy theories has been a concern in recent years, especially in the current climate of political, socioeconomic, and racial tensions that emerged while combatting a deadly global pandemic. Conspiratorial thinking has been associated with health risks, prejudice towards social groups, political extremism, and violence, and weakened support for public policies, including climate change and vaccinations (Walter & Drochon, 2020). Conspiracy theories prosper during times of crisis and uncertainty, as unprecedented events seem to occur more often (Gligorić et al., 2021; van Elk, 2015). Embracing these theories can have dire consequences for adherents, as referenced previously regarding the COVID-19 pandemic and the January 6 insurrection. These theories were perpetuated by government officials who legislated against vaccination mandates and vocalized against the legitimacy of the 2020 election (Bensley & Lilienfield, 2020). It is crucial to understand the motivations behind conspiracy theories and their potential impacts on society to prevent their detrimental effects and promote rational thinking. Therefore, it is vital to be aware of the proliferation of conspiracy theories and understand their motivations and the potential impacts they can have on society. However, providing access to contradicting information is not enough to counteract the influence of conspiracy theories (Agley & Xiao, 2021). It is essential to equip individuals with the critical thinking skills necessary to properly evaluate information and increase confidence in authoritative sources to combat the spread of dangerous conspiracy theories.

The accessibility of information in the digital age has made it easier for individuals to research events and phenomena. However, having access to information does not guarantee accurate understanding and evaluation of that information. With seemingly limitless information

being available for research, it would be easy to dismiss the threat of conspiracy theories by suggesting that research to the contrary exists (Agley & Xiao, 2021). However, data cannot be appropriately evaluated without the ability to utilize analytical reasoning, and poor data can bolster misbeliefs, resulting in distrust in scientific and political institutions (Agley & Xiao, 2021; Bensley & Lilienfield, 2020; Dagnall et al., 2015). Individuals must be willing to use analytical reasoning to properly evaluate information, such as the efficacy of vaccinations or the threat of a viral pandemic (Stanley et al., 2021). However, targeting specific misunderstandings regarding public policies, such as vaccinations, has proven unfruitful (Agley & Xiao, 2021). Therefore, research building confidence in authoritative sources is necessary to discourage dangerous conspiracy theories from flourishing (Browne et al., 2015). Conspiracy theories threaten self-interest, social good, global health, and the effectiveness of political and scientific institutions (Garrett & Weeks, 2017). Policymakers must be able to evaluate this data and understand the resistance of constituents to comply with directives from governmental institutions; therefore, more research is needed on adopting and adhering to misinformed beliefs (Agley & Xiao, 2021). The threat of conspiracy theories must not be dismissed, as they can significantly jeopardize society and the individuals within it. Understanding the motivations behind these beliefs and taking active steps to encourage rational thinking and deter the spread of false information is necessary.

The influence of conspiracy theories on society and the individuals who endorse them is a topic of increasing interest to researchers and the public alike. Despite the extensive research conducted on the topic of conspiracy beliefs, there is a lack of comparative work and examination of the impact of context on these beliefs. Previous research has been conducted to identify characteristics that explain conspiratorial thinking, such as personality traits,

sociodemographic factors, political ideology, religious and supernatural beliefs, media exposure, and politico-economic exclusion (Walter & Drochon, 2020). Studies have shown that conspiracy theories appeal to more narcissistic individuals, individuals who distrust institutions, and religious and political extremists (Bond & Neville-Shepard, 2021; Federico et al., 2018). While many facets of individual differences have been discussed in correlation with conspiracy beliefs, much of this work has only examined these beliefs in a single context (Walter & Drochon, 2020). However, despite the limitations of previous research, it is clear that conspiracy theories play a significant role in shaping people's perceptions and beliefs about events and their trust in institutions. Therefore, additional research is needed to explore the determinants of and consequences of general conspiratorial thinking and the psychological and personality constructs which predict conspiratorial endorsement (Walter & Drochon, 2020). To better grasp individuals who endorse conspiracy theories, this study examined the most commonly identified predictors of conspiratorial thinking, including analytical reasoning, attachment, personality type, political affiliation, religious fundamentalism, and trust in science, to determine the strongest predictor of conspiratorial thinking.

Analytical Reasoning

Analytical reasoning can override intuition and gut feelings to evaluate information critically (Pennycook et al., 2015). Reasoning failures and cognitive biases have been linked to endorsing conspiracy theories and a lack of skepticism toward supernatural beliefs (Bensley & Lilienfield, 2020; Pennycook et al., 2015). The dual-process theory of cognition posits reasoning is conducted either analytically or intuitively. Intuitive, Type 1 processes are heuristic and autonomous and performed without utilizing working memory. Type 1 intuitive reasoning can be seen in how the brain automatically categorizes objects based on appearance or characteristics.

For example, when an object that is round and red is encountered, it might be automatically categorized as an apple without conscious thought. This is because the brain has learned to associate certain shapes and colors with certain objects through experience and has developed an automatic system to perform this task efficiently without conscious effort. However, analytical, or Type 2 processes, require working memory and are deliberative (Calvillo et al., 2020; Pennycook et al., 2015). Type 2, analytical reasoning, can be seen in the process of making a decision or solving a complex problem. For example, when faced with the task of choosing between two different products, an individual might compare the features and benefits of each product and weigh the pros and cons before deciding which product to purchase. This type of reasoning requires working memory, as the individual must actively hold and manipulate information to decide. This type of deliberative reasoning is slower and more effortful than intuitive reasoning but allows for a more systematic and thorough evaluation of information. Failure to engage in Type 2 processes has been shown in previous studies to be associated with poor performance on analytical tasks (Calvillo et al., 2020; Pennycook et al., 2015). In contrast, engaging in Type 2 processes has been associated with a higher level of skepticism and a lack of readiness to ascribe meaning to nonsense (Pennycook et al., 2015; Stanley et al., 2021).

However, studies have shown no association between simple knowledge of scientific facts and skepticism, suggesting scientific knowledge is not a sufficient buffer against nonsensical misinformation (Dyer & Hall, 2019; Pennycook et al., 2015). Previous research has shown a correlation between conspiratorial beliefs and personality but not cognitive style (Browne et al., 2015). This may be interpreted as the inability or unwillingness to engage with and analyze information being more predictive of conspiratorial beliefs than a lack of capacity to analyze evidence critically (Browne et al., 2015). Individuals who are unwilling to critically

examine data presented are motivated to endorse conspiratorial thinking because they do not dig deeper to ferret out the truth of the claims offered (Calvillo et al., 2020; Pennycook et al., 2015; Stanley et al., 2021).

Attachment Style

Adult Attachment Theory was designed to explain individual differences in thoughts, feelings, and behaviors in close relationships in adulthood (Noftle & Shaver, 2006). The model of Adult Attachment Theory developed by Hazan and Shaver (1987) proposed that attachment patterns formed in infancy also emerge as attachment patterns during adulthood, describing how adults think, feel, and behave in romantic relationships (Hazan & Shaver, 1987). These adult attachment patterns were classified into secure, avoidant, and ambivalent attachment styles. The main goal of attachment is to alleviate anxiety and elicit a sense of security (Sroufe & Waters, 1977).

Secure attachment is characterized by the ease with which a person exhibits caring, intimacy, supportiveness, understanding, and dependence on their romantic partners (Noftle & Shaver, 2006). Previous research indicates that individuals with secure attachment tend to seek support from significant others and professional sources, such as teachers and counselors (Green & Douglas, 2018).

Avoidant attachment is characterized by fear of intimacy and discomfort with reliance on romantic partners (Noftle & Shaver, 2006). Additionally, avoidant individuals deny thoughts or feelings which imply dependence or vulnerability (Noftle & Shaver, 2006). In times of crisis, individuals with avoidant attachment styles adopt distancing coping strategies and cognitive disengagement to alleviate stress (Green & Douglas, 2018).

Ambivalent attachment is characterized by fixation, emotional instability, strong physical attraction, and seeking more intimacy with their partners (Hazan & Shaver, 1987; Noftle & Shaver, 2006). Due to a history of inconsistent reactions from attachment figures, ambivalently attached individuals need closeness in relationships. As a result, these individuals tend to overstate the urgency of threats to gain attention (Green & Douglas, 2018).

Previous research has shown that attachment influences how adults interact with others and their worldviews and political attitudes (Green & Douglas, 2018). Research has demonstrated that ambivalent and avoidant but not secure attachment styles positively correlate with conspiratorial beliefs (Green & Douglas, 2018). These individuals may be motivated to endorse conspiracy theories because doing so gives an explanation to events when the present explanation is inadequate, alleviating the stress of the unknown (Drinkwater et al., 2020; Sroufe & Waters, 1977). However, this research failed to control for mediating factors that have previously been associated with attachment and conspiracy beliefs, such as coping mechanisms or personality traits (Green & Douglas, 2018). Furthermore, much of this research has been unidirectional and failed to examine causality to strengthen conclusions regarding the association of attachment with conspiratorial beliefs (Green & Douglas, 2018).

Adult Attachment Theory is related to the endorsement of conspiracy theories in that it could explain why specific individuals may be more likely to endorse conspiracy theories than others (Drinkwater et al., 2020; Green & Douglas, 2018; Sroufe & Waters, 1977). Attachment style is a well-established psychological construct and can provide valuable insight into why some individuals are more prone to endorsing conspiracy theories (Drinkwater et al., 2020; Green & Douglas, 2018; Sroufe & Waters, 1977). Research has shown that individuals with ambivalent and avoidant attachment styles, characterized by emotional instability, fear of

intimacy, and discomfort with reliance on others, are more likely to endorse conspiracy theories than those with a secure attachment style (Green & Douglas, 2018). For example, individuals with ambivalent attachment may be motivated to endorse conspiracy theories because doing so gives them a sense of explanation and control over events when the present explanation is inadequate. On the other hand, individuals with avoidant attachment may adopt distancing coping strategies and cognitive disengagement in times of crisis and may be more likely to endorse conspiracy theories to avoid the stress of the unknown.

By understanding the relationship between attachment style and conspiracy theories, researchers can develop a more comprehensive understanding of why individuals endorse conspiracy theories and how this can be prevented or addressed (Drinkwater et al., 2020; Green & Douglas, 2018; Sroufe & Waters, 1977). Additionally, this information may be helpful for mental health professionals in working with individuals who endorse conspiracy theories, as it provides a framework for understanding their thought processes and motivations.

Big Five Personality Traits

The Big Five personality traits, also known as the Five-Factor Model, is a widely researched model of personality that identifies five broad dimensions of personality: openness to experience, conscientiousness, extraversion, agreeableness, and negative emotionality (Noftle & Shaver, 2006; Soto & John, 2017; Swami et al., 2010). The Big Five personality traits measure overarching personality traits, which examine individual differences between personalities (Noftle & Shaver, 2006; Soto & John, 2017; Swami et al., 2010). These traits represent individual personality differences at a broad, abstract level (Swami et al., 2010). Openness to experience refers to a person's imaginative, curious, and open-minded tendencies. Conscientiousness is a person's tendency to be responsible, organized, and reliable. Extraversion

refers to a person's tendency to be sociable and outgoing. Agreeableness refers to a person's tendency to be cooperative, compassionate, and empathetic toward others. Negative emotionality refers to a person's tendency to experience negative emotions such as anxiety, anger, and depression (Noftle & Shaver, 2006; Soto & John, 2017; Swami et al., 2010).

These traits are thought to be relatively stable across a person's lifetime and help to describe individual differences in personality and behavior. Previous research has shown that the Big Five personality traits correlate with adult attachment style in that ambivalent attachment was correlated with negative emotionality; avoidant attachment was related to agreeableness and extraversion, and both were moderately correlated with conscientiousness (Noftle & Shaver, 2006). In addition to the correlation with attachment, the Big Five personality trait of openness to experience positively correlates with conspiratorial belief (Goreis & Voracek, 2019). Additionally, research has shown agreeableness has been negatively correlated with conspiratorial beliefs (Swami et al., 2010).

However, due to much of this research being the result of null findings, further research on the associations between Big Five personality traits and conspiratorial beliefs is necessary (Swami et al., 2010). Additionally, examining the Big Five personality traits alone was not successful in predicting relationships in previous research and was found to be dependent on the attachment style of individuals to explain these individual differences (Noftle & Shaver, 2006).

The Big Five personality traits are related to endorsing conspiracy theories because they provide insight into individual differences in personality that may contribute to an individual's likelihood of endorsing conspiracy theories. Research has shown that the Big Five personality trait of openness to experience positively correlates with conspiratorial belief, as individuals with this trait are more likely to have an active imagination and intellectual curiosity and may be more

likely to seek out unusual ideas, including conspiracies (Goreis & Voracek, 2019; Noftle & Shaver, 2006). On the other hand, agreeableness has been negatively correlated with conspiratorial beliefs, as individuals with lower levels of agreeableness may be more suspicious of others and more likely to endorse conspiracy theories (Swami et al., 2010). These associations may highlight that individual personality differences may play a role in why some individuals are more prone to endorsing conspiracy theories than others. With the understanding that personality traits may play a role in why some individuals are more prone to endorsing conspiracy theories, it is also important to consider the influence of personal ideologies and belief structures, such as political affiliation, on an individual's likelihood of endorsing conspiracy theories. Utilizing insight into the relationship between personality traits and the endorsement of conspiracy theories, media, and political leaders could develop more effective strategies for engaging individuals on the potential risks and dangers of endorsing conspiracy theories and how to identify and counter misinformation.

Political Affiliation

Most commonly known conspiracy beliefs contain elements of political discourse (van Prooijen et al., 2015). However, research has shown it is not necessarily the direction of an individual's political leanings which influences the endorsement of conspiracy theory but the strength of their ideology (van Prooijen et al., 2015). Skepticism of science has been increasing throughout politically conservative circles, such as climate change, vaccinations, and epidemiological prevention methods (Azevedo & Jost, 2021). Conservatives are significantly more distrustful of the scientific community, and many believe the truth is politically constructed (Azevedo & Jost, 2021; Garrett & Weeks, 2017). While often disagreeing on policy, political opponents now increasingly disagree on fact and reality, prevailing a "fake news" theory

underscored by cognitive bias (Agley & Xiao, 2021; Calvillo et al., 2020). Partisan content reinforces partisan beliefs and presents information in a vacuum, with conservative media consumers showing an increase in the endorsement of conspiracy theories, particularly claims made by Donald Trump (Romer & Jamieson, 2021).

Conversely, far-left-leaning individuals tend to endorse statements supporting their ideologies as fact instead of beliefs (van der Linden et al., 2021). The extreme right of political ideology is right-wing authoritarianism (RWA), a belief structure in which obedience and respect to authority, adherence to socially conservative standards, and endorsement of oppressive social control are accepted (Altemeyer & Hunsberger, 2004). On the opposite extreme of the political ideology is left-wing authoritarianism (LWA), which opposes those beliefs (Altemeyer & Hunsberger, 2004; Costello et al., 2022). In both cases, the extremes of the political spectrum are ideologues, and as with any ideologist or fundamental belief, information which challenges the belief structure is dismissed (Altemeyer & Hunsberger, 2004; Pennycook et al., 2015; Stanley et al., 2021). Because conspiracy theories are often weaponized against an outgroup, those at extreme ends of the political spectrum may use conspiracy theory to attach malicious intent to the meaning of any actions counter to their ideology to gain the compliance of others (Bond & Neville-Shepard, 2021).

Previous research has shown that those associated with a conservative political ideology score higher on measures of cognitive rigidity, dogmatism, and threat sensitivity, which in line with other factors, would make them particularly susceptible to conspiratorial beliefs (van der Linden et al., 2021). However, previous research has also indicated no difference between extreme left and right political ideologies and the endorsement of conspiratorial beliefs (Ladini, 2021). Both extreme left and right ideologists are less trustful of governmental institutions (van

Prooijen et al., 2015). Previous research, however, has not considered mediators and moderators of this relationship, such as religious fundamentalism (van Prooijen et al., 2015).

Extreme political ideologies, such as right-wing authoritarianism and left-wing authoritarianism, can shape individuals' beliefs and attitudes toward religion, science, and the endorsement of conspiracy theories (van der Linden et al., 2021; van Prooijen et al., 2015). Because both extremes are characterized by a rigid adherence to beliefs and a tendency to dismiss information that challenges these beliefs, adherents are susceptible to conspiratorial beliefs, especially if they are used as a means of attacking an outgroup or reinforcing partisan beliefs (Altemeyer & Hunsberger, 2005; Bond & Neville-Shepard, 2021; Pennycook et al., 2015; Stanley et al., 2021). Examining extreme political affiliation in the context of conspiracy theories can delve into how political ideology can influence belief structures. While political affiliation may play a role in individuals' endorsement of conspiracy theories, other belief structures, such as religious fundamentalism, may also influence an individual's likelihood of endorsing such theories. Understanding the relationship could be used to develop interventions to reduce scientific mistrust and promote critical thinking.

Religious Fundamentalism

Religious fundamentalism has been defined as the belief that one set of religious teachings defines the ultimate truth about humanity and the deity. Additionally, fundamentalists believe malevolent forces oppose this essential truth, and this truth must be followed according to the unchangeable traditional doctrine (Altemeyer & Hunsberger, 2005; Henningsgaard and Arnau, 2008). Religious fundamentalism has been shown to impact perceptual processes and predict a rejection of science when presented information is not in line with religious beliefs (Dyer & Hall, 2019; Lobato & Zimmerman, 2019).

In religious fundamentalist and conspiratorial belief structures, reason is ascribed to seemingly random events to account for the unexplained (Ladini, 2021). Often, religious fundamentalists embrace dogmatic views, which are relatively unchangeable and give an unjustified certainty that no information or evidence could cause an individual to change their belief structure (Altemeyer & Hunsberger, 2005). Religious beliefs are considered intuitive and, therefore, a Type 1 process lacking analytical reasoning (Pennycook et al., 2015). The propensity to endorse conspiratorial thinking is motivated by the religious fundamentalists' attitudes toward authority and unchangeable beliefs, and possibly because in both religious fundamentalism and conspiracy theory, an all-powerful being is orchestrating events or hiding truth (Altemeyer & Hunsberger, 2004; Agley & Xiao, 2021; Costello et al., 2022).

Other studies have suggested that the relationship between religious fundamentalism and conspiratorial thinking is mediated by trust in political institutions (Agley & Xiao, 2021). Religion has been used throughout history to legitimize or suppress political regimes, and religious fundamentalism has been tied to patterns of attitudes and behaviors (Canetti, 2003). Despite previous studies, little has been examined regarding the relationship between religious fundamentalism and conspiratorial beliefs (Ladini, 2021).

Examining the relationships between religious fundamentalism and political extremism on scientific mistrust is essential in conspiracy theories because these factors can shape individuals' beliefs and attitudes toward science (Agley & Xiao, 2021; Canetti, 2003; Ladini, 2021). Both religious fundamentalism and political extremism can contribute to scientific mistrust, as individuals who hold these beliefs may be more likely to reject scientific evidence that contradicts their beliefs and seek out alternative explanations, such as conspiracy theories (Agley & Xiao, 2021; Canetti, 2003; Ladini, 2021). Given the relationships between religious

fundamentalism and political extremism with scientific mistrust and the potential for these beliefs to shape individuals' attitudes toward science, scientific literacy and trust in science becomes increasingly crucial in examining motivations for endorsing conspiracy theories.

Trust in Science

Assessing scientific evidence is critical in drawing evidence-based conclusions regarding everyday tasks (Drummond & Fischhoff, 2017). While it is tempting to suggest that knowledge of science acts as a barrier against belief in conspiracy theories, studies have shown that knowledge of scientific facts alone is insufficient (Dyer & Hall, 2019). Scientific literacy is the knowledge of scientific information and the ability to understand, analyze, and interpret the data presented (Dyer & Hall, 2019; Pennycook et al., 2015; Shahn, 1988). Studies have shown scientific information is only effective in promoting mandates if individuals can evaluate the information critically and trust the presented information. Trust in science is critical for understanding how individuals assess the information given to them, especially from competing narratives (Agley & Xiao, 2021). For individuals who cannot trust presented information on the basis that the data is coming from a powerful and potentially dubious group, there is a tendency toward conspiratorial beliefs to explain the agencies' motives (Dyer & Hall, 2019; Pennycook et al., 2015; Shahn, 1988). While previous research has examined this relationship, the need for replication and expansion of the information is critical to understanding the underpinnings of the mistrust in science (Agley & Xiao, 2021).

Additionally, previous research has yet to associate the Big Five personality traits with attitudes toward science (Browne et al., 2015). Previous research has separately shown the relationship between religious fundamentalism and political extremism on scientific mistrust;

however, studies have yet to examine the relationship between these factors (Azevedo & Jost, 2021; Garrett & Weeks, 2017).

Trust in science and scientists is an essential buffer against the endorsement of conspiracy theories because it helps individuals make informed decisions based on evidence-based information (Dyer & Hall, 2019; Pennycook et al., 2015; Shahn, 1988). When individuals trust the scientific community, they are more likely to rely on scientific evidence to form their beliefs and opinions rather than on misinformation or unproven theories. This can help prevent the spread of false information and promote critical thinking. Additionally, trust in science and scientists can serve as a barrier against the influence of powerful and potentially dubious groups who may spread false information or propaganda, a tenant of conspiratorial endorsement (Dyer & Hall, 2019; Pennycook et al., 2015; Shahn, 1988; van Prooijen & van Vugt, 2018). When individuals trust the scientific community, they are less likely to fall victim to misinformation or propaganda and are more likely to evaluate the information presented to them critically. Furthermore, trust in science and scientists is vital in promoting mandates, as it helps individuals understand the information and make informed decisions (Agley & Xiao, 2021). When individuals trust the scientific community, they are more likely to follow the recommendations and guidelines provided by scientists, which can help promote public health and safety and mitigate the negative impact of baseless conspiracy theories.

While previous research has demonstrated relationships between individual factors and the tendency to endorse conspiracy theories, clarification is needed on these associations, as well as an examination of the interrelationships of these factors as opposed to unilateral examination. The present study sought to examine these gaps in research on the individual differences in social and motivational factors associated with endorsing conspiracy theories and to clarify the

relationships between them. To address the need for a more comprehensive understanding of previously identified predictors of conspiratorial thinking, the present study developed the following hypotheses to test the associations between these predictors.

Hypothesis 1:

Previous research predicts that intuitive reasoning, as opposed to analytical reasoning, would be associated with higher levels of conspiratorial thinking (Bensley & Lilienfield, 2020; Pennycook et al., 2015). Studies have shown that analytical reasoning can override intuition and gut feelings to evaluate information critically, resulting in a more informed interpretation of evidence (Bensley & Lilienfield, 2020; Pennycook et al., 2015). Therefore, a lower reasoning ability has been linked to endorsing conspiracy theories. Therefore, this study anticipated that there would be a significant difference between analytical and intuitive reasoning styles and the endorsement of conspiracy and that intuitive reasoning styles would show a stronger relationship with conspiratorial thinking.

Hypothesis 2:

This study next examined adult attachment styles, anticipating a significant difference in different attachment styles and if those individuals endorse conspiratorial thinking. It was anticipated that securely attached individuals would be less likely to endorse conspiracy theories than ambivalently or avoidantly attached individuals. Previous research supports securely attached individuals seeking support from professional sources, such as teachers (Green & Douglas, 2018). Therefore, this tendency would suggest that these individuals seek and validate evidence from governmental institutions more frequently than less secure individuals. Conversely, avoidant individuals deny thoughts or feelings which imply vulnerability, while ambivalently attached individuals tend to overstate the threats' urgency to gain attention (Green

& Douglas, 2018). These characteristics would make less secure individuals more prone to accept events which would decrease feelings of insecurity and overstate the threat of events through exaggerated claims of causality.

Hypothesis 3:

While previous research is conflicting over which insecure type would most likely endorse conspiratorial thinking, this study anticipated ambivalently attached individuals would be more likely to endorse conspiracy. Previous research indicates that individuals with ambivalent attachment styles tend to exhibit fixation, emotional instability, strong physical attraction, and a need for closeness in relationships, which can lead to a need for explanations and a heightened sense of urgency in times of crisis (Green & Douglas, 2018; Hazan & Shaver, 1987). This can make them more susceptible to conspiratorial beliefs, as they may see conspiracy theories as a way to alleviate the stress of the unknown and provide an explanation for events when the present explanation is inadequate (Drinkwater et al., 2020). Additionally, previous research has shown that ambivalent and avoidant but not secure attachment styles positively correlate with conspiratorial beliefs (Green & Douglas, 2018). This supports the hypothesis that ambivalently attached individuals are more likely to endorse conspiracy theories, as they are more likely to seek out explanations for events and overstate the urgency of threats to gain attention (Green & Douglas, 2018).

Hypothesis 4:

This study also examined the Big Five personality inventory, anticipating that openness to experience would be positively correlated with conspiratorial beliefs and agreeableness would be negatively correlated with conspiratorial beliefs. Because openness to experience has been categorized as having an active imagination and intellectual curiosity, these individuals seek out

unusual ideas, such as those represented in conspiratorial beliefs (Goreis & Voracek, 2019; Noftle & Shaver, 2006). Additionally, people who score low on agreeableness demonstrate a suspicion of others which would likely contribute to conspiratorial thinking (Swami et al., 2010).

Hypothesis 5:

As for political affiliation, both extreme left and right ideologists are less trustful of governmental institutions (Dyer & Hall, 2019; Lobato & Zimmerman, 2019; van Prooijen et al., 2015). This rejection and distrust of information lessen the capability to assess evidence, resulting in a higher instance of conspiratorial thinking. Therefore, this study anticipated that extreme political affiliation would be associated with higher levels of conspiratorial thinking regardless of the direction of political affiliation.

Hypothesis 6:

This study hypothesized that religious fundamentalism would be positively correlated with conspiratorial thinking. Religious fundamentalism has been shown to predict a rejection of science when the information presented is not in line with religious beliefs (Dyer & Hall, 2019; Lobato & Zimmerman, 2019). Religious fundamentalism has also been characterized by Type I, or intuitive thought processes, which previous research suggests are more likely to be associated with endorsing conspiracy theories (Pennycook et al., 2015).

Hypothesis 7:

In comparison, lower levels of trust in science would be associated with higher conspiratorial thinking. Previous research has shown that assessing scientific evidence is critical in drawing evidence-based conclusions regarding everyday tasks, which could refute the imaginative claims of conspiracy beliefs (Drummond & Fischhoff, 2017). Additionally, previous research has shown scientific information is only effective in promoting mandates if individuals

can evaluate the information critically, and trust in the presented information is critical to complete this process (Agley & Xiao, 2021), suggesting lower levels of trust in science would influence conspiratorial thinking.

Hypothesis 8:

Finally, because it strongly correlates with all other predicted variables, this study predicted that trust in science would be most strongly predictive of conspiratorial thinking. Analytical reasoning cannot be completed without scientific trust (Bensley & Lilienfield, 2020; Pennycook et al., 2015). Religious fundamentalism would reject science if the data presented did not align with an individual's particular ideologies (Dyer & Hall, 2019; Lobato & Zimmerman, 2019). Political extremism has been associated with a distrust of governmental institutions, which regularly present scientific data to inform the general public (Dyer & Hall, 2019; van Prooijen et al., 2015). Therefore, it is evident that trust in science plays a crucial role in determining an individual's beliefs and attitudes towards scientific information and theories, making it a key predictor of conspiratorial thinking.

CHAPTER 2

METHODS

Participants

Participants were recruited via a link to the study posted on various social media platforms. Individuals were 18 years of age or older and spoke English. This study was not intended to target any particular demographic set. Participation in the survey was voluntary, and each participant was required to give informed consent to participate (See Appendix A). A total of 292 participants responded, with 225 responses utilized in the data analyses. 66 (23%) participant responses were removed due to a failure to respond to the Cognitive Reasoning Test, which was utilized as a response validity check. Additionally, 1 (.003%) participant response was removed due to reporting to be 15 years old. Table 1 reports the frequencies of each demographic variable. The participants ranged in age from 18 – 77 years, with the mean age of participants being 40.78 years (SD = 14.25). Figure 1 is a histogram of participants' ages. Of the participants, 92.9% (209) were white. Due to the small number of respondents who were not white, any respondent who responded as an ethnicity other than "White" were recoded to the response "Other" to avoid skewing the data. Female respondents comprised 61.8% (n = 139) of the respondents, and males 32.9% (n = 74). Due to the small number of responses other than "male" or "female," all different responses were recoded to "other" to avoid skewing the data. Respondents were predominantly Heterosexuals (n = 172, 76%) who were Married (n = 105,

47%), possessed a 4-year degree (n = 77, 34%), and had an annual income of $100,000-$149,999 (n = 36, 16%). Regarding media consumption, respondents spent 2-3 hours on social media daily (n = 94, 39%) and watched less than an hour of news each day (n = 122, 54%).

Design

Procedure

The present study utilized survey research to collect data. Participants were recruited through social media websites, including Facebook, Twitter, and Reddit, and were required to be 18 years of age or older and fluent in English. The survey consisted of 454 questions and was designed using Qualtrics, a secure and reliable web-based survey platform (Qualtrics, 2022). Participants were provided with an anonymous link to the survey. Data were collected and stored securely on Qualtrics servers. Participants were presented with an informed consent form before beginning the survey, which they were asked to read and sign if they agreed to participate. Please see Appendix A for the Informed Consent in its entirety. Participants were first presented with a demographic questionnaire to gather information about the characteristics and traits of a sample population. See Appendix B for the demographic questionnaire in its entirety. Following the demographic questionnaire, participants answered a questionnaire examining personality as measured by the Big Five Personality inventory. Please see Appendix C for the Big Five Personality inventory in its entirety. The Big Five Personality inventory was followed by a questionnaire examining participants' trust in science and scientists as measured by the Trust in Science and Scientists inventory. Please see Appendix D for this scale in its entirety. The participants next answered questions regarding political affiliation as measured by the Social and Economic Conservatism scale. Please see Appendix E for the Social and Economic Conservatism scale in its entirety.

Participants were then presented with a series of questions to measure religious fundamentalism as measured by the revised version of Altemeyer and Hunsberger's original Religious Fundamentalism scale. Please see Appendix F for the Religious Fundamentalism scale in its entirety. The survey next presented questions assessing participants' attachment style, as measured by the RQ3. Please see Appendix G for the RQ3 in its entirety. Participants then answered questions regarding the endorsement of conspiracy theories measured by the Generic Conspiracist Belief scale. Please see Appendix H for this scale in its entirety. Finally, participants were presented with questions to assess analytical reasoning as measured by the Cognitive Reflection Test. Please see Appendix I for the Cognitive Reflection Test in its entirety.

After finishing the questionnaires, participants were provided with a debriefing form to ensure that they had a complete understanding of the study and to address any concerns or questions. Please see Appendix J for the debriefing form in its entirety.

Data Analysis

Descriptive statistics for the demographic variables were run, as was a factorial ANOVA, to assess any significant group differences in the demographic data, attachment style, or reasoning style. This was conducted to identify any potential third variable confounds. The independent variables and levels were as follows: Ethnicity ("White", "Other"), gender identity ("Male", "Female", "Other"), sexual orientation ("Heterosexual", "Bisexual", "Homosexual", "Other", "Prefer not to say"), relationship status ("Married", "Divorced", "Never Married", "Other", "Separated", "Widowed"), education ("Less than high school", "High school graduate", "some college", "2 year degree", "4 year degree", "Professional Degree/Certificate", "Doctorate"), income ("Less than $10,000", "$10,000 - $19,999", "$20,000 - $29,999", "$30,000 - $39,999", "$40,000 - $49,999", "$50,000 - $59,999", "$60,000 - $69,999", "$70,000 -

$79,999", "$80,000 - $89,999", "$90,000 - $99,999", "$100,000 - $149,999", "More than $150,000"), social media use ("Less than an hour", "1-2 hours", "2-3 hours", "4-6 hours", "More than 6 hours"), news consumption ("Less than an hour", "1-2 hours", "2-3 hours", "4-6 hours", "More than 6 hours"), attachment style (“Secure”, “Anxious”, “Ambivalent”), and reasoning style (“Analytical”, “Intuitive”). The dependent variable was conspiracy as measured by the Generic Conspiracist Belief Scale, with scores ranging from 1 – 5, with a mean score of 2.78 (*SD* = .86).

Zero-order correlational analyses were run (between the predictors of attachment, personality, analytical reasoning, trust in science, religious fundamentalism, and extreme political affiliation, and the outcome of conspiratorial thinking) to determine the strength and direction of the relationship between the predictor variables and the outcome variable. These correlations provide insight into the relationship between variables to determine which variables have the strongest association with conspiratorial thinking. Then, hierarchical multiple regression analyses were conducted to examine the extent to which predictor variables predict the endorsement of conspiracy theories after controlling for any significant group differences in the demographic data, attachment style, or reasoning style as determined by the ANOVA.

The predictor variables were attachment as measured by the RQ3; personality as measured by the Big Five Inventory; analytical reasoning as measured by the Cognitive Reflection Test; trust in science as measured by the Trust in Science and Scientists Inventory; Religious fundamentalism as measured by the revised version of Altemeyer and Hunsberger’s original Religious Fundamentalism scale; and political affiliation as measured by the Social and Economic Conservatism scale. The outcome variable was the endorsement of conspiracy theories measured by the Generic Conspiracist Belief scale.

Materials

Demographic Questionnaire

Participants were administered a demographic survey that inquired about the participants' age, ethnicity, gender identity, sexual orientation, current relationship status, highest level of education, annual household income, country of origin, country of current residence, social media usage, news consumption, and preferred news source. The scales were presented as follows: Big Five Inventory-2, Trust in Science and Scientists Inventory, the 12-Item Social and Economic Conservatism Scale, the revised version of Altemeyer and Hunsberger's original Religious Fundamentalism Scale, the Relationship Questionnaire Three-Category Measure, General Conspiracy Belief Scale, and the Cognitive Reflection Test. Please see Appendix A for the demographic questionnaire in its entirety.

Informed Consent

Participants were presented with an informed consent form before beginning the study. The informed consent form explained the study's purpose, procedures, and potential risks and benefits. Participants were informed that their participation was voluntary and that they could withdraw from the study at any time without penalty. The informed consent form also explained the confidentiality and anonymity of their responses and the data storage and disposal procedures. Participants were asked to read the informed consent form carefully and sign it if they agreed to participate in the study. Please see Appendix B for the informed consent in its entirety.

Big Five Inventory-2

Personality was measured utilizing the Big Five Inventory-2 (BFI-2) (Soto & John, 2017). This scale is a 60-item questionnaire that measures five overarching personality traits

which examine individual differences between personalities. Responses to the items are on a five-point Likert scale, with anchors being one *strongly disagree* to five *strongly agree*. The outcome measure of the BFI-2 is personality trait, and individuals are measured on each of five domains (negative emotionality, extraversion, openness to experience, agreeableness, and conscientiousness). Evidence from the literature supports the reliability of the subscales (Cronbach α for Alphas was .82 for Agreeableness and .82 for Open-Mindedness) and validity (Soto & John, 2017). See Appendix C for this measure in its entirety.

Trust in Science and Scientists Inventory

Trust in science was measured using the Trust in Science and Scientists Inventory (Nadelson et al., 2014). This scale is a 21-item questionnaire that measures trust in science and scientists. Responses to the items are on a five-point Likert scale, with anchors being one *strongly disagree* to five *strongly agree*. The outcome measure of the Trust in Science and Scientists Inventory is trust in science and scientists. The respondents' total score on the scale is assessed with a higher score indicating greater trust in science and scientists and a lower score indicating less trust. Evidence from the literature supports the reliability and validity of the scale (Cronbach $\alpha = 0.86$) (Nadelson et al., 2014). Please see Appendix D for this measure in its entirety. Respondents' answers were scored based on directions from the scale, and scores were then meaned.

Social and Economic Conservatism Scale

Political affiliation was measured utilizing the Social and Economic Conservatism Scale (Everett, 2013). This scale is a 12-item questionnaire that measures Conservatism. On this scale, participants rate how positive or negative they feel about different policy issues on a feeling scale, with anchors being zero *negative* to 100 *positive.* The outcome measure of the Social and

Economic Conservatism Scale is social conservatism, economic conservatism, and general conservatism. Social conservatism is a political ideology that emphasizes traditional social values related to family, religion, and morality. Social conservatives generally support traditional gender roles, opposition to same-sex marriage and abortion, and the promotion of traditional religious values (Everett, 2013). Economic conservatism is a political ideology that emphasizes free market principles, such as limited government intervention in the economy and a belief in the efficiency of markets. Economic conservatives support policies promoting individual initiative, free enterprise, and private property rights, and they generally oppose government regulation and economic intervention (Everett, 2013).

Respondents' answers were scored based on directions from the scale, and scores were then meaned for each of the domains of social conservatism, economic conservatism, and an overall conservatism score. The score of general conservatism is an overall score on the scale, ignoring the domains. The respondents' scores on the scale of each domain and the total score were assessed. Higher scores indicated greater conservatism respective to each domain, and lower scores indicated lower levels of conservatism. Evidence from the literature supports the reliability and validity of the scale (Cronbach $\alpha = 0.92$ to .96) (Everett, 2013). Please see Appendix E for this measure in its entirety.

Religious Fundamentalism Scale

Religious fundamentalism was measured utilizing the revised version of Altemeyer and Hunsberger's original Religious Fundamentalism Scale (Altemeyer & Hunsberger, 2004). This scale is a unidimensional 12-item questionnaire that measures attitudes about religious beliefs. Responses to the items are on a nine-point frequency scale, with anchors being negative four *very strongly disagree* to positive four *very strongly agree*. The outcome measure of the

Religious Fundamentalism Scale is religious fundamentalism. The respondents' total score on the scale was assessed, with a higher score indicating greater religious fundamentalism and a lower score indicating less religious fundamentalism. Evidence from the literature supports the reliability and validity of the scale (Cronbach $\alpha > 0.90$) (Altmeyer & Hunsberger, 2004). Please see Appendix F for this measure in its entirety. Respondents' answers were scored based on directions from the scale, and scores were then meaned. The higher the respondent's score on this scale indicated a more fundamental belief in one true religion.

Relationship Questionnaire Three-Category Measure

Attachment style was measured utilizing the Relationship Questionnaire Three-Category Measure (RQ3) (Hazan and Shaver, 1989). This scale is a 3-item questionnaire that measures adult attachment style (avoidant, ambivalent, secure). Responses to the items are a single-point alternative, selecting which item best describes how the participant feels in a romantic relationship. The outcome measure of the RQ3 is attachment style, and individuals are classified into one of three attachment styles (avoidant, ambivalent, secure). Hazan & Shaver, 1987, report the reliability and validity of the scale (Cronbach α from .72 to .96). See Appendix G for this measure in its entirety.

Generic Conspiracist Belief Scale

Endorsement of conspiracy theories was measured utilizing Generic Conspiracist Belief Scale (Brotherton et al., 2013). This scale is a 15-item questionnaire that measures individual differences in generic conspiracist ideation. Responses to the items are on a five-point Likert scale, with anchors being one *strongly disagree* to five *strongly agree*. The outcome measure of the Generic Conspiracist Belief Scale is conspiracist beliefs, with a higher score indicating greater endorsement of conspiracist beliefs and a lower score indicating less endorsement of

conspiracist beliefs. Evidence from the literature supports the internal reliability, content, criterion-related, convergent and discriminant validity, and test-retest reliability of the scale (Brotherton et al., 2013). Please see Appendix H for this measure in its entirety. Respondents' answers were scored based on directions from the scale, and scores were then meaned.

Cognitive Reflection Test

Analytical reasoning was measured by utilizing the Cognitive Reflection Test (Frederick, 2005). This scale is a 3-item questionnaire that measures the tendency to override a prepotent incorrect response alternative to engage in further reflection, leading to the correct response. The outcome measure of the CRT is cognitive reflection, measured by the number of correct answers an individual provides, with a higher score indicating a greater ability to engage in analytical reasoning and a lower score indicating intuitive thinking. Evidence from the literature supports the reliability of the scale (Cronbach $\alpha = 0.72$) and validity (Frederick, 2005). See Appendix I for this measure in its entirety. Answers to each of the three items were scored 1 – Analytical, 2 – Intuitive, and 3 – Incorrect. If greater than 50% of a respondent's answers were Analytical, the respondent was recorded as Analytical. If greater than 50% of a respondent's answers were Intuitive, the respondent was recorded as Intuitive. This questionnaire also served as a response validity check to ensure that participants were answering questions accurately. If greater than 50% of the respondent's responses were incorrect or missing, the respondent's data was not included in further analysis.

CHAPTER 3

RESULTS

Data analyses were performed using RStudio (Version 2022.12.0, Build 353, R Core Team, 2022). A multiple regression power calculation was conducted using the "pwr.f2.test" command from the "pwr" package version 1.3-2 (Hothorn et al., 2020). The calculation was conducted with 225 degrees of freedom based on the lowest complete sample size, a .35 effect size, and a probability level of .05. Based on this sample size, the analyses conducted had a power statistic of .99.

Table 1 reports the frequencies of each demographic variable. Means and standard deviations were calculated for each predictor variable, including each domain of the Big Five Personality inventory, trust in science, religious fundamentalism, conservatism, social conservatism, economic conservatism, and conspiracy beliefs. Summary statistics for each variable are reported in Table 3.

In order to test hypotheses 1, 2, and 3, an analysis of variance (ANOVA) was conducted between group scores on the measure of conspiracy. Groups included in the analysis were ethnicity, gender identity, sexual orientation, relationship status, education, income, social media use, news consumption, attachment style, and reasoning style. The results of the ANOVA found no significant difference between group membership regarding endorsement of conspiracy theories. Because no significant difference was found between reasoning styles and the

endorsement of conspiracy theories ($F(1, 223) = .14$, $p = .71$), this study was unable to support hypothesis 1, which stated that individuals who utilize intuitive reasoning style would be more likely to endorse conspiracy theories. Initially, attachment style was found to have a statistically significant main effect on conspiratorial endorsement ($F(2, 223) = 3.14$, $p = .046$), and therefore post hoc analyses were conducted to probe this finding. Results from the ANOVA are reported in Table 2.

Upon conducting a post hoc analysis utilizing Tukey's honestly significant difference, it was found that there were no statistically significant differences within groups regarding attachment style. Utilizing Tukey multiple comparison of means, there was no significant difference between secure and avoidant attachment styles (p=0.09), ambivalent and avoidant attachment styles (p=.0.92), or ambivalent and secure attachment (p=0.69) in endorsing conspiracy theories. Therefore, attachment style was not included in subsequent analyses. This information does not support hypotheses 2 or 3, which state that individuals with ambivalent attachment styles endorse conspiratorial thinking more frequently than those with secure attachment styles.

Hypotheses 4, 5, 6 and 7 were tested by zero-order correlational analyses which were conducted to assess support of correlations between attachment, personality, analytical reasoning, trust in science, religious fundamentalism, and political affiliation, as well as to identify any issues regarding multicollinearity. Please refer to Table 4 for a full table of correlations. The results show that there is a moderate positive correlation between religious fundamentalism and conspiratorial thinking ($r(225) = .19$, $p = .004$) and between negative emotionality and conspiratorial thinking ($r(225) = .21$, $p < .001$). The results show a moderate positive correlation between conservatism and conspiratorial thinking ($r(225) = .24$, $p < .001$).

The results indicate that trust in science is negatively correlated with conservatism ($r(225) = -.55$, $p < .001$), and religious fundamentalism ($r(225) = -.45$, $p < .001$), and conspiratorial thinking ($r(225) = -.51$, $p < .001$). These results did not support Hypothesis 4. However, there was a significant finding from the Big Five personality traits. Of the Big Five personality traits, negative emotionality significantly positively correlated with conspiracy, $r(225) = .21$, $p = .001$. This correlation means that as negative emotionality increases, so does the endorsement of conspiracy theories. Figure 2A displays a visual graphic of this relationship.

Hypothesis 5 stated that extreme political affiliation would positively correlate with conspiratorial thinking, whether conservative or liberal. A quadratic regression model was used to examine the relationship between conservatism and conspiracy. The model was statistically significant, $F(2, 222) = 6.862$, $p = 0.001$, with an R^2 value of 0.05822, though conservatism ($\beta = 0.01$, $p = 0.660$) and the quadratic ($\beta = 3.58e\text{-}05$, $p = 0.764$) were not significant predictors of conspiracy. However, a statistically significant linear positive correlation was found between social conservatism and conspiracy ($r(225) = .22$, $p < .001$) and an overall measure of conservatism ($r(225) = .24$, $p < .001$). Because social conservatism and conservatism also had a significant correlation ($r(225) = .94$, $p = .005$), only an overall measure of conservatism was utilized in further analyses to avoid issues with multicollinearity.

Hypothesis 6 stated that religious fundamentalism would be positively correlated with conspiratorial thinking. This hypothesis was supported by data analyses, which showed a significant positive correlation between religious fundamentalism and conspiracy endorsement, $r(225) = .19$, $p = .004$. The more an individual adheres to the belief that there is one true religion, the more likely they are to endorse conspiracy theories. Figure 2D displays a visual graphic of this relationship.

Hypothesis 7 was the final hypothesis tested utilizing correlation data. This hypothesis stated that trust in science would negatively correlate with conspiratorial thinking. Analyses found a strong negative correlation between trust in science and scientists and conspiratorial thinking, r (225) = -.51, p < 001. The less an individual trusts in science and scientists, the more likely they are to endorse conspiratorial thinking. Figure 2B displays a visual graphic of this relationship.

Before conducting hierarchical multiple regression analyses, relevant assumptions were tested for the statistical analyses. A multiple regression power calculation was conducted using the "pwr.f2.test" command from the "pwr" package version 1.3-2 (Hothorn et al., 2020). The calculation was conducted with 225 degrees of freedom based on the lowest complete sample size, a .35 effect size, and a probability level of .05. Based on this sample size, the analyses conducted had a power statistic of .99, which is adequate power for assessing a model with five independent variables (Tabachnick & Fidell, 2001). The assumption of linearity was tested by constructing scatterplots of the relationship between each of the predictor variables selected for analysis (religious fundamentalism, negative emotionality, conservatism, and trust in science) and the outcome variable (conspiracy; See Figures 2 for scatterplots). For each variable, the relationship appeared linear, with approximately equal variance across the range of each predictor variable. Therefore, the assumption of linearity was met. To test for the assumption of homoscedasticity, the Breusch-Pagan test for heteroscedasticity was utilized by using the command "bptest" from the "lmtest" package version 0.9-37 in R (Zeileis et al., 2008). The calculated p-value was .04, leading to the conclusion that there is evidence of heteroscedasticity in the model, meeting the assumption of homoscedasticity. Residual plots for each predictor variable were assessed to test the assumption of errors (See Figures 3A-3D for residual plots).

Residuals for each predictor variable appeared randomly distributed and did not show any systematic pattern. Therefore, the assumption of errors was met. The assumption of collinearity was not met utilizing all significant variables correlating with conspiracy. Due to the multicollinearity of social and economic conservatism, only the variable of overall conservatism was utilized in further analyses. By removing social and economic conservatism as predictor variables, the assumption of collinearity was satisfied for the independent variables of religious fundamentalism, negative emotionality, conservatism, and trust in science. All collinearity statistics (i.e., Tolerance and VIF) were in an acceptable range. Therefore, hierarchical multiple regression was conducted.

A four-stage hierarchical multiple regression analysis was conducted with conspiracy as the dependent variable to test the amount of variance accounted for by each predictor and the model as a whole. The order of running the four-stage regression model was predetermined based on theoretical considerations. The goal was to add factors individually, from weakest to strongest relationship, to better understand how each variable contributes to the outcome without the influence of other variables. This approach allowed for an examination of the unique contribution of each variable to the overall model. Moreover, the staged model ensured that the variables were added in a systematic and controlled manner, reducing the chances of multicollinearity and overfitting. To determine which variables were utilized in these analyses, a priori significance was determined based on the ANOVA mentioned above conducted on grouping variables (ethnicity, gender identity, sexual orientation, relationship status, education, income, social media use, news consumption, attachment style, and reasoning style). The ANOVA found that there were no significant grouping variables to control for. Hence, the order of the predictor variables was determined by the significant correlations from the zero-order

correlation analysis. The predictor variables were selected based on their significant relationship with the outcome variable of conspiracy. The regression analysis was conducted hierarchically, with the predictor variables entered one at a time, starting with the weakest relationship, as measured by the lowest correlation coefficient, to the strongest relationship. The predictor variables in the order of weakest to the strongest relationship were religious fundamentalism, negative emotionality, conservatism, and trust in science.

The first regression was conducted regressing conspiracy on religious fundamentalism. Results indicated that religious fundamentalism was an independent predictor of conspiratorial endorsement (B = .08, SE = .03, p = .004). Religious fundamentalism accounted for 3% of the variance in conspiratorial endorsement (Adjusted R^2 = .03, $F(1, 222) = 8.62$, p = .004).

The second regression added the Big Five personality trait of Negative Emotionality. Results indicated that negative emotionality was an independent predictor of conspiratorial endorsement (B = .22, SE = .06, $p < .001$). This model accounted for 8% of the total variance in conspiratorial endorsement (Adjusted R^2 = .08, $F(2, 221) = 10.37$, $p < .001$). The change in R^2 was .05, meaning that negative emotionality accounted for an additional 5% of the variance in conspiratorial endorsement.

The third regression was conducted by adding conservatism to the model. An overall conservatism score was utilized as opposed to the social or economic domains because the entire variable was more strongly correlated with conspiratorial thinking than either of the domains individually. Therefore, social and economic conservatism were omitted from the regression analysis despite being significantly correlated with conspiratorial thinking to avoid multicollinearity issues. Results indicated that conservatism was a significant independent predictor of conspiratorial endorsement (B = .01, SE = .003, p = .001). In this model, religion

was no longer a significant predictor of conspiratorial thinking. This could result from the correlation between conservatism and religious fundamentalism, r(225) = .58, p < .001. While the relationship is not strong enough to present multicollinearity issues, the relationship may still reduce religious fundamentalism's significance in this model. The addition of conservatism to the model accounted for additional variance in conspiratorial endorsement, suggesting that it is a stronger predictor than religious fundamentalism in this context. Further analysis is necessary to determine the exact reason for the reduction in the significance of religion in this model. This model accounted for 12% of the total variance in conspiratorial endorsement (Adjusted R^2 = .12, $F(3, 220) = 11.47$, $p < .001$). The change in R^2 was .04, meaning that conservatism accounted for an additional 4% of the variance in conspiratorial endorsement.

Finally, the fourth regression added trust in science to the model. Results indicated that trust in science was a significant independent predictor of conspiratorial endorsement (B = -.63, SE = .09, $p < .001$). In this model, neither religious fundamentalism nor conservatism were significant predictors of conspiratorial thinking. This could be a result of the multicollinearity of conservatism and religious fundamentalism, $r(225) = .58$, $p < .001$, as well as the negative relationship between trust in science and conservatism [$r(225) = -.55$, $p < .001$], and trust in science and religious fundamentalism [$r(225) = -.45$, $p < .001$.] This model accounted for 28% of the total variance in conspiratorial endorsement (Adjusted R^2 = .28, $F(4, 219) = 23.11$, $p < .001$). The change in R^2 was .16, meaning that trust in science accounted for an additional 16% of the variance in conspiratorial endorsement.

An ANOVA was conducted to probe whether each step of the hierarchical model significantly increased the explanation of the model's complexity as a whole. Based on the results of this analysis, Model 2 (conspiracy~religious fundamentalism) had a significant effect

on conspiratorial endorsement, $F(1, 222) = 11.63$, $p = .001$. Model 3 (conspiracy~religious fundamentalism + negative emotionality) also had a significant effect on conspiratorial endorsement, $F(1, 221) = 15.09$, $p < .001$. Model 4 (conspiracy~religious fundamentalism + negative emotionality + conservatism) also had a significant effect on conspiratorial endorsement, $F(1, 220) = 15.39$, $p < .001$. Model 5 (conspiracy~religious fundamentalism + negative emotionality + conservatism + trust in science) also had a significant effect on conspiratorial endorsement, $F(1, 219) = 50.33$, $p < .001$. Therefore, it can be concluded that trust in science is the most significant predictor of conspiratorial endorsement of the predictor variables examined, supporting Hypothesis 8. The results of the hierarchical multiple regression analysis are reported in Table 5.

CHAPTER 4

DISCUSSION

The impact of conspiracy theories on society is significant, as they can shape people's perceptions, beliefs, and trust in institutions. This study aimed to explore the factors that contribute to conspiratorial thinking, including analytical reasoning, attachment, personality, political affiliation, religious fundamentalism, and trust in science. While previous research has shown a correlation between conspiratorial beliefs and many of the variables examined in this study, this study examines many previously identified gaps within that research and examines the variables outside of a unilateral analysis.

This study found that individuals with high levels of negative emotionality, a conservative political affiliation, religious fundamentalism, and a lack of trust in science were more likely to endorse conspiracy theories. The findings showed that a lack of trust in science was the strongest predictor of conspiratorial thinking. This research contributes to a better understanding of the motivations behind conspiracy theories and the potential predictors of such thinking, which could help reduce their prevalence and promote scientific literacy.

The findings from this study could inform future interventions aimed at decreasing the incidence of conspiracy theories and promoting rational thinking and increasing public trust. By improving the trust between scientific, government, and political institutions and the public, it may be possible to increase public support for evidence-based policies, improve the

responsiveness of these institutions to the needs of the public, and enhance the quality of public discourse.

Analytical Reasoning

This study hypothesized that there would be a significant difference between intuitive and analytical reasoning regarding conspiratorial endorsement. The results of this study did not support the hypothesis, as no significant difference was found between intuitive and analytical reasoning regarding conspiratorial endorsement. These findings raise questions about the relationship between reasoning style, cognitive biases, and conspiratorial thinking. The relationship between analytical reasoning and skepticism has previously been shown, but this relationship may not be straightforward and can be influenced by various factors, including background, experiences, and beliefs (Bensley & Lilienfield, 2020; Dyer & Hall, 2019; Pennycook et al., 2015; Stanley et al., 2021).

Previous research has shown that engaging in analytical reasoning has been associated with a higher level of skepticism, which could result in individuals being skeptical of science and data, not just conspiracy theories (Pennycook et al., 2015; Stanley et al., 2021). If individuals were skeptical of government institutions and science, this could make them more likely to support conspiracy theories while maintaining an analytical reasoning style. Additionally, the relationship between analytical reasoning and skepticism may vary depending on the context and the individual's motivation and goals (Pennycook et al., 2015; Stanley et al., 2021). For instance, this study suggests a positive correlation between negative emotionality and the endorsement of conspiracy theories. It is important to consider emotional state when examining the relationship between analytical reasoning and skepticism towards science and government institutions because emotions can play a significant role in shaping an individual's beliefs and attitudes

(Pennycook et al., 2015; Stanley et al., 2021; Van Prooijen et al., 2015). Negative emotions, such as anxiety and fear, can increase an individual's likelihood of accepting conspiracy theories (Van Prooijen et al., 2015). On the other hand, positive emotions, such as hope and happiness, can increase an individual's likelihood of accepting scientific explanations (Van Prooijen et al., 2015). Therefore, emotional state can have a direct impact on an individual's level of skepticism and their acceptance of scientific data and government institutions. This is significant because it highlights the role that emotional state can play in shaping an individual's beliefs and attitudes, and it highlights the importance of considering emotional state when examining the relationship between analytical reasoning, skepticism towards science and government institutions, and the endorsement of conspiracy theories.

The findings of this study have implications for understanding the motivations behind conspiratorial thinking and how it can be prevented or addressed. By understanding the relationship between reasoning style, cognitive biases, and conspiratorial thinking, researchers can develop more comprehensive strategies for promoting scientific literacy and reducing the prevalence of conspiracy theories. Further research is needed to understand the relationship between analytical reasoning, cognitive biases, skepticism, and conspiratorial thinking in more detail, which may help develop evidence-based strategies for promoting scientific literacy and reducing the prevalence of conspiracy theories.

Attachment Style

This study also examined the hypothesis that ambivalent attachment styles would have a stronger relationship with conspiratorial thinking than secure attachment styles. This study examined this relationship because previous research suggested that a less secure attachment style may be related to higher levels of conspiratorial thinking (Green & Douglas, 2018; Hazan

& Shaver, 1987). While the data initially suggested a significant difference in attachment styles and the association with conspiratorial thinking, further probing did not reveal any significant difference in an individual's attachment style and propensity to endorse conspiracy theories. These results highlight the need for further investigation into the relationship between attachment style and conspiratorial thinking and the potential role of mediating variables such as coping skills.

Previous research has suggested that coping skills may mediate the relationship between attachment style and conspiratorial thinking (Green & Douglas, 2018). Examining the mediating role of coping skills highlights the importance of considering how individuals cope with stress and uncertainty and how this may influence their beliefs about conspiracy theories. As previously mentioned, individuals with high levels of emotional distress may be more likely to seek comfort in conspiracy theories as a way of coping with the stress and uncertainty they are experiencing (Van Prooijen et al., 2015). Conspiracy theories can offer a sense of control and understanding in situations that are otherwise confusing and stressful, which can help to alleviate some of the distress (Green & Douglas, 2018). By examining the mediating role of coping skills, researchers can gain a deeper understanding of the complex relationship between emotional state, attachment style, and belief in conspiracy theories. This can help to inform interventions and strategies to reduce the spread of conspiracy theories and increase trust in science and government institutions.

Additionally, data from this study could be utilized to examine the association between attachment style and the Big Five personality traits. Previous research has suggested a relationship between these factors, which could be an additional source of mediation or moderation between attachment style and the endorsement of conspiracies (Noftle & Shaver,

2006). Further probing of these relationships could help better understand the underlying mechanisms that drive the endorsement of conspiracy theories, which can inform efforts to mitigate their effects. To mitigate the effects of conspiratorial thinking, it may be important to consider both attachment styles and personality traits. For example, promoting secure attachment and building resilience through interventions that target coping skills may help individuals develop a more stable and adaptive coping style (Green & Douglas, 2018). Additionally, promoting critical thinking skills and encouraging individuals to seek out diverse perspectives and information sources may help reduce the influence of conspiratorial thinking (Stanley et al., 2021). Interventions that target both personality traits and attachment styles may have a greater impact on reducing the endorsement of conspiracy theories than interventions that only target one of these factors. By exploring the various factors that influence conspiratorial thinking, the field can gain a more comprehensive understanding of this phenomenon and develop targeted strategies to address it.

Big Five Personality Traits

The data did not support the hypotheses that, regarding the Big Five personality traits, openness to experience would be positively correlated with conspiratorial beliefs, and agreeableness would be negatively correlated with conspiratorial beliefs. Given the previous research suggesting a relationship between the Big Five personality traits and conspiratorial thinking, it is noteworthy that this study could not support the expected associations between these traits and conspiratorial endorsement (Goreis & Voracek, 2019; Noftle & Shaver, 2006). Previous research has shown that openness to experience positively correlates with conspiratorial belief and agreeableness negatively correlates with conspiratorial beliefs (Goreis & Voracek, 2019; Swami et al., 2010). This is particularly interesting considering the established relationship

between adult attachment and the Big Five personality traits, which demonstrated that the Big Five personality traits correlate with adult attachment style in that ambivalent attachment was correlated with negative emotionality; avoidant attachment was related to agreeableness and extraversion, and both were moderately correlated with conscientiousness (Noftle & Shaver, 2006).

Previous research examining the Big Five personality traits suggests that the traits alone were not successful in predicting relationships with conspiratorial thinking (Noftle & Shaver, 2006). However, this study found that negative emotionality was a significant predictor of conspiratorial endorsement. Previous research has found negative emotionality to be the most highly correlated of the Big Five personality traits and attachment style (Noftle & Shaver, 2006), which may account for the anomalous findings of this study regarding the relationship between attachment style and conspiratorial endorsement. Negative emotionality is characterized by anxiety, hostility, depression, self-consciousness, impulsiveness, and vulnerability (Noftle & Shaver, 2006). This expression of anxiety and vulnerability lends credence to individuals high in negative emotionality utilizing conspiracy theories to explain events when the present explanation is inadequate, alleviating the stress of the unknown (Drinkwater et al., 2020; Sroufe & Waters, 1977). In order to alleviate the stress of the unknown that individuals high in negative emotionality may feel, it may be helpful to provide them with more information and knowledge that can help to reduce the uncertainty they experience. This can be achieved through education and exposure to accurate and reliable sources of information, as well as through providing support and resources to help individuals manage their stress and emotions. Additionally, interventions that aim to improve coping skills and increase resilience could help to mitigate the effects of negative emotionality on conspiracy beliefs. This could include practices such as

mindfulness, stress management techniques, and therapy. Furthermore, it is important to recognize that each individual is unique and may require a tailored approach to address their specific needs and concerns.

Interestingly, the hypotheses regarding attachment and the Big Five personality traits were not supported in this study regarding conspiracy theories may suggest that the relationship between these factors and conspiratorial thinking is more complex than previously thought. It may indicate that other variables, such as individual experiences, life events, social and cultural factors, and other individual characteristics and personality traits, may mediate or moderate that relationship. Other psychological processes, such as cognitive processing, emotional regulation, and motivation, may be at play, mediating the relationship between attachment and personality. Previous research has explored the role of coping skills in mediating the relationship between attachment style and conspiratorial thinking (Green & Douglas, 2018). Other studies have looked at the relationship between attachment and personality in the context of cognitive processing (Noftle & Shaver, 2006), emotional regulation (Drinkwater et al., 2020), and motivation (Sroufe & Waters, 1977). As a direction for future research, it may be possible to synthesize the data of these previous studies with the data of the current study in order to form a more complete picture of the relationship between adult attachment and the Big Five personality traits in the context of conspiratorial thinking.

Political Affiliation

While this study had anticipated that extreme political affiliation (whether conservative or liberal) would be predictive of conspiratorial endorsement, data supported the conclusion that individuals with higher levels of conservative beliefs are more likely to endorse conspiratorial

thinking than individuals with more liberal political beliefs. This relationship held whether the individual's conservative beliefs were rooted in social or economic conservative beliefs.

The lack of predominantly left-wing political conspiracy theories and the proclivity of individuals who hold conservative beliefs to be more distrustful of the scientific community may account for these relationships (Azevedo & Jost, 2021; Edelson et al., 2017; Garrett & Weeks, 2017). Furthermore, it is important to consider the cultural and social context of participants at the time of this study. For example, the Democratic party controls the United States government at the time of this study, as the president is a Democrat. Because the Democratic party is currently in control of the government, it is possible that individuals who hold more liberal values are more satisfied with the government and therefore do not feel the need to endorse conspiracy theories, as conspiracy theories are often used to discredit a group of individuals with opposing beliefs (Bartlett & Miller, 2010; Bond & Neville-Shepard, 2021). The prevalence of conservative media outlets and the spread of misinformation through these channels in order to discredit the current presidential administration may shape political beliefs and attitudes of the individuals who consume this type of media, leading to an increased endorsement of conspiracies (Azevedo & Jost, 2021; Edelson et al., 2017; Garrett & Weeks, 2017). The influence of peer networks and group identity may also impact an individual's level of conspiratorial thinking (Edelson et al., 2017). These factors may interact, making it difficult to disentangle their individual effects and contributing to the complexity of the relationship between personal political affiliation and conspiratorial thinking.

As such, future research should consider the interplay between various individual and contextual factors, such as which political party is controlling the government, in shaping conspiratorial beliefs. Future studies may be focused on conducting this research during

conservative presidencies to see if the results can be replicated. By understanding the context of the relationship between political affiliation and conspiratorial thinking, educators and policymakers could shape initiatives to increase trust in political and scientific institutions relative to which groups are most vulnerable.

Religious Fundamentalism

Data from this study supported the hypothesis that religious fundamentalism would be positively correlated with conspiratorial thinking. The findings of this study are consistent with previous research, which suggests that religious fundamentalism is positively correlated with conspiratorial thinking (Altemeyer & Hunsberger, 2004; Agley & Xiao, 2021; Costello et al., 2022). This relationship is likely due to fundamentalists' beliefs about the unchangeable nature of their religion and their tendency to reject information that is not in line with their beliefs. This study adds to the growing literature exploring the relationship between religious fundamentalism and conspiratorial thinking.

Previous research supports that individuals who score highly on measures of religious fundamentalism are likely to reject science when the information presented is not in line with their religious beliefs (Dyer & Hall, 2019; Lobato & Zimmerman, 2019). Additionally, fundamentalists believe that the essential truth that there is one true religion must be followed according to the unchangeable traditional doctrine (Altemeyer & Hunsberger, 2005; Henningsgaard & Arnau, 2008) and, therefore, may utilize conspiracy theories to discredit any potential forces that oppose this belief. This relationship is also supported by previous research that demonstrated that in religious fundamentalist and conspiratorial belief structures, reason is ascribed to seemingly random events to account for the unexplained, or the reticence of religious fundamentalists opposition to revising beliefs in general (Ladini, 2021; Pennycook et al., 2020).

Previous research has identified that beliefs that are held despite empirical evidence to support them or in the face of empirical evidence that refutes them are “Epistemically Unwarranted Beliefs (EBUs),” and includes religious fundamentalism as well as conspiratorial beliefs (Dyer & Hall, 2019; Lobato & Zimmerman, 2019). This relationship may also generalize to spirituality, as previous research has identified a web movement referred to as “conspirituality,” which promotes beliefs of alternative spirituality as well as conspiracy theories (Ladini, 2021).

This study lends credence to the idea that the propensity to endorse conspiratorial thinking is motivated by the religious fundamentalists' attitudes toward authority and unchangeable beliefs, beliefs being held despite empirical evidence to the contrary, and possibly because in both religious fundamentalism and conspiracy theory, an all-powerful being is orchestrating events or hiding truth (Altmeyer, 2004; Agley & Xiao, 2021; Costello et al., 2022; Dyer & Hall, 2019; Lobato & Zimmerman, 2019). This tendency to reject information that contradicts personal beliefs may extend to information about climate change and the COVID-19 vaccination (Lobato & Zimmerman, 2019). For example, if an individual's religious beliefs hold that the natural world is unchanging and perfect, they may reject information about the negative impacts of human activities on the environment, such as climate change. Similarly, if an individual's religious beliefs hold that science and medicine are not to be trusted, they may reject information about the safety and efficacy of the COVID-19 vaccination.

Future research could examine the relationship between religious fundamentalism and conspiratorial thinking in more detail, including how the intersection of these two beliefs influences an individual's perception of information and the sources they trust. Initiatives that could reduce conspiratorial endorsement may include promoting scientific literacy, critical thinking skills, and media literacy. Additionally, efforts to increase trust in scientific institutions,

especially among religious fundamentalists, may also help reduce conspiratorial endorsement. Furthermore, educational initiatives highlighting the importance of evidence-based decision-making and the dangers of misinformation may also be helpful.

Trust in Science

This study predicted that lower levels of trust in science would be associated with higher levels of conspiratorial thinking because trust in science was theoretically associated with most predictor variables utilized in this study. The data supported that lower levels of trust in science are related to higher levels of conspiratorial endorsement and the association of trust in science with other variables. In addition to conspiratorial endorsement, trust in science had a significant negative relationship with social conservatism, economic conservatism, conservatism, and religious fundamentalism. Finally, this study supported both hypotheses regarding trust in science, demonstrating that trust in science was positively correlated with conspiratorial thinking and that trust in science would account for the most variance in conspiratorial thinking.

Previous research supported these results, demonstrating that data is more likely to be refuted when scientific data is presented contrary to an individual's religious ideologies (Dyer & Hall, 2019; Lobato & Zimmerman, 2019). Trust in science is accepting scientific information and findings, which religious fundamentalists will not likely do if the findings contradict religious dogma (Dyer & Hall, 2019; Lobato & Zimmerman, 2019). To reconcile their beliefs with the new information, religious fundamentalists may turn to conspiracy theories to discredit the data. By doing so, the individual can maintain their beliefs and avoid the cognitive dissonance that can result from accepting information that contradicts their current views (Dyer & Hall, 2019; Lobato & Zimmerman, 2019). Distrust in governmental institutions, which are often responsible for presenting scientific data to the general public, is an increasing hallmark of

political conservatism (Bartlett & Miller, 2010). Therefore, trust in science may underpin the correlation between conservatism and conspiratorial thinking, as individuals may view scientific information presented by these institutions as unreliable or biased (Dyer & Hall, 2019; van Prooijen et al., 2015). This reinforces that if conspiracy-minded individuals believe that scientific information is coming from a powerful and potentially dubious group, there is a tendency toward conspiratorial beliefs to explain the agencies' motives (Dyer & Hall, 2019; Pennycook et al., 2015; Shahn, 1988).

The relationship between trust in science and conspiratorial thinking is significant as it has real-world implications for spreading misinformation and false beliefs. This study provided information previously unlooked at regarding the relationship between religious fundamentalism and political extremism on scientific mistrust (Azevedo & Jost, 2021; Garrett & Weeks, 2017). The mistrust of science and scientific institutions can lead to the rejection of evidence-based information and the adoption of harmful and false beliefs, which can negatively impact individuals and society. Thus, this study highlights the importance of exploring and understanding the complex relationships between trust in science, political beliefs, and conspiratorial thinking and how these relationships may shape the spread of false information.

Future research could utilize data from this research to probe any mediation or moderation occurring between political affiliation, religious fundamentalism, and scientific mistrust. Additionally, future research could investigate the intersection of these variables to better understand the underlying mechanisms of their relationship with conspiratorial thinking. Increasing trust in scientific institutions is critical to curbing the spread of conspiratorial thinking. Understanding the factors contributing to trust in science and its relationship with

conspiratorial thinking can inform efforts to combat misinformation and promote evidence-based thinking.

Impact

Multiple variables that have been previously identified as correlating with conspiratorial thinking were examined in this study, including attachment (Drinkwater et al., 2020; Green & Douglas, 2018; Noftle & Shaver, 2006; Sroufe & Waters, 1977), personality (Noftle & Shaver, 2006), analytical reasoning (Agley & Xiao, 2021; Pennycook et al., 2015), trust in science (Agley & Xiao, 2021; Dyer & Hall, 2019; Garret & Weeks, 2017; Pennycook et al., 2015), religious fundamentalism (Altemeyer & Hunsberger, 2005; Dyer & Hall, 2019; Henningsgaard and Arnau, 2008; Lobato & Zimmerman, 2019), and political affiliation (Altmeyer & Hunsberger, 2004; Azevedo & Jost, 2021; Bensley & Lilienfield, 2020; Costello et al., 2022; Dyer & Hall, 2019; Garrett & Weeks, 2017; Ladini, 2021; Stanley et al., 2021; van Prooijen et al., 2015). This study also examined previously unexplored relationships between individual characteristics and the influence those relationships have on endorsing conspiracy theories. By highlighting these relationships, this study provides valuable insights into the underlying psychological and social factors contributing to endorsing conspiracy theories. The results of this study have important implications for improving public health and political discourse.

Based on these findings, reducing conspiratorial thinking requires a multi-faceted approach, including building trust between scientific and government institutions and the public, improving communication and transparency, promoting critical thinking and media literacy, addressing misinformation and disinformation quickly and effectively, and encouraging ethical and trustworthy behavior from government and scientific agencies. By addressing these factors, the spread of harmful conspiracy theories can be reduced, leading to improved public health

outcomes, informed political discussions, and more trustworthy relationships between the public and scientific and government institutions.

Scientific communities, government agencies, and political institutions could all take similar steps to address these factors. Firstly, building trust with the public is essential in reducing conspiracy theories and increasing public acceptance of scientific findings. This can be achieved by communicating information clearly and transparently, providing accurate, evidence-based information, and being open and honest about the limitations of that information. Building trust could also be accomplished by communicating directly with the public through various channels such as town hall meetings, community events, and social media. This can help improve communication and foster a sense of transparency and accountability. Promoting trustworthy, ethical, and transparent public communication could include addressing misinformation and disinformation quickly and effectively by providing counterevidence and correcting false information promptly. Collaboration with media and technology companies to promote accurate information by scientific communities, government agencies, and political institutions could also reduce the spread of disinformation and improve the visibility of credible sources. Building trust takes time and effort, but this study demonstrates that it is essential for these agencies to be trustworthy, ethical, and transparent in their dealings with the public to reduce the harmful spread of conspiracy theories.

Additionally, promoting critical thinking and media literacy on clearly described, data driven information can help the public identify and evaluate information more effectively, which can include providing educational resources on assessing information, recognizing disinformation, and evaluating claims made from various sources. Despite a lack of significant findings in this study, previous research supports encouraging critical thinking and media

literacy to help the public identify and evaluate information more effectively (Bensley & Lilienfield, 2020; Dyer & Hall, 2019; Stanley et al., 2021). This can include providing educational resources on assessing information, recognizing disinformation, and evaluating claims made from various sources.

The outcomes of these steps to reduce conspiratorial thinking would likely be improved public health outcomes, informed political discussions, and more trustworthy relationships between the public and scientific and government institutions. By building trust with the public, providing clear and transparent communication, promoting critical thinking and media literacy, addressing misinformation and disinformation, and encouraging ethical and trustworthy behavior, the spread of harmful conspiracy theories can be reduced. Additionally, future elections may see a less hostile transition of power between administrations, and pandemics may not be met with the resistance to immunization seen during the COVID-19 pandemic.

Taking these steps could also lead to a better-informed public and more productive discussions on political and scientific issues. Scientific literacy is also crucial to achieve these outcomes, as the public needs to have the ability to understand and evaluate information effectively to make informed decisions. Without scientific literacy, any efforts agencies would make to be transparent may confuse the general public and layperson, which would not achieve the desired outcome of reducing conspiracy theories.

Because free speech is an individual right protected by the United States Constitution, it is improbable to suggest that spreading misinformation could be stopped by curbing free speech. Therefore, it is incumbent upon the government and scientific agencies to address misinformation and disinformation quickly and effectively by providing counterevidence and correcting false information promptly. Government agencies could also collaborate with media

and tech companies to promote accurate information, reduce the spread of disinformation, and improve the visibility of credible sources to help stop the spread of misinformation that bolsters conspiracy theories.

Together, this work suggests that to combat the harmful spread of conspiracy theories, it is crucial for scientific communities, government agencies, and political institutions to build trust with the public, promote critical thinking and media literacy, address misinformation promptly, and encourage ethical and trustworthy behavior, while also fostering scientific literacy among the public.

Directions for Future Research

The present study cannot establish time precedence for any significant relationships. For example, the present study cannot determine whether an individual develops a distrust in science and then endorses a particular conspiracy theory or supports a conspiracy theory, leading them to question the validity of science. This could be an area of interest for future studies. Additionally, this study could not support the idea that politically extreme left-leaning individuals are as likely as the politically extreme right to endorse conspiracy theories. This information could be used to focus future research on examining if historical artifacts, such as the political party of the current presidential administration, impact the data. Future studies may be focused on conducting this research during conservative presidencies to see if the results can be replicated. Because previous research suggested that coping skills may mediate the relationship between attachment style and conspiratorial thinking (Green & Douglas, 2018), this relationship could merit further examination in future research. In future research, it would be worthwhile to investigate how the intersection of religious fundamentalism and political extremism influences an individual's perception of information and the sources they trust, as well as the potential mediation or

moderation of this relationship regarding scientific mistrust (Azevedo & Jost, 2021; Garrett & Weeks, 2017). Future research could also focus on effective methods for influencing change in the characteristics shown to be predictive of conspiratorial endorsement utilizing conclusions from this data, which could potentially avoid future negative impacts on society.

Conclusion

This study adds to the body of research examining the individual factors associated with conspiratorial thinking. The results demonstrate the role of trust in science, religious fundamentalism, negative emotionality, and political affiliation in shaping conspiratorial beliefs. These findings suggest that improving trust in science may reduce the spread of conspiracy theories. The spread of distrust and misinformation caused by conspiracy theories can have real-world consequences. Resistance to recommendations from scientific and government institutions can undermine public health and democracy. Conspiracy theories have led to resistance to vaccines, election fraud claims, and violent coup attempts. While this study provides valuable information, the relationship between the discussed factors and conspiratorial thinking is complex and may be influenced by various contextual factors, mediators, and moderators. Further research is needed to understand the mechanisms underlying the relationship between these factors and conspiratorial thinking and to develop methods to reduce the spread of conspiracy theories utilizing these factors. The results of this study have implications for policymakers, educators, and public health officials, as well as for future research. By continuing to study the factors that contribute to the endorsement of conspiracy theories, researchers can work to understand the motivations behind these beliefs and develop strategies to reduce their impact. This knowledge can help inform efforts to promote critical thinking skills, reduce the

spread of misinformation, and increase trust in scientific institutions, promoting a better-informed society.

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Table 1

Conspiracy Means by Levels of Categorical Predictor Variables

Predictor	Level	*M*	*n*	*%*
Ethnicity	White	2.75	209	93
	Other	3.25	16	7
Gender Identity	Female	2.87	139	62
	Male	2.58	74	33
	Other	3.01	12	5
Sexual Orientation	Bisexual	2.87	28	13
	Heterosexual	2.76	172	77
	Homosexual	2.81	12	5
	Other	2.86	11	5
	Prefer not to say	1.87	1	0
Relationship Status	Never Married	2.81	69	31
	Married/partnered	2.65	105	47
	Divorced	3.03	25	11
	Separated	2.76	4	2
	Widowed	3.04	5	2
	Other	3.09	17	8
Highest educational level	Less than high school	2.5	2	1
	High school graduate	2.86	22	10
	Some college	2.84	43	19
	2-year degree	3.14	27	12
	4-year degree	2.73	77	34
	Professional degree/certification	2.65	44	20
	Doctorate	2.47	10	4
Income	Less than $10,000	2.84	13	6
	$10,000-$19,999	3.23	13	6
	$20,000-$29,999	3.04	18	8
	$30,000-$39,999	2.80	17	8
	$40,000-$49,999	2.86	19	8
	$90,000-$99,999	2.83	20	9
	$100,000-$149,999	2.41	36	16
	More than $150,000	2.61	33	15
Social Media Use	1-2 hours	2.70	76	39
	2-3 hours	2.82	73	38
	4-6 hours	2.85	32	17
	More than 6 hours	2.89	12	6
News Consumption	Less than an hour	2.95	122	54
	1-2 hours	2.63	46	20
	2-3 hours	2.48	27	12
	4-6 hours	2.78	15	7
	More than 6 hours	2.46	15	7

Predictor	Level	*M*	*n*	%
Attachment Style	Secure	2.60	114	51
	Avoidant	2.98	93	41
	Ambivalent	2.93	17	8
Reasoning Style	Analytical	2.66	109	48
	Intuitive	2.90	115	51

Note. $N = 225$. Participants were, on average, 40.78 years old ($SD = 14.25$)

Table 2

ANOVA for Categorical Variables

Variable	df	SS	MS	*F*	*p*
Ethnicity	1	2.29	2.29	3.19	.076
Gender Identity	2	3.15	1.58	2.20	.114
Sexual Orientation	4	1.37	0.34	0.48	.751
Relationship Status	5	5.02	1.00	1.40	.226
Education	6	5.98	1.00	1.39	.221
Income	11	8.71	0.79	1.11	.360
Social Media Use	3	0.11	0.04	0.05	.985
News Consumption	4	6.12	1.53	2.14	.079
Attachment Style	2	4.49	2.25	3.14	.046*
Secure-Avoidant					.092
Ambivalent-Avoidant					.923
Ambivalent-Secure					.690
Reasoning Style	1	0.10	0.10	0.14	.712

Table 3

Summary Statistics of Predictor Variables (BFI Open-mindedness, Conscientiousness, Extraversion, Agreeableness, Negative Emotionality, Trust in Science and Scientists, Religious Fundamentalism, Conservatism, Social Conservatism, Economic Conservatism, and Conspiracy)

Variables	Range	Mean	SD	Median	Skewness	Kurtosis
BFI-2						
Open-mindedness	1-5	3.92	.62	3.92	-.89	1.18
Conscientiousness	1-5	3.59	.67	3.58	-.27	-.36
Extraversion	1-5	3.13	.68	3.17	-.20	-.65
Agreeableness	1-5	3.80	.57	3.83	-.43	.45
Negative Emotionality	1-5	2.94	.86	2.92	.09	-.47
Trust in Science and Scientists	1-5	3.65	.68	3.71	-.41	-.13
Religious Fundamentalism	-4 - +4	-1.44	2.19	-1.88	.67	-.59
Conservatism	0-100	57.18	20.83	58.33	-.15	-.82
Social Conservatism	0-100	56.64	25.92	57.43	-.21	-.87
Economic Conservatism	0-100	57.56	19.36	56.60	-.16	-.37
Conspiracy	1-5	2.78	.86	2.80	-.06	-.59

Note. $N = 225$.

Table 4

Correlations for Predictor Variables

Variable	1	2	3	4	5	6
1. Trust in Science	—					
2. Extraversion	.03	—				
3. Agreeableness	.13	.12	—			
4. Conscientiousness	-.09	.26***	.23***	—		
5. Negative Emotionality	-.03	-.22***	-.26***	-.30***	—	
6. Open Mindedness	.21**	.18***	.12	-.05	-.01	—
7. Social Conservatism	-.53***	.1	.14*	.22***	-.18**	-.36***
8. Economic Conservatism	-.46***	.11	-.02	.22***	-.29***	-.2**
9. Conservatism	-.55***	.11	.09	.24***	-.24***	-.32***
10. Religious Fundamentalism	-.45***	.09	.1	.16*	-.04	-.24***
11. Conspiracy	-.51***	.04	.01	.02	.21**	.05

Variable	7	8	9	10	11
1. Trust in Science					
2. Extraversion					
3. Agreeableness					
4. Conscientiousness					
5. Negative Emotionality					
6. Open Mindedness					
7. Social Conservatism	—				
8. Economic Conservatism	.64***	—			
9. Conservatism	.94***	.85***	—		
10. Religious Fundamentalism	.64***	.35***	.58***	—	
11. Conspiracy	.22***	.21**	.24***	.19***	—

$^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$

Table 5

Hierarchical Regression Analysis

Model	β	*SE*	*t*	*R*	R^2	ΔR^2	*p*
Step 1				.04	.03	.03	
Religious Fundamentalism	.08	.03	2.94				.004
Step 2				.08	.08	.05	
Religious Fundamentalism	.08	.03	3.13				.002
Negative Emotionality	.22	.06	3.42				<.001
Step 3				.14	.12	.04	
Religious Fundamentalism	.02	.03	.52				.60
Negative Emotionality	.28	.06	4.32				<.001
Conservatism	.01	.003	3.55				<.001
Step 4				.30	.28	.16	
Religious Fundamentalism	-.02	.03	-.62				.54
Negative Emotionality	.20	.06	3.42				<.001
Conservatism	.00	.00	.49				.62
Trust in Science	-.63	.09	-7.09				<.001

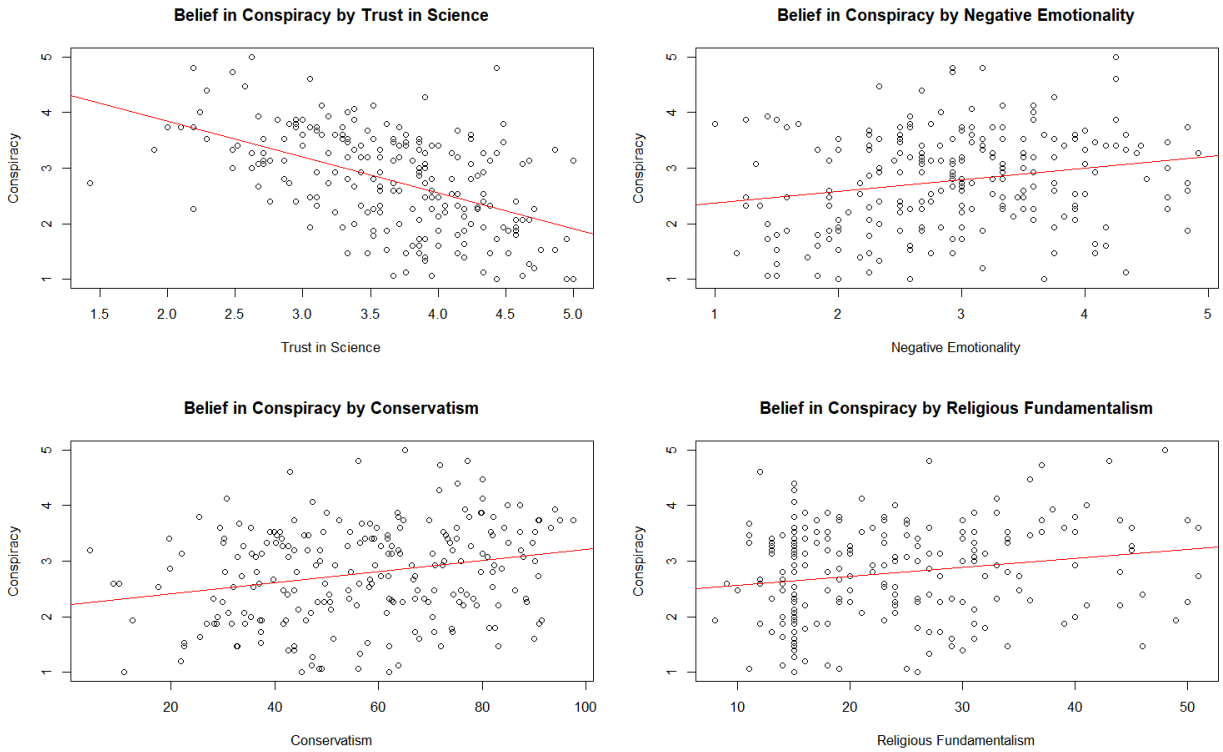
Figure 1

Histogram of Participant Age

Note: The participants ranged in age from 18 – 77 years, with the mean age of participants being 40.78 years (SD = 14.25).

Figure 2

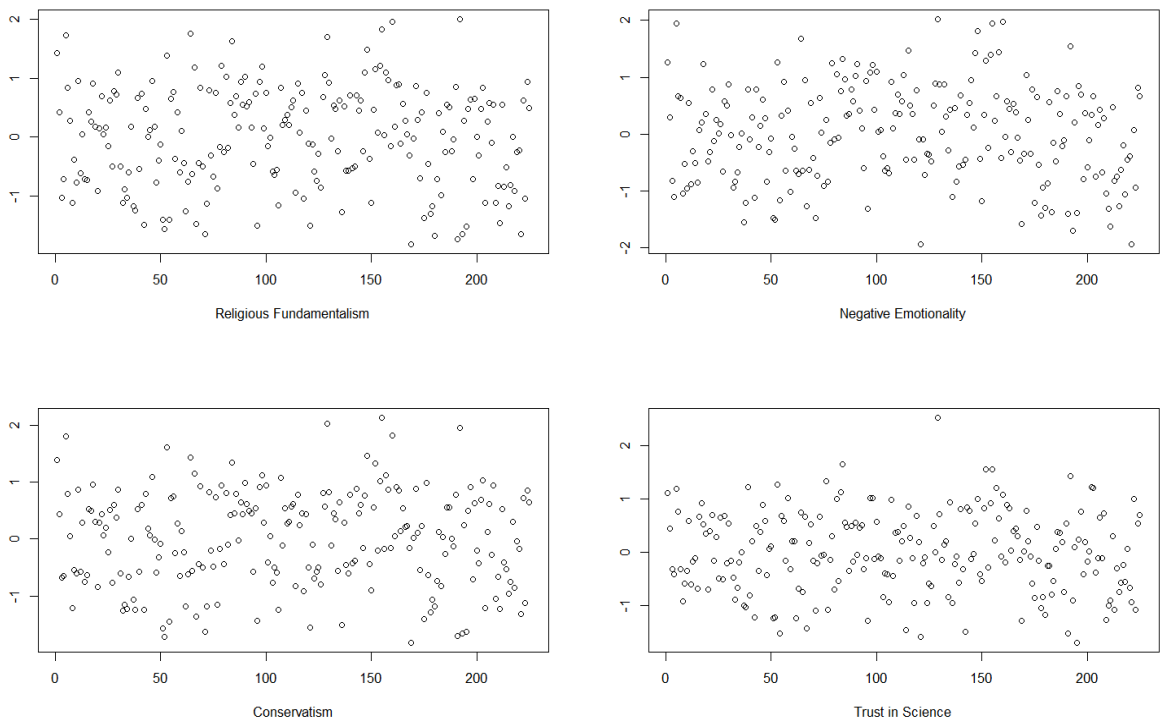
Scatterplots with Regression Line Added for Significant Predictor Variables



Note. Red line indicates regression line.

Figure 3

Scatterplot of Residuals for Significant Predictor Variables



APPENDIX A: INFORMED CONSENT

Informed Consent to Participate in Research

Indiana State University

You are being invited to participate in a research study. This study aims to find out what personality factors are associated with people's endorsement of conspiracy theories. The way you can help me answer the question is by answering the questions in this anonymous survey, which should take you about twenty (20) minutes to complete.

One reason you might want to participate in this research is that you might learn more about facets of your personality that may predict the endorsement of conspiracy theories. One reason you might not want to participate in this research includes distress you may feel when considering aspects of your personality such as attachment or religious fundamentalism.

The choice to participate or not is yours; participation is entirely voluntary. You also can choose to answer or not answer any question you like, and to exit the survey if you wish to stop participating. No one will know whether you participated or not.

The survey asks questions related to background characteristics (e.g., age, race, ethnicity, gender identity, education level, sexual orientation, relationship status, country of origin, country where you currently reside). You will also be asked to complete questionnaires related to personality, attachment style, critical reasoning, trust of science, religious fundamentalism, and political beliefs. Completion of the surveys should take about 20 minutes. You have been asked to participate in this research because it will contribute to a better understanding of susceptibility to conspiratorial thinking and some of the correlations contributing to that susceptibility.

Although every effort will be made to protect your answers, complete anonymity cannot be guaranteed over the Internet. Other potential risks of the study include the possibility that you may experience some mild anxiety when completing some of the questions due to examining your own attitudes and experiences. Additionally, there is a risk of a breach of confidentiality if you use a computer that is not your own, you use a public computer, or you use your computer in a public setting. The risks of participation are minimal and not expected to be greater than what you might encounter in everyday activities.

It is unlikely that you will benefit directly by participating in this study, but the research results may provide more information on factors that are associated with people's willingness to endorse conspiracy theories.

If you have any questions, please contact Bryanna Wynn, Department of Psychology, Indiana State University, Terre Haute, IN 47809 at bingram6@sycamores.indstate.edu.

If you have any questions about your rights as a research subject or if you feel you have been placed at risk, you may contact the Indiana State University Institutional Review Board (IRB) by mail at Indiana State University, Office of Sponsored Programs, Terre Haute, IN 47809, by phone at (812) 237-3088 or by email at irb@indstate.edu.

APPENDIX B: DEMOGRAPHIC QUESTIONNAIRE

1. What is your age?
    a. 18-24
    b. 25-34
    c. 35-44
    d. 45-54
    e. 55-64
    f. 65-74
    g. 75-84
    h. 85 and older
2. What is your ethnicity?
    a. White
    b. Black or African American
    c. Native American or Alaskan Native
    d. Asian
    e. Native Hawaiian or Pacific Islander
    f. Other
3. What is your gender identity?
    a. Male
    b. Female

   c. Non-binary/ third gender
   d. Transgender MTF
   e. Transgender FTM
   f. Prefer not to say

4. What is your sexual orientation?
   a. Heterosexual
   b. Homosexual
   c. Bisexual
   d. Other
   e. Prefer not to say

5. What is your current relationship status?
   a. Married
   b. Widowed
   c. Divorced
   d. Separated
   e. Never Married
   f. Other

6. What is your highest level of education?
   a. Less than high school
   b. High school graduate
   c. Some college
   d. 2-year degree
   e. 4-year degree

f. Professional degree/certificate

g. Doctorate

7. What is your annual household income?

a. Less than $10,000

b. $10,000 to $19,000

c. $20,000 to $29,000

d. $30,000 to $39,000

e. $40,000 to $49,000

f. $50,000 to $59,000

g. $50,000 to $59,000

h. $60,000 to $69,000

i. $70,000 to $79,000

j. $80,000 to $89,000

k. $90,000 to $99,000

l. $100,000 to $149,000

m. More than $150,000

8. What country are you originally from?

9. In what country do you currently reside?

10. How often do you spend on social media a day?

a. Less than 1 hour

b. 1-2 hours

c. 2-3 hours

d. 4-6 hours

e. More than 6 hours

11. How often do you watch the news per day?

a. Less than 1 hour

b. 1-2 hours

c. 2-3 hours

d. 4-6 hours

e. More than 6 hours

12. From which news network do you receive most of your news?

a. ABC

b. Al Jazeera

c. BBC

d. Bloomberg

e. CBS

f. CNBC

g. CNN

h. Euronews

i. Fox Business

j. Fox News

k. Geo News

l. MSNBC

m. NBC

n. Newsmax TV

o. NewsNation

p. One America News Network (OAN)

q. RFD-TV

r. RT

s. Sky News

t. Social Media

u. Not listed/Other

APPENDIX C: BIG FIVE INVENTORY-2

Big Five Inventory-2 (BFI-2) (Soto & John, 2017).

Here are a number of characteristics that may or may not apply to you. For example, do you agree that you are someone who likes to spend time with others? Please write a number next to each statement to indicate the extent to which you agree or disagree with that statement.

1 Disagree strongly

2 Disagree a little

3 Neutral; no opinion

4 Agree a little

5 Agree strongly

I am someone who...

1. Is outgoing, sociable.

2. Is compassionate, has a soft heart.

3. Tends to be disorganized.

4. Is relaxed, handles stress well.

5. Has few artistic interests.

6. Has an assertive personality.

7. Is respectful, treats others with respect.

8. Tends to be lazy.

9. Stays optimistic after experiencing a setback.

10. Is curious about many different things.

11. Rarely feels excited or eager.

12. Tends to find fault with others.

13. Is dependable, steady.

14. Is moody, has up and down mood swings.

15. Is inventive, finds clever ways to do things.

16. Tends to be quiet.
17. Feels little sympathy for others.
18. Is systematic, likes to keep things in order.
19. Can be tense.
20. Is fascinated by art, music, or literature.
21. Is dominant, acts as a leader.
22. Starts arguments with others.
23. Has difficulty getting started on tasks.
24. Feels secure, comfortable with self.
25. Avoids intellectual, philosophical discussions.
26. Is less active than other people.
27. Has a forgiving nature.
28. Can be somewhat careless.
29. Is emotionally stable, not easily upset.
30. Has little creativity.
31. Is sometimes shy, introverted.
32. Is helpful and unselfish with others.
33. Keeps things neat and tidy.
34. Worries a lot.
35. Values art and beauty.
36. Finds it hard to influence people.
37. Is sometimes rude to others.
38. Is efficient, gets things done.
39. Often feels sad.
40. Is complex, a deep thinker.
41. Is full of energy.
42. Is suspicious of others' intentions.
43. Is reliable, can always be counted on.
44. Keeps their emotions under control.

45. Has difficulty imagining things.
46. Is talkative.
47. Can be cold and uncaring.
48. Leaves a mess, doesn't clean up.
49. Rarely feels anxious or afraid.
50. Thinks poetry and plays are boring.
51. Prefers to have others take charge.
52. Is polite, courteous to others.
53. Is persistent, works until the task is finished.
54. Tends to feel depressed, blue.
55. Has little interest in abstract ideas.
56. Shows a lot of enthusiasm.
57. Assumes the best about people.
58. Sometimes behaves irresponsibly.
59. Is temperamental, gets emotional easily.
60. Is original, comes up with new ideas.

APPENDIX D: TRUST IN SCIENCE AND SCIENTISTS INVENTORY

Trust in Science and Scientists Inventory (Nadelson et al., 2014)

Directions: Rank your level of agreement to each of these statements on the scale provided.

Strongly Disagree Disagree Neutral Agree Strongly Agree

1. When scientists change their mind about a scientific idea it diminishes my trust in their work*
2. Scientists ignore evidence that contradicts their work
3. Scientific theories are weak explanations
4. Scientists initially keep their work secret
5. We can trust scientists to share their discoveries even if they don't like their findings
6. Scientists don't value the idea of others
7. I trust that the work of scientists to make life better for people
8. Scientists don't care if laypersons understand their work
9. We should trust the work of scientists
10. We should trust that scientists are being honest in their work
11. We should trust that scientists are being ethical in their work
12. Scientific theories or trustworthy
13. When scientists form a hypothesis they are just guessing
14. People who understand science more have more trust in science
15. We can trust science to find the answers that explain the natural world
16. I trust scientists can find solutions to our major technological problems
17. We cannot trust scientists because they are biased in their perspectives
18. Scientists will protect each other even when they are wrong
19. We cannot trust scientists to consider ideas that contradict their own
20. Today scientists will sacrifice the well being of others to advance their research number
21. We cannot trust science because it moves too slowly

APPENDIX E: SOCIAL AND ECONOMIC CONSERVATISM SCALE

Social and Economic Conservatism Scale (Everett, 2013)

Please indicate the extent to which you feel positive or negative towards each issue. Scores of 0 indicate greater negativity, and scores of 100 indicate greater positivity. Scores of 50 indicate that you feel neutral about the issue.

1. Abortion
2. Limited government
3. Military and national security
4. Religion
5. Welfare benefits
6. Gun ownership
7. Traditional marriage
8. Traditional values
9. Fiscal responsibility
10. Business
11. The family unit
12. Patriotism

APPENDIX F: THE REVISED 12-ITEM RELIGIOUS FUNDAMENTALISM SCALE

The Revised 12-Item Religious Fundamentalism Scale (Altemeyer & Hunsberger, 2004)

This survey is part of an investigation of general public opinion concerning a variety of social issues you will probably find that you agree with some of the statements and disagree with others to varying extents please indicate your reaction to each statement by blackening a bubble in section one of the bubble sheet according to the following scale:

Blacken the bubbled labeled -4 if you *very strongly disagree* with the statement
-3 if you *strongly disagree* with the statement
-2 if you *moderately disagree* with the statement
-1 if you *slightly disagree* with the statement
Blacken the bubbled labeled 1 if you *slightly agree* with the statement
2 if you *moderately agree* with the statement
3 if you *strongly agree* with the statement
4 if you *very strongly agree* with the statement
If you feel exactly and precisely neutral about an item, blacken the "0" bubble.

You may find that you sometimes have different reactions to different parts of a statement for example you may very strongly disagree ("-4") with one idea in a statement but slightly agree ("+1") with another idea in the same item when this happens please combine your reactions and write down how you feel on a balance (a "-3" in this case).

1. God has given humanity a complete unfailing guide to happiness and salvation which must be totally followed
2. No single book of religious teachings contains all the intrinsic, fundamental truths about life.*
3. The basic cause of evil in this world is Satan, who is still constantly and ferociously fighting against God.
4. It is more important to be a good person than to believe in God and the right religion.*
5. There is a particular set of religious teachings in this world that are so true, you can't go any "deeper" because they are the basic, bedrock message that God has given humanity.
6. When you get right down to it, there are basically only two kinds of people in the world: the Righteous, who will be rewarded by God; and the rest, who will not.
7. Scriptures may contain general truths, but they should NOT be considered completely, literally true from beginning to end.*
8. To lead the best, most meaningful life, one must belong to the one, fundamentally true religion.

9. Satan is just the name people give their own bad impulses. There really is *no such thing* as a diabolical "Prince of Darkness" who tempts us.*
10. Whenever science and sacred scripture conflict, science is probably right.*
11. The fundamentals of God's religion should never be tampered with, or compromised with others' beliefs.
12. All of the religions in the world have flaws and wrong teachings. There is *no* perfectly true, right religion.*

*indicates item is worded in the con-trait direction, for which the scoring key is reversed.

APPENDIX G: RELATIONSHIP QUESTIONNAIRE THREE-CATEGORY MEASURE

Relationship Questionnaire Three-Category Measure (RQ3) (Hazan & Shaver, 1987).

These questions are concerned with your experiences in romantic love relationships. Take a moment to think about these experiences and answer the following questions with them in mind. Read each of the three self-descriptions below (A, B, and C) and then place a checkmark next to the single alternative that best describes how you feel in romantic relationships or is nearest to the way you feel. (Note: The terms "close" and "intimate" refer to psychological or emotional closeness, not necessarily to sexual intimacy.)

_____A. I am somewhat uncomfortable being close to others; I find it difficult to trust them completely, difficult to allow myself to depend on them. I am nervous when anyone gets too close, and often, others want me to be more intimate than I feel comfortable being.

_____B. I find it relatively easy to get close to others and am comfortable depending on them and having them depend on me. I don't worry about being abandoned or about someone getting too close to me.

_____C. I find that others are reluctant to get as close as I would like. I often worry that my partner doesn't really love me or won't want to stay with me. I want to get very close to my partner, and this sometimes scares people away.

APPENDIX H: GENERIC CONSPIRACIST BELIEF SCALE

Generic Conspiracist Belief Scale (Brotherton et al., 2013)

Beliefs About the World

There is often debate about whether or not the public is told the whole truth about various important issues. This brief survey is designed to assess your beliefs about some of these subjects. Please indicate the degree to which you believe each statement is likely to be true on the following scale: Definitely not true; Probably not true; Not sure/cannot decide; Probably true; Definitely true

1. The government is involved in the murder of innocent citizens and/or well-known public figures, and keeps this a secret

2. The power held by heads of state is second to that of small unknown groups who really control world politics

3. Secret organizations communicate with extraterrestrials, but keep this fact from the public

4. The spread of certain viruses and/or diseases is the result of the deliberate, concealed efforts of some organization

5. Groups of scientists manipulate, fabricate, or suppress evidence in order to deceive the public

6. The government permits or perpetrates acts of terrorism on its own soil, disguising its involvement

7. A small, secret group of people is responsible for making all major world decisions, such as going to war

8. Evidence of alien contact is being concealed from the public

9. Technology with mind-control capacities is used on people without their knowledge

10. New and advanced technology which would harm current industry is being suppressed

11. The government uses people as patsies to hide its involvement in criminal activity

12. Certain significant events have been the result of the activity of a small group who secretly manipulate world events

13. Some UFO sightings and rumors are planned or staged in order to distract the public from real alien contact

14. Experiments involving new drugs or technologies are routinely carried out on the public without their knowledge or consent

15. A lot of important information is deliberately concealed from the public out of self-interest

APPENDIX I: COGNITIVE REFLECTION TEST

Cognitive Reflection Test (Frederick, 2005).

(1) A bat and a ball cost $1.10 in total. The bat costs $1.00 more than the ball. How much does the ball cost? _____ cents

(2) If it takes 5 machines 5 minutes to make 5 widgets, how long would it take 100 machines to make 100 widgets? _____ minutes

(3) In a lake, there is a patch of lily pads. Every day, the patch doubles in size. If it takes 48 days for the patch to cover the entire lake, how long would it take for the patch to cover half of the lake? _____ days

APPENDIX J: DEBRIEFING FORM

Thank you for participating in this study. In this study we are interested in examining relationships between predictors that have been previously identified as correlating with conspiratorial thinking, including attachment, personality, analytical reasoning, scientific distrust, religious fundamentalism, and political affiliation. We are particularly interested in the gaps in research in examining the individual differences in social and motivational factors associated with the endorsement of conspiracy theories, as well as behaviors that mediate and or moderate the relationships between these factors.

If you experience any distress as a result of participating in this study, you can access psychological services through these online resources: https://www.samhsa.gov/find-help/national-helpline and https://www.nami.org/Find-Support .

If you have any questions or if you are interested in the results of the study, please contact Bryanna Wynn by email at bingram6@sycamores.indstate.edu .