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The Influence of Metaphorical and Literal Language on Conspiracy Theory Belief: The Role of Language and Individual Differences

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The Influence of Metaphorical and Literal Language on Conspiracy Theory Belief:

The Role of Language and Individual Differences

A Thesis

Presented in

Partial Fulfillment of the

Requirements for the Degree of

Master of Arts

By

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May, 2023

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Acknowledgments

I would like to thank my advisor, Dr. Sandra Virtue, and my thesis reader, Dr. Kimberly Quinn, for their continued support in my graduate school journey thus far. Thank you for your constant guidance. I would like to thank my boyfriend, Christian, who has been my side and provided me with love and encouragement throughout my entire grad career. I would like to thank my fellow Demons, Caitlin, Lora & Dev, for their constant support and for the laughs. Finally, I would like to thank my Abuela for instilling in me that no one can ever take your education away.

Biography

The author was born in New Orleans on May 22nd, 1997. She graduated from Benjamin Franklin High School in New Orleans in 2015. She received her Bachelor of Science in Psychology from Louisiana State University in 2019.

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Abstract

Although conspiracy theories have long existed, they are of current interest due to their widespread nature on social media (Enders et al., 2021). Research has shown the impact of informational framing on overall conspiracy theory believability (Swami et al., 2013). Informational framing can influence overall public perception of conspiracy theories (Butler et al., 1995; Hameleers, 2020; Enders et al., 2021), showing the impact of the language used in spreading conspiracy theories. Individual difference measures have been shown to impact overall conspiracy theory belief (Swami et al., 2010; Swami et al., 2013; Douglas, 2019). However, research has not explored the relationship between the type of language used in conspiracy theories and how these individual differences may impact overall believability. Beeman's coarse and fine semantic coding theory (Beeman et al., 1994) provides a theoretical framework to explain why literal and figurative language is processed differently in the brain. Therefore we predict that the language type used in conspiracy theories (i.e., literal or figurative language) would also be processed differently, and would significantly impact overall believability. The current study investigated whether language type in conspiracy theory texts would impact overall believability, as moderated by schizotypal ideation, magical ideation, and delusional ideation (Raine & Benishay, 1995; Eckblad & Chapman, 1983; Peters et al., 2004), as well as the interaction effects of these variables. Participants read 13 conspiracy theory texts and were randomly assigned a metaphorical or literal conspiracy text and rated their overall believability and completed three individual difference measures. Results showed significant moderated relationships for magical ideation and delusional ideation on overall conspiracy theory text believability.

The Influence of Metaphorical and Literal Language on Conspiracy Theory Belief:

The Role of Language and Individual Differences

Conspiracy theories have a widespread impact on our society and how we contextualize major events, therefore influencing people's belief. However, little is known about how the language used in conspiracy theories acts as the driving mechanism for conspiracy theory belief. Exposure to different kinds of language when reading a conspiracy theory text could serve as a key factor that might strengthen or weaken overall belief. Understanding how the language used in conspiracy theory texts could be important to further understanding the factors that influence the overall believability and spread of certain conspiracy theories.

Current widespread conspiratorial belief hold political, social, psychological, economic and environmental implications (Douglas et al., 2019). For example, widespread conspiracy surrounding COVID-19 led to increased spread of misinformation surrounding the virus (Douglas, 2021) and COVID-19 conspiratorial belief led to decreased preventative measures (Romer & Jamieson, 2020). However, conspiracies surrounding COVID-19 is only one example of conspiracy theories—other examples span over several domains ranging from medical conspiracies, government involvement in major terrorist attacks, conspiracies concerning political and the social elite. Conspiracy theory belief holds real implications and these implications span over a wide array of behaviors from lower intent to engage in local elections (Jolley & Douglas, 2014); to serious health consequences, as seen with COVID-19 vaccine misinformation (Romer & Jamieson, 2021). Conspiracy belief also impacts overall public perception of events with direct consequences, such as overall public belief in climate change and

intent to reduce one's carbon footprint (Uscinski et al., 2017; Jolley & Douglas, 2014). For these reasons, it is important to recognize the behaviors and implications of conspiracy theories.

Conspiracy theories have been defined in several ways. In the current study, we follow the definitions of conspiracy and conspiracy theories by Douglas (2019). From this definition, *conspiracy* is defined as "a secret plot by two or more powerful actors." Whereas *conspiracy theories* are theories that are explanations for circumstances with claims of plots of two or more powerful actors. Douglas provides three primary motives that drive conspiracy theory belief: epistemic, existential, and social motives (Douglas, 2017). Epistemic motives are the want for explanations for an event; by accepting these theories this allows for individuals to feel that they understand their environment (Douglas et al., 2017). Existential motives allows an individual to feel secure within these environments. Because the "unknown" of major events could potentially elicit feelings of anxiety and stress, belief in conspiracy allow individuals to feel more in control of their autonomy. Social motives encourage an individual to believe conspiracy theory to feel that their beliefs should protect them from social ostracism, such as placing blame on another group for a specific event.

While conspiracy theories act as a protective buffer to satisfy various motives (Douglas et al., 2017), the internet, and especially social media, makes these theories extremely accessible (Enders et al., 2021). The widespread accessibility of conspiracy theories online and through social media is of concern when we consider that younger generations use social media as their primary news source (Spradling et al., 2021). In the past year, social media has propelled conspiracy theories surrounding the 2020

Presidential Election, as well as general conspiracy and misinformation surrounding the

Covid-19 vaccine (Allington et al., 2020). Enders et al. (2021) proposed that the

widespread nature of conspiracy belief circulated through social media was moderated by

individuals tending to already possess general conspiratorial belief. In their study,

participants were presented with sentences surrounding conspiracy theories on different

topics and rated how much they agreed or disagreed with these conspiracies. For

example, one of these sentences was as follows: *Humans have made contact with aliens

and this fact has been deliberately hidden from the public* (Enders et al., 2021). After

participants determined if they agreed or disagreed with the conspiracy theories,

participants were asked to report their primary news source, how often they visit specific

social media websites and a four-item measure to gauge conspiratorial belief (dev.

Uscinski & Parent, 2014; Enders et al., 2021). Their results found that those individuals

who rely on social media platforms and online forums for news were more likely to

subscribe to conspiratorial belief (Enders et al., 2021). If we consider how common this

behavior is, then access to conspiracy theories through social media and online forums is

of particular concern.

Further research on the spread of conspiracy theories though popular media has

been conducted through machine learning models, which can be used to successfully

identify the spread of conspiracy theories online by identifying natural patterns of

language. This research provides insight into the propagation of misinformation through

online forums and social media (Shahsavari et al., 2020). By using graphical narrative

modeling of online forums about COVID-19, researchers were able to identify high

degree nodes or "hubs" of information. From these nodes, specific communities form and

continue to spread misinformation, eventually leading to an entire network of individuals continually spreading misinformation (Shahsavari et al., 2020). Their model was able to identify specific communities and the type of narratives they create, and despite the fact that these interactions had few nodes, the spread of these conspiracies is widespread. From these results, it highlights how quickly conspiracies spread online.

While there is an understanding of the specific motivations that drive conspiracy belief, the exact mechanisms in which conspiracy theory texts are processed is not widely known. There is some emerging research concerning the neurological implications of how conspiracy theories are processed in the brain. Interestingly, some researchers propose that potential neurodegenerative impairments could influence conspiratorial belief (Miller, 2020). Specifically, Miller suggests that some neuropsychological impairments, such as dementia, may predispose individuals to increased false beliefs (Miller, 2020). While extreme conspiratorial belief could be caused by neurodegenerative impairments, there are some general cognitive processes that could also influence conspiratorial belief. From a cognitive psychology viewpoint, conspiratorial belief could be formed through the drive to find meaningful patterns that explain the intent behind an event (Shermer, 2020). In this pursuit of finding evidence to make meaning of these events to cognitive bias—confirmation bias, hindsight bias and cognitive dissonance— these biases further propel conspiratorial belief (Shermer, 2020). Research has shown that people subscribe to conspiratorial belief as a means to reduce anxiety when faced with uncertainty, with a conspiracy theory serving as an explanation for these events (Douglas et al., 2019; Douglas et al., 2017). While we know that some underlying cognitive processes enable conspiracy belief, research has yet to measure the exact processes

involved as individuals read conspiracies. In the current study we hope to better understand the underlying cognitive mechanisms involved when individuals process conspiracy theories during reading.

A factor that influences conspiracy theory belief is how information is presented in a text, or informational framing. In a 2013 study (Swami et al.), participants were shown photos of the Apollo moon landings and were randomly assigned to one of three conditions: photos accompanied either a neutral excerpt, a conspiracy supporting excerpt, or a critical excerpt denouncing the conspiracy theory. Participant belief in the moon landings was measured before and after the manipulation. Their results found that individuals in the pro-conspiracy condition or the anti-conspiracy condition experienced a significant change in moon landing belief, with conspiracy belief increasing for the pro-conspiracy condition, and conspiracy belief significantly decreasing in the anti-conspiracy condition. These results show the importance of informational framing when reading conspiracy texts. This is especially illuminating when we consider the range of exposure to conspiracy theories through media. The exact impact of informational framing is unknown, but one could perhaps make the argument that an initial pro-conspiracy framing could influence one's conspiracy belief for that specific conspiracy theory, which could lend to further conspiracy theory belief. The way in which media, politicians, and individuals on social media frame conspiracies likely impact overall belief (Butler et al., 1995; Hameleers, 2020; Enders et al., 2021).

One study in particular is of special interest in the importance of informational framing and overall conspiracy belief. In this study (Jolley & Douglas, 2014), the authors were concerned with potential social consequences of conspiracy belief (such as health

concerns and a decrease in voting) that may impact the relationship between conspiracy belief and lower political engagement. Additionally, feelings of powerlessness and uncertainty towards the government were measured as other potential mediators. They hypothesized that exposure to conspiracy supporting articles would decrease intentions to engage in politics and this relationship would be potentially mediated by mistrust, powerlessness, uncertainty, and disillusionment toward the government.

To test these effects, participants read an article either supporting or refuting common conspiracy theories surrounding government involvement in the death of Princess Diana, the London 7/7 terrorist attack, etc. In the pro-conspiracy article, the article implied that individuals should be suspicious of government operations, insinuating a governmental role in the death of Princess Diana, the 9/11 terrorist attacks, the London 7/7 terrorist attacks, etc. In the anti-conspiracy article, participants read a similarly formatted article, however the content refuted these claims. After reading either the pro-conspiracy or anti-conspiracy article, participants were instructed to rate their belief in government involvement for these conspiracy theories from 1 (extremely unlikely) to 7 (extremely likely) surrounding government conspiracy theories (adapted from Douglas & Sutton, 2008; 2011). For example, one statement said: *Governments often hide information from the public.* Participants also completed an intended political engagement measure and ranked seven statements for their intended political behavior for the next year. These behaviors included voting, donating money to political candidates, etc. Their results found that participants who read the pro-conspiracy article were significantly more likely to endorse general and specific government conspiracy theories than participants who read the article that refuted these claims (Jolley & Douglas, 2014).

Additionally, their results found that those individuals who were placed in the pro-conspiracy group reported significantly less intent to engage in politics than those individuals who were placed in the refuting article group, supporting their hypothesis that exposure to a conspiracy theory increases feelings of powerlessness, leading to increased conspiratorial belief and a decreased intent to engage in political behaviors.

In a second study (Jolley & Douglas, 2014), participants read articles specifically surrounding climate change and intent to reduce personal climate impact. Using a similar design to Jolley and Douglas' previous 2014 study, participants either read a pro-climate-conspiracy article or an article refuting climate change conspiracies. In this second study, there was also a control condition that did not discuss any climate conspiracy. After reading either the pro-conspiracy, anti-conservancy or control article, participants rated seven statements concerning climate change from 1 (strongly disagree) to 7 (strongly agree). One of the statements was, "*The idea that the world is headed for catastrophic climate change is a fraud".* To measure powerlessness in regards to climate change, participants also rated three other statements on a six point scale. One of the items, for example, was "*I feel that my actions will not affect the outcome of climate change.*" Participants also rated statements for uncertainty and disillusionment. Finally, participants rated 12 statements concerning their intent to engage in energy-efficient behaviors in the next 12 months, such as choosing to take public transportation or using energy efficient light bults. Their results found that participants who read the pro-conspiracy article were significantly more likely to believe climate change conspiracies than participants who read an article refuting these claims. Additionally, those in the pro-conspiracy condition expressed increased feelings of powerlessness, uncertainty, and

significantly higher disillusionment, leading to a reduction in intent to engage in climate conscious behaviors for participants who read the pro-conspiracy articles. These results are especially interesting, given that even with limited exposure through one pro-conspiracy article, this manipulation could lead to increased conspiratorial belief and intent to reduce political or climate behaviors. Additionally, these results show the impact of informational framing and how this could lead to direct changes in beliefs and behaviors based on the language used in a conspiracy theory text.

To better understand how framing of information can influence overall conspiracy belief, investigating the role of nonliteral language might provide important new insights for how conspiracy theory texts are processed. Based on previous research, it has been shown that nonliteral language influences how individuals read a text. Specifically, metaphors have shown to influence the level of persuasion in a text (Sopory & Dillard, 2002). Metaphors are a literary device that draws an abstract similarity between two different entities. For example, the metaphor "*time is a river"* suggests that the passage of time is similar to how a river flows. Metaphors are consistently used in everyday language (Lakoff & Johnson, 1980), and understanding the ways in which metaphors are processed is critical in knowing how we process language overall during communication.

In a meta-analysis exploring the persuasive effects of metaphors, researchers tested several hypotheses across the literature (Sopory & Dilliard, 2002). Their first hypothesis, "Metaphorical messages are more persuasive than literal messages," was found to be significant in a search of 3945 studies. Since persuasion is a very important tool for recruiting individuals for conspiracy belief, the persuasive nature of metaphors will likely be a very important consideration for understanding how metaphorical and

literal language is used in conspiracy theory texts. They also found that metaphors increased overall attitude and judgment among communicators that use metaphors, compared to communicators that did not. These results are especially illuminating when considering that oftentimes conspiracy theories form through low credibility sources, such as social media (Enders et al., 2021). Therefore, it is likely that metaphorical language could influence how readers process conspiracy text.

Research has shown how resistance to persuasion is associated with lower conspiracy belief (Bonetto et al., 2018). In this study, half the participants completed a Resistance to Persuasion scale (Bonetto et al., 2018, cited: Rucker et al., 2004). In this scale, participants rate several statements concerning personal resistance to persuasion. For example, participants rate items according to the following prompt: "*I usually do not change what I think after a discussion."* Their results found that individuals who completed the Resistance to Persuasion scale were significantly less likely than those who had not completed the scale to endorse conspiracy belief. These results suggest that persuasion is a powerful method to employ conspiracy theory belief, and those who are more resistant to persuasion are significantly less likely to adopt conspiracy belief.

To understand how metaphorical language might influence how readers are persuaded by conspiracy text, it is essential to review how readers process metaphors while reading. The Three-Stage model of Metaphor Comprehension processing suggests that language is processed in three stages (Janus & Bever, 1985; Clark & Lucy, 1975; Blank; 1988). For example, consider the sentence, "*She was driven into insanity".* Based on this model, readers first interpret the literal meaning within a mental lexicon and automatically assume a literal interpretation. In the second stage, readers determine if the

literal interpretation makes sense in the given context. When readers consider the literal interpretation of "*driven into insanity,"* they would reject that the literal interpretation is logical. In the third stage, readers access the non-literal meaning of the sentence in the given context and update the original literal interpretation if needed. In summary, it is assumed from the Three-Stage model that if readers' initial literal interpretation is rejected, then the metaphorical context will become the interpreted meaning. While this model provides a guideline for understanding how readers process literal and metaphorical language, it does not account for the variance in the level of familiarity for certain metaphors.

In general, as novel metaphorical mappings are more frequently accessed through language use, the way in which they are processed changes, further showing how familiarity with specific metaphors influence overall access and meaning (Bowdle & Gentner, 2005). Understanding how metaphors are processed is dependent on what Bowdle & Genter (2005) have called *The Career of Metaphor.* Essentially, any effortful or modified processing required in processing metaphorical compared to literal language depends on the novel or unfamiliar nature of the metaphor. There are countless examples of metaphors that have shifted from a novel expression to being overlooked for containing a metaphor at all, also coined "dead metaphors," such as "*to grasp the concept"* (Mashal & Faust, 2009). Familiar metaphors are processed more quickly than novel metaphors based on reading time and ??rated for sensibleness of different sentences either containing familiar metaphors, unfamiliar metaphors, or no metaphors (Blank, 1988). Research shows that familiar metaphors that have been recategorized from a novel expression to a familiar expression become easier to access within the lexical framework,

opposed to novel metaphorical expressions that require additional processing to interpret (Bowdle & Genter, 2005). To demonstrate this, participants read either novel or conventional figurative statements (either metaphors or similes), and researchers found that novel expressions took significantly longer to comprehend than conventional figurative language, with metaphors being processed faster than similes (Bowdle & Gentner, 2005). In summary, this research shows that as metaphors shift in how they are accessed within our mental lexicon of language, the way in which they are processed also changes.

One theoretical framework can be useful in understanding the differences in how metaphorical and literal language is processed during the reading of conspiracy theory text. In Beeman's (1994, 2000) work, a theoretical framework called the coarse and fine semantic coding theory is proposed to explain the role of the right hemisphere during language processing. In previous research, it had been demonstrated that right hemisphere damaged (RHD) patients experienced deficits involving language processing. In a study examining these deficits, RHD patients had significantly more difficulty understanding texts—both in drawing inferences and integrating information, especially non-literal information (Kaplan et al., 1990). While we know that the left hemisphere does play a large role in language processing, the right hemisphere seems to have a unique role in semantic processing. Beeman's coarse and fine semantic coding theory (Beeman et al., 1994) proposes that the left hemisphere activates closely related words when presented with language. For example, the word *FOOT* will likely activate the word *TOES* in the left hemisphere because the left hemisphere is thought to show an advantage for activating closely related words. In contrast, this theory proposes that the

word *FOOT* will also activate the word *PAY* in the right hemisphere, because the right hemisphere is thought to activate both closely and distantly related words. This framework can easily be applied to understanding how metaphors are processed during reading. For example, when readers encounter a metaphor, this theory predicts that metaphors that are more frequently accessed in the mental lexicon would have a left hemisphere advantage due to the ability of the left hemisphere to activate closely related words. For less familiar or novel metaphors, the right hemisphere will likely have an advantage due to the ability of the right hemisphere to activate both closely and distantly related words.

In Beeman et al. (2000), their study examined how hemispheric differences in language processing can impact overall language comprehension using different inference types. Coherence inferences are inferences that tie together a story to fill in the missing gaps. For example, if readers are told that a *space shuttle was preparing for lift-off and is now in space*, a coherence inference would be generated inferring that the shuttle was launched. Predictive inferences are guesses as to what will happen next in a sentence or story. For example, *The shuttle sat on the ground, waiting for the signal.* When individuals read this sentence, they likely make the predictive inference that the shuttle is about to be launched (Beeman et al., 2000). In this study, participants listened to different stories while simultaneously being presented with stimuli to test for the role of both the right and left hemisphere in the processing of inferences. The organization of these paragraphs followed a specific order with the first sentence leading into a predictive inference (1 & 2), then a transition (3), into a coherence inference (4), finishing with the resolution (5). Participants then named inference-related target words as quickly and

accurately as possible as they presented in either the left or right visual field. By examining these two inference types, these researchers were able to make conclusions from their data about language processing advantages of each hemisphere.

Overall, their results found that participants could name target words presented in the right visual field-left hemisphere (rvf-LH) faster than target words presented in the left visual field-right hemisphere (lvf-RH). However, for predictive inferences, their results found an advantage for priming in the lvf-RH and an advantage for coherence inferences when target words were presented in the rvf-LH. Additionally, participants were faster to name inference-related target words compared to unrelated words in both hemispheres. Overall, this research shows that while both hemispheres work in parallel in drawing inferences, it could be that the right hemisphere is activating large semantic fields positioning the right hemisphere to have an advantage for processing coherence inferences and that the left hemisphere has an advantage in processing predictive inferences (Beeman, 2000). These results show that in inferential processing, this is a parallel *and* interactive process in both the RH and LH. In addition, this study has implications for how readers process metaphors during text comprehension. Although Beeman (2000) did not directly measure differences in metaphorical and literal language, we can infer that the left hemisphere likely has an advantage for comprehension of literal language (as literal language is more pointed and context dependent), while the right hemisphere likely has an advantage for understanding metaphorical language (as metaphorical language depends on drawing inferences).

Beyond information framing, lexical access of metaphorical language and hemispheric differences, individual difference measures likely play a role in conspiracy

belief. Research has shown that individuals who possess certain traits are affiliated with higher conspiracy belief. Namely, individuals who score higher on these individual difference measures are more likely to subscribe to conspiracy theory belief (Douglas, 2019, Swami et al., 2010). While there are individual difference measures that are associated with higher conspiracy theory belief independent of these traits, this data may show that individual differences may hold for overall conspiracy belief (Swami et al., 2010; Swami et al., 2013; Douglas, 2019).

One individual difference measure, schizotypal traits, is of high interest concerning conspiratorial belief. Schizotypal traits can be defined as behaviors that model or closely follow the thoughts and behaviors of individuals who follow the guidelines for schizotypal personality disorder, as outlined in the DSM-V. For example, these traits may include inducing unintentional meaning from social interactions or media, proneness to odd belief and magical thinking, odd or eccentric behavior, etc. (Raine, 1991). Individuals who score high on schizotypal scales are not always indicative of having schizotypal personality disorder, more so that their thoughts and behaviors are schizophrenia-adjacent. Some research has directly measured the relationship between schizotypal traits and how these traits may influence overall conspiracy theory belief. In Swami et al. (2010), participants read conspiracies surrounding the September 11th attacks. Participants then completed an abbreviated Big Five questionnaire and scales surrounding conspiracy, attitudes toward authority, political cynicism and 9/11 conspiratorial exposure. Their results found that personality and individual differences were predictive of conspiracy belief such that those who ranked higher on the conspiracy and exposure scales were significantly more likely to subscribe to 9/11 conspiracy belief

(Swami et al., 2010). Consistent with these findings, Swami et al. (2013) measured the relationship between informational framing and individual differences contributing to conspiracy belief. Informational framing was manipulated by having participants look at photos paired with text that either supported the moon landing conspiracy, refuted the moon landing conspiracy or a control condition. These conditions showed that informational framing influenced overall conspiracy theory; their results also found significant individual differences that impacted overall conspiracy theory belief. They measured for conspiracist ideation (a scale to measure for general conspiracy belief for internationally recognizable conspiracy theories), Big Five personality traits, extraterrestrial beliefs, and schizotypal and psychosis proneness. Their results found that those individuals who possessed higher conspiracist ideation and schizotypal traits were more likely to subscribe to conspiracy belief. These studies suggest that beyond potential information framing manipulations and conspiracy exposure, individuals who possess these traits are more likely to subscribe to conspiracy belief.

These individual differences also have neurological implications. Research has shown that those diagnosed with schizophrenia struggle to adequately process non-literal language compared to non-schizophrenia patients (Varga et al., 2014, cited: Champagne-Lavau & Stip, 2010). In this study, paranoid-type schizophrenia participants with a normal IQ were compared to non-schizophrenic participants in a metaphor task. Participants were presented with 35 different prompts containing questions concerning either a metaphor (novel or familiar), irony or conversational implicatures (indicating normal social cues), or general semantic questions. For example, a familiar metaphor example would be, "*Peter is a good runner. One day, as he races with Leslie, Peter wins.*

After the race Leslie says: - Peter, you are a real rabbit!". Participants are then asked

what Leslie meant by comparing Peter to a rabbit (i.e., indicating that he was running

very fast). Conversely, the unfamiliar metaphor prompts use metaphors that are not

commonly used. For example, an unfamiliar metaphor example would be, "*Steven finds it*

hard to bring a decision in his everyday life. One day John and Judy invite him to the

movies, but he cannot make up his mind, to join them or not. Finally, he brings a decision

too late, and they miss the movie. Judy says: Steven, you are a ship without a captain!"

For this prompt, participants are then asked what Judy meant by saying Steven was a ship

without a captain (i.e., indicating that he was directionless in his decision making).

Their data showed that schizophrenic patients were less accurate than the control

subjects when answering questions about the novel-metaphor prompts, however, there

were no significant differences in accuracy when answering questions in the familiar

metaphor condition (Varga et al., 2014). These results are consistent with previous work

that has shown that schizophrenic individuals struggle to understand non-literal language.

This is an important factor when looking at individuals who possess these traits, and how

the difference in metaphorical and literal language may be processed for conspiracy

theory texts.

Another individual difference measure that will likely influence how readers

process conspiracy theories is magical ideation. Magical ideation is characterized by the

belief that unrelated events are related, despite there not being any logical connection

(Eckblad & Chapman, 1983). In a typical magical ideation scale, participants are given a

series of 30 statements and asked to rate the items as true or false. For example, "I have

had the momentary feeling that someone's place has been taken by a look-alike." The

development of this scale was intended to be used as a tool to measure diverse symptoms

of psychosis proneness of an individual (Eckblad & Chapman, 1983) (See Appendix B).

Mohr et al. (2001) found that individuals who rank high for magical ideation exhibited

impaired judgment in associative processing when rating semantic closeness of word

pairs. In this study, participants looked at randomized animal-fruit word pairs and

determined their semantic distance on a scale from 1 (close) to 6 (distant). Participants

then completed the Magical Ideation Scale (Eckblad & Chapman, 1983). Their results

found that those who rated higher for magical ideation were significantly more likely to

rate that the word pairs as semantically similar. In a second experiment (Mohr et al.,

2001), participants rated the closeness of response words to indirectly related or unrelated

word pairs. For example, participants were asked how closely or distantly related the

word *CAT* was to the unrelated word pair *LADDER* and *BOTTLE*. After finishing this

task, participants completed the Magical Ideation Scale (Eckblad & Chapman, 1983).

They found that individuals who rated higher on magical ideation also rated both

indirectly related word pairs and unrelated word pairs as significantly more related

compared to the control group. These results are consistent with previous research

showing that individuals who exhibit higher magical ideation possess a lower threshold

for associative lexical processing (Mohr et al., 2001). Therefore, these findings suggest

that individuals who rate higher for magical ideation may be more likely to draw loose

associations, which could also increase the likelihood that these individuals could more

easily rationalize conspiratorial belief.

　　　　Other studies have also measured multiple individual difference measures in

relation to conspiracy theory belief. In Darwin et al. (2011), participants completed

several individual difference measures for paranormal belief, schizotypal traits, and paranoid ideation to find a relationship between these factors. Paranoid ideation can be defined as deeply suspicious thoughts and feelings surrounding external agents harboring intent towards the individual. These measures included the Conspiracy Theory Questionnaire (cited: Bruder & Manstead, 2009), the Paranormal Belief Scale (cited: Tobacyk & Milford, 1983), the Paranoid Ideation Scale (cited: Fenigstein & Vanable, 1992) and the Brief Schizotypal Personality Questionnaire (Raine & Benishay, 1995) (See Appendix A). Through confirmatory factor analysis, paranoid ideation and schizotypy were associated with higher conspiratorial belief (Darwin et al., 2011). These results show an even more complex relationship between schizotypal traits and conspiracy belief and that this may be strengthened through paranoid ideation. Generally, the individual differences we have discussed are related to paranoid ideation, and therefore increase conspiratorial belief. In the same way that individuals believe in conspiracies as a means of harm reduction (Douglas et al., 2019), schizotypal individuals may hold more suspicious and paranoid belief as a protective buffer as a harm reduction strategy (Darwin et al., 2011). In this sense, it may seem beneficial for individuals with these traits to be suspicious and curious concerning conspiracies.

We know that there is a difference in the way that metaphorical and literal language is processed in the brain, (Beeman et al., 2000) and how informational framing can influence overall conspiracy theory belief (Swami et al., 2013). However, the literature has yet to show how the type of language used in conspiracy theory texts may impact overall belief, and how this may be moderated by the three individual difference measures of interest: schizotypal traits, magical ideation, and delusional ideation. While

the literature has shown how higher ratings of these traits are associated with higher overall conspiracy theory belief (Swami et al., 2010; Swami et al., 2013; Douglas, 2019), this exact relationship has yet to be explored. Furthermore, by exploring this relationship, we can gain a better understanding of how these factors may be interconnected.

The Present Study

In the current study, we will measure how metaphorical and literal language influence conspiracy theory belief. Additionally, we propose thagt conspiracy belief will be moderated by three individual difference measures: schizotypal personality traits, magical ideation, and delusional ideation. This poses an interesting relationship from what we know about how metaphors are processed in the brain, their persuasive nature, and how individuals who exhibit higher schizotypal traits struggle to understand metaphorical language (Blank, 1988; Beeman, 1994; Sopory & Dillard, 2002; Varga et al., 2014). While there is an expanse of research on why people believe conspiracy theories (Douglas et al., 2017; Douglas et al., 2019), there are gaps in the how—or the specific processing involved while reading conspiracy texts. By measuring the effects of metaphorical language used during conspiracy theory texts, these results will ultimately provide more insight into theoretical frameworks of reading and help us gain a better understanding of how individuals process conspiracy theories during text comprehension.

Hypotheses

We predict a main effect of language type such that overall participants will rank believability of metaphorical conspiracy texts as significantly more believable than literal conspiracy texts, independent of individual difference scores.

Hypothesis 1. We predict there will be a significant difference in overall believability ratings for metaphorical conspiracy texts and literal conspiracy texts, with metaphorical conspiracy theory texts rated as significantly more believable than literal language texts.

Hypothesis 2. We predict there will be a significant difference in overall believability ratings for those that rate higher on the three individual difference measures.

Hypothesis 2a. As overall composite scores for the Brief Schizotypal Personality Questionnaire (Raine & Benishay, 1995) increase, overall believability for the conspiracy theory texts will increase.

Hypothesis 2b. As overall composite scores for the Magical Ideation Scale (Eckblad & Chapman, 1983) increase, overall believability for the conspiracy theory texts will increase.

Hypothesis 2c. As overall composite scores for the Peters et al. Delusions Inventory (Peters et al., 2004) increase, overall believability for the conspiracy theory texts will increase.

Hypothesis 3. If a main effect of language type and moderation from individual difference measures is found, we predict an interaction such that individuals who score higher versus lower on these measures will rate texts as more believable, but especially for metaphorical texts.

Hypothesis 3a. There will be an interaction such that individuals who score higher on the Brief Schizotypal Personality Questionnaire (Raine & Benishay, 1995) will rate the texts as significantly more believable than individuals who rate lower on the Brief Schizotypal Personality Questionnaire. The believability ratings will be highest for

individuals who score high on the Schizotypal Personality Questionnaire that read the metaphorical conspiracy theory texts.

   Hypothesis 3b. There will be an interaction such that individuals who score higher on the Magical Ideation Scale (Eckblad & Chapman, 1983) will rate the texts as significantly more believable than individuals who rate lower on the Magical Ideation Scale. The believability ratings will be highest for individuals who score high on the Magical Ideation Scale that read the metaphorical conspiracy theory texts.

   Hypothesis 3c. There will be an interaction such that individuals who score higher on the Peters et al. Delusions Inventory (Peters et al., 2004) will rate the texts as significantly more believable than individuals who rate lower on the Peters et al. Delusions Inventory. The believability ratings will be highest for individuals who score high on the Peters et al. Delusions Inventory that read the metaphorical conspiracy theory texts.

Method

Participants

   Participants ($N = 372$) were sampled through DePaul's SONA system ($N = 119$), Amazon Mechanical Turk ($N = 98$) and through snowball sampling on LinkedIn ($N = 155$). A recruitment ad was posted on SONA for participants to complete the study through DePaul's SONA system for half a point of class credit for their participation. The majority of SONA participants at DePaul University are freshman and sophomore psychology majors around ~18-21 years of age. For MTurk, participants were recruited through the Amazon Mechanical Turk portal. MTurk participants were paid \$4 for completing the study. Participants that were recruited through LinkedIn were informed of

the study from a post on my LinkedIn account. For those that participated this way, participants could voluntarily provide an email address to be entered into a random drawing to win a $50 gift card of their choice.

The number of participants was chosen due to the results from a power analysis using GPower 3.1 (Faul et al., 2009). For a linear multiple regression statistical test with two predictors (language type and individual difference scores) and a significance =.05 and a medium effect yielded a sample size of 107. All participants were at least 18 years of age, right handed and native English speakers.

Stimulus Materials

The stimuli included metaphorical and literal language conspiracy texts. There were 13 different topics surrounding common conspiracy theories in this study, with each topic having a Metaphor Conspiracy Text and a Literal Conspiracy Text for a total of 26 texts, 5 sentences each (see Appendix A). For the Metaphor Conspiracy Texts, each of the five sentences in these texts contained one metaphor in each sentence. For the Literal Conspiracy Texts, each of these five sentences did not contain any metaphorical language. Instead, these texts were literal translations of the metaphors used in the Metaphor Conspiracy Texts. For example, the phrase "*Sea of knowledge"* was literally translated to "*A lot of information."*

Prior to data collection, we piloted these materials to ensure that participants could correctly identify if a sentence contained a metaphor or not. Four members of the Brain and Language Lab at DePaul University completed a questionnaire via Google Forms. The lab members who completed this form were not involved with this project or aware of the details surrounding this project. They were instructed to read each sentence

and to determine whether the sentence did or did not contain a metaphor. They were given an example of a sentence with a metaphor and a sentence without a metaphor. Each respondent was presented with a sentence at random and clicked either "This sentence DOES contain a metaphor," or "This sentence does NOT contain a metaphor." On average from the four respondents, the score was a 92/130, for an accuracy of 70.77% for correctly identifying whether a sentence does or does not contain a metaphor. Of the 24 most frequently missed questions, 23 out of the 24 missed were sentences that should have been labeled as 'containing a metaphor' when they did not contain a metaphor. These 24 sentences were reviewed and revised; however, these results are not too concerning considering that from previous literature because we know that metaphors could potentially be overlooked due to familiarity and would enable participants to think they had not read a metaphor (Mashal & Faust, 2008; Blank, 1988).

Procedure

All participants completed the study online via Qualtrics. Upon receiving full informed consent to participate, participants were instructed that they would be reading a series of sentences and would be asked questions about the sentences.

Through Qualtrics, participants were assigned to either the Metaphor Conspiracy Text or a Literal Conspiracy Text through quasi-randomization for each of the 13 conspiracy theories, with each of the topics as a separate block. This was a within-subjects design with each participant reading 13 total texts, with the text type (metaphorical or literal) randomized for each conspiracy theory topic. While presentation of either a metaphorical or literal passage was randomized, the sentences for each of the passages were in sequential order. Participants clicked an arrow at the bottom of the page

to proceed to the next sentence. After reading the five sentences one sentence at a time, participants were asked how believable the idea presented in the text was and responded on a scale from 1 *(completely unbelievable)* to 4 *(completely believable)*. This scale was chosen to examine specifically how language would impact overall believability of the specific idea presented in the text. Additionally, there were two attention checks within the study where participants answered a simple math problem. All materials including the texts and believability questions are presented in Appendix A.

Individual Difference Measures

After reading the conspiracy theory texts, participants were directed to answer three individual difference scales (see Appendices B–D). Scale order was randomized.

Schizotypal Personality. Schizotypal personality was assessed using the Brief Schizotypal Personality Questionnaire (Raine & Benishay, 1995). The goal of this scale was to act as a brief screening instrument to assess the three primary factors of schizotypal personality disorder: Cognitive-Perceptual factor, Interpersonal factors, and Disorganized factors. This scale included 22 questions total with three sub-factors, Cognitive-Perceptual factor, Interpersonal factors, and Disorganized factors. In this brief version, there were eight Cognitive perceptual questions, eight Interpersonal questions and six Disorganized questions. All questions were yes/no format. This measure was a consistently validated measure across gender, age, and cultures (Fonseca-Pedrero et al., 2011; Fonseca-Pedrero et al., 2018). A sample item was, "Have you ever noticed a common event or object that seemed to be a special sign for you?" See Appendix B.

Magical Ideation. Magical Ideation was assessed using the Magical Ideation Scale (Eckblad & Chapman, 1983). This scale is thought to measure overall belief in

magical influence, with the goal of quantifying how much an individual subscribes to causation of events from unconventional standards. This scale includes 30 sentences that participants must rate as true or false. A sample item was "*I think I could learn to read other's minds if I wanted to.*" This measure has been found to be a valid and reliable measure for magical ideation across cultures (Turkish, Spanish) and age (Atbaşoğlu et al., 2003; Fonseca-Pedrero et al., 2009). See Appendix C.

Delusional Ideation. Delusional Ideation was assessed using the Peters et al. Delusions Inventory (Peters et al., 2004). This specific scale combines ideas from both of the previous scales, but encompass other delusional themes beyond referential thinking and paranoia. The goal of this scale is to look more specifically at these delusional factors. For this 21-item scale, each item had a yes/no question. If a participant answered yes, then they answered how distressing the belief or experience was *(1 = Not distressing at all, 5 = Very distressing)*, how often they think about this *(1 = Hardly ever think about it, 5 = Think about it all the time)*, and how true they believe the statement to be *(1 = Don't believe it is true, 5 = Believe it is absolutely true)*. A sample item was, "*Do you ever feel as if people are reading your mind?*" This measure has been found to be a reliable and valid measure of delusional ideation across culture (Taiwan, America) and age (Kao et al., 2012; Fonseca-Pedrero et al., 2012). See Appendix D.

Demographic Information and Additional Questions. After participants read all 13 conspiracy theory texts and completed the believability questions for each, they were asked basic demographic information including age, gender identity and race. Participants were also asked to select all of their primary news sources. After answering these questions, participants were thanked for their participation and debriefed.

Results

Preprocessing

Each participant's data was screened before the final analyses for completion.

Some participants ($N = 73$) were removed from final analyses for the following reasons:

less than 70% completion rate ($n = 65$) and suspicious bot activity on attention check

questions ($n = 8$). Of the 73 total removed, 65 of these were from the snowball sampling.

We expected to remove a large portion of these participants based on the nature of this

sampling method. The final sample size was $N= 297$ (SONA$n = 117$, MTurk$n = 98$,

LinkedIn$n = 82$).

Confirmatory Factor Analysis

Confirmatory factor analyses were conducting for each of the three individual

difference measures using the 'lavaan' package in R. CFA was conducted for each of

these measures to test overall model fit. Results of the confirmatory factor analyses for

each of the measures is included in Table 1.

Table 1. *Confirmatory Factor Analyses for Measures*

Scale Measure	χ^2	*df*	CFI ($> .9$)	RMSEA ($< .08$)	SRMR ($< .08$)
Schizotypal Personality Questionnaire-B	0.00*	206	0.863	0.064	0.066
Magical Ideation Scale	0.00*	405	0.787	0.064	0.071
Peters et al. Delusions Inventory	0.00*	189	0.79	0.086	0.069

Note. CFI = comparative fit index; RMSEA = root-mean-square error of approximation;
SRMR = standardized root mean square residual.
*$p < .001$

Overall, none of the measures fell into the acceptable range for all of the

psychometric properties. For the Schizotypal Personality Questionnaire Brief (Raine &

Benishay, 1995), this measure met the acceptable range for RMSEA and SRMR, but not

for CFI. For the Magical Ideation Scale (Eckblad & Chapman, 1983), this measure met

the acceptable range for RMSEA and SRMR, but not for CFI. The Peters et al. Delusions

Inventory was the least psychometrically sound, only meeting the acceptable range for

SRMR. These findings are discussed in the limitations.

Schizotypal Personality

To determine schizotypy scores using the B-SPQ (Raine & Benishay, 1995), a

composite score was calculated for each participant encompassing the three factors

(Cognitive-Perceptual, Interpersonal, and Disorganized). For each of the 22 items, each

item with a 'yes' answer was given 1 point, for a total possible range of 0–22. Then, with

these points, a value of 0 to 1 was calculated. For example, if an individual answered

'yes' to 11 of the 22 items, they were given a value of .5.

Magical Ideation

To determine magical ideation scores using the Magical Ideation Scale (Eckblad

& Chapman, 1983) each participant received a composite score from 0-30. Of the 30-

item Magical Ideation Scale (Eckblad & Chapman, 1983), 23 of these items require a

'true' selection while 7 items require a 'false' selection as a reverse score check. The

highest score an individual can receive, indicating high magical ideation, is 30 points.

Then, with these points, a value of 0 to 1 was calculated. For example, if an individual

answered 'true' to 20 of the 30 items, then they were given a value of .67.

Delusional Ideation

For this 21-item delusional ideation scale (Peters et al., 2004), four scores were

calculated. First, overall yes/no scorings for each of the 21 items were calculated, with a

potential range from 0 to 21. If participants answer 'yes,' then they had to answer three additional questions: how distressing the idea is, how much they think about it, and how true they believe the idea to be. Each of these questions were rated on a scale from 1 (Not at all distressing) to 5 (Very distressing). Each of these follow up questions can account for 5 additional points, or 15 points for all three of the follow-up questions. For 21 items (21 points), with three follow-up questions for each yes (potential 15 additional points), for a total of 336 potential points. Then, with these points, a value of 0 to 1 was calculated. For example, participants with a score of 225 would have a proportion value of .67.

Descriptive Statistics

Descriptive statistics were calculated for overall believability, believability by language type and each individual difference measure. See Table 2.

Table 2. *Descriptive statistics for observed measures.*

	Mean	Std. Deviation	Variance
Believability	2.76	1.27	1.62
Metaphorical Believability	2.76	1.28	1.65
Literal Believability	2.75	1.26	1.59
Schizotypy Score	0.47	0.28	0.08
Magical Ideation Score	0.43	0.23	0.05
Delusion Score	0.21	0.19	0.04

Note. 'Believability' indicates overall believability ratings across participants and across language type. 'Metaphorical Believability' indicates overall believability across participants for metaphorical conspiracy theory texts. 'Literal Believability' indicates overall believability across participants for literal conspiracy theory texts. 'Schizotypy' scores indicates overall SPQ-B scores across participants. 'Magical Ideation Score' indicates overall Magical Ideation Scale scores across participants. 'Delusion Score' indicates overall Peters et al. Delusions Inventory scores across participants.

Model 1 Results

A linear mixed effects model was conducted using the 'lme4' and 'lmerTest' packages in R to predict believability ratings from language type and schizotypal ideation.

In the model, conspiracy type and participant were coded as random effects to account for variability for the participants and their perception of the texts that cannot be explained. Each of the predictor variables was coded as a fixed effect: believability ratings, language type and schizotypal ideation composite scores. The intercept for the overall model was found to be significant, ($\beta = 2.31$, $SE = 0.13$, $t = 17.73$, $p = 0.00$). The main effect of language type was found ($\beta = .12$, $SE = .06$, $t(3601.97) = 2.01$, $p = .04$), indicating there was a significant difference in overall participant believability ratings for metaphorical vs. literal texts. A main effect of schizotypal ideation was also found ($\beta = .97$, $SE = .19$, $t(348.95) = 5.07$, $p = 0.00$), indicating that as schizotypal ideation scores increased, overall conspiracy theory believability ratings increased. There was a significant Text Type $\times$ Believability interaction effect on schizotypy composite scores ($\beta = -.27$, $SE = .11$, $t(3599.24) = -2.45$, $p = .01$), indicating that the relationship of conspiracy theory text type and overall believability ratings was influenced by schizotypal ideation composite scores. See Tables 3-5 for full model information and Figures 1-2 for significant results.

The pattern of means suggests that believability ratings were more sensitive to schizotypal ideation scores in the case of literal than metaphorical texts (i.e., a higher slope for the literal versus metaphorical text lines in Figure 2), contrary to predictions.

Table 3. *Random effects of overall linear mixed effects model 1.*

Groups		Variance	Std.Dev.
Participant	Intercept	0.70	0.83
Conspiracy Type	Intercept	0.08	0.29
Residual		0.80	0.89

Table 4. *Fixed effects for overall linear mixed effects model 1.*

	Estimate	Standard Error	df	*t*	*p*
Intercept	2.31	0.13	74.79	17.73	0.00***
Text Type	0.12	0.06	3601.97	2.01	0.04*
Schizotypy Score	0.97	0.19	348.95	5.07	0.00***
Text_Schziotypy	-0.27	0.11	3599.24	-2.45	0.01*

Note. The model used metaphorical texts as the reference type for 'Language type'. 'Schizotypy Score' indicates the main effect of schizotypal ideation composite scores. 'Text_Schizotypy' indicates the Text Type × Believability interaction effect on schizotypy composite scores.
*.p<.055; *p<.05; **p<.01; ***p<.001*

Table 5. *Correlation of Fixed Effects model 1.*

	Intercept	Text Type	SPQB
Text Type	-0.22		
BSPQ	-0.68	0.24	
Text_SPQB	0.19	-0.86	-0.29

Note. Correlation matrix for the fixed effects of the overall model. 'BSPQ' indicates scores on the Brief Schizotypal Personality Questionnaire. 'Text_SPQB' indicates the Text Type × Believability interaction effect on schizotypy composite scores.
*.p<.055; *p<.05; **p<.01; ***p<.001*

Figure 1.

Main Effect of SPQ-B Scores
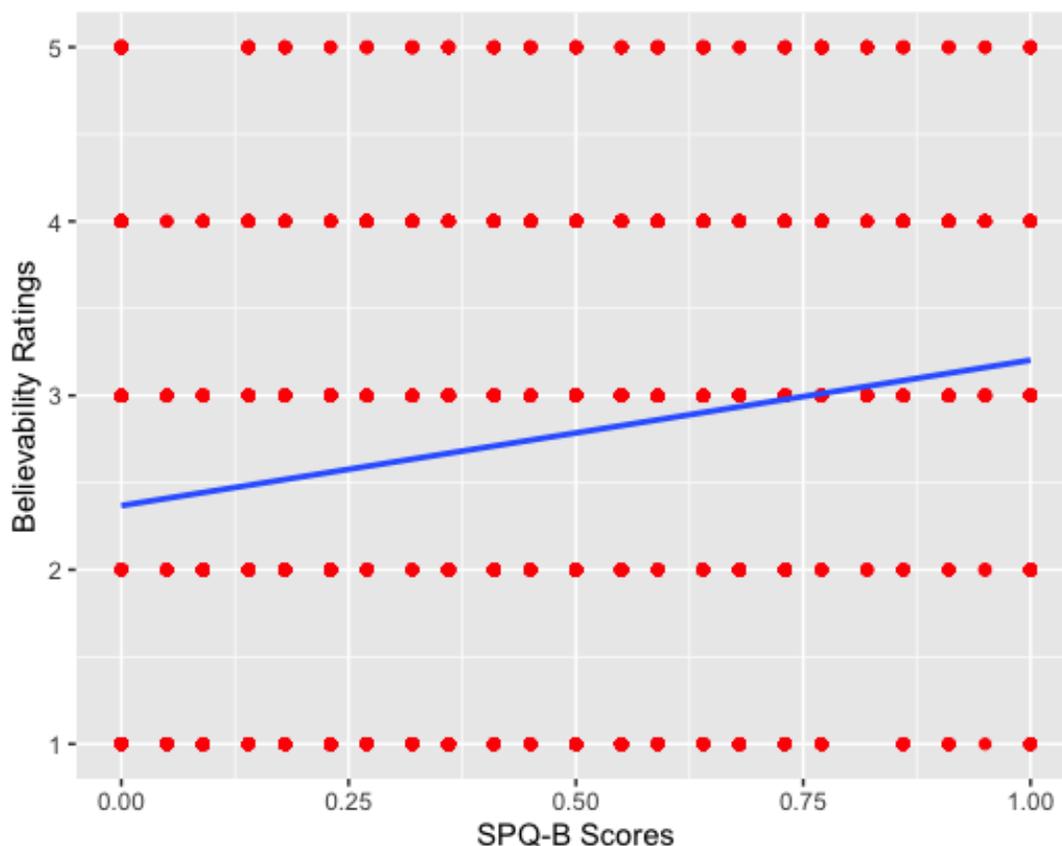
Note. Overall, as schizotypal ideation composite scores increase, overall conspiracy theory text believability increased. Each red data point represents a believability rating. The blue line represents the line of best fit.

Model 2 Results

A linear mixed effects model was conducted using the 'lme4' and 'lmerTest' packages in R to predict believability ratings from language type and magical ideation. In the model, conspiracy type and participant were coded as random effects to account for variability for the participants and their perception of the texts that cannot be explained. Each of the predictor variables was coded as a fixed effect: believability ratings,

Figure 2.

Interaction Terms for SPQ-B Scores as a Function of Language Type and Believability
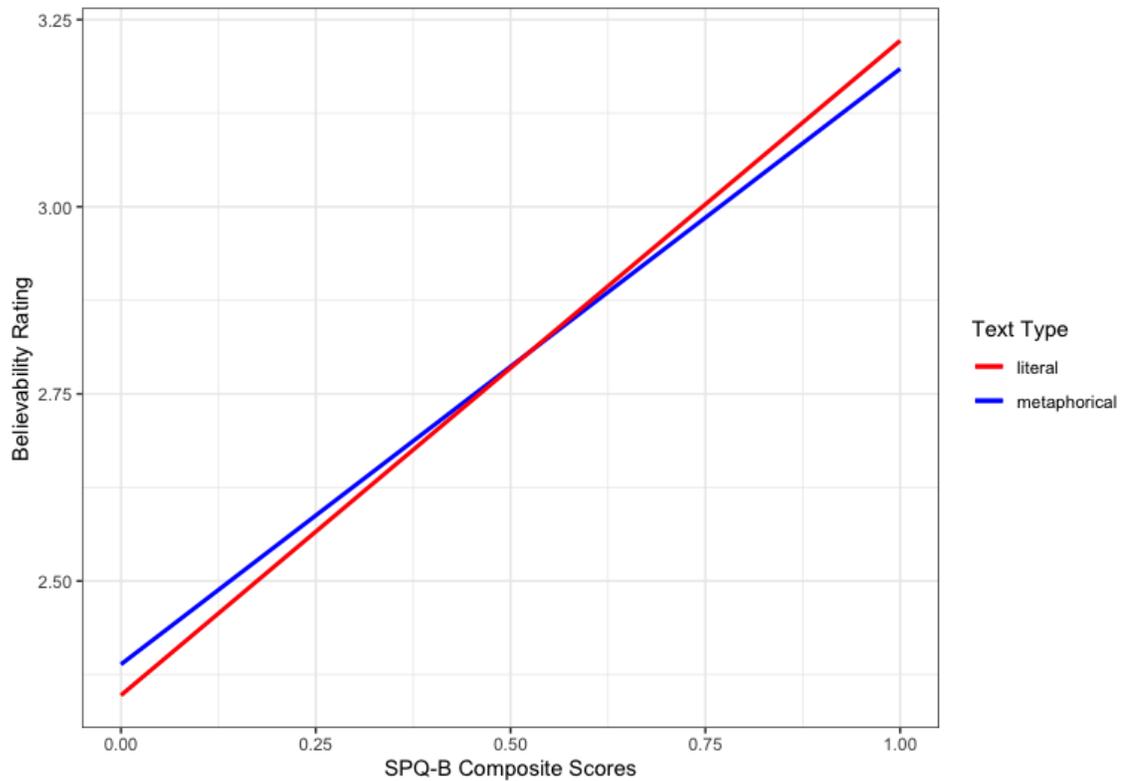
Note. SPQ-B = 0.97. The red line represents the line of best fit for believability ratings for literal conspiracy theory texts. The blue line represents the line of best fit for believability ratings for metaphorical conspiracy theory texts.

language type and magical ideation composite scores. The intercept for the overall model was found to be significant, ($\beta = 2.17$, $SE = 0.13$, $t = 16.13$, $p = 0.00$). The main effect of language type was not found ($\beta = .04$, $SE = .06$, $t(3600.44) = 0.67$, $p = .51$), meaning the data did not support the prediction of a main effect of language type on overall conspiracy theory text believability. A main effect of magical ideation was found ($\beta = 1.37$, $SE = .22$, $t(353.51) = 6.12$, $p = 0.00$), indicating that as magical ideation scores increased, overall conspiracy theory believability ratings increased. There was not a significant Text Type $\times$ Believability interaction effect on magical ideation composite

scores (β = -.11, *SE* = .13, *t(3599.13) t* = -0.86, *p* = 0.39), indicating that the prediction

that the relationship of conspiracy theory text type and overall believability ratings were

influenced by magical ideation composite scores was not supported. See Tables 6-8 for

full model information and Figure 3 for significant results.

Table 6. *Random effects of overall linear mixed effects model 2.*

Groups		Variance	Std.Dev.
Participant	Intercept	0.66	0.81
Conspiracy Type	Intercept	0.08	0.29
Residual		0.80	0.90

Table 7. *Fixed effects for overall linear mixed effects model 2.*

	Estimate	Standard Error	df	t	p
Intercept	2.17	0.13	84.20	16.13	0.00***
Text Type	0.04	0.06	3600.44	0.67	0.51
Magical Ideation Score	1.37	0.22	353.51	6.12	0.00***
Text_Magical	-0.11	0.13	3599.13	-0.86	0.39

Note. The model used metaphorical texts as the reference type for 'Language type'.
'Magical Score' indicates the main effect of magical ideation composite scores.
'Text_Magical' indicates the Text Type × Believability interaction effect on magical
ideation composite scores.
.*p*<.055; **p*<.05; ***p*<.01; ****p*<.001

Model 3 Results

A linear mixed effects model was conducted using the 'lme4' and 'lmerTest'

packages in R to predict believability ratings from language type and delusional ideation.

In the model, conspiracy type and participant were coded as random effects to

account for variability for the participants and their perception of the texts that cannot be

explained. Each of the predictor variables was coded as a fixed effect: believability ratings, language type and delusional ideation composite scores. The intercept for the overall model was found to be significant, (β = 2.31, SE = 0.11, t = 21.38, p = 0.00). The main effect of language type was not found (β = .04, SE = .04, $t(3606.10)$ = 0.85, p = .40), meaning the data did not support the prediction of a main effect of language type on overall conspiracy theory text believability. A main effect of delusional ideation was found (β = 2.12, SE = .26, $t(359.38)$ = 8.29 p = 0.00), indicating that as magical ideation scores increased, overall conspiracy theory believability ratings increased. There was not a significant Text Type $\times$ Believability interaction effect on delusional ideation composite scores (β = -.20, SE = .15, $t(3603.03)$ t = -1.30, p = 0.20), indicating that the prediction that the relationship of conspiracy theory text type and overall believability ratings were influenced by delusional ideation composite scores was not supported. See Tables 9-11 for full model information and Figure 4 for significant results.

Table 8. *Correlation of Fixed Effects for model 2.*

	Intercept	Text Type	MIS
Text Type	-0.24		
MIS	-0.71	0.26	
Text_MIS	0.21	-0.88	-0.30

Note. Correlation matrix for the fixed effects of the overall model. 'MIS' indicates scores on the Magical Ideation Scale. 'Text_MIS' indicates the Text Type $\times$ Believability interaction effect on magical ideation composite scores.
.$p<$.055; *$p<$.05; **$p<$.01; ***$p<$.001

Figure 3.

Main Effect of Magical Ideation Scale Scores
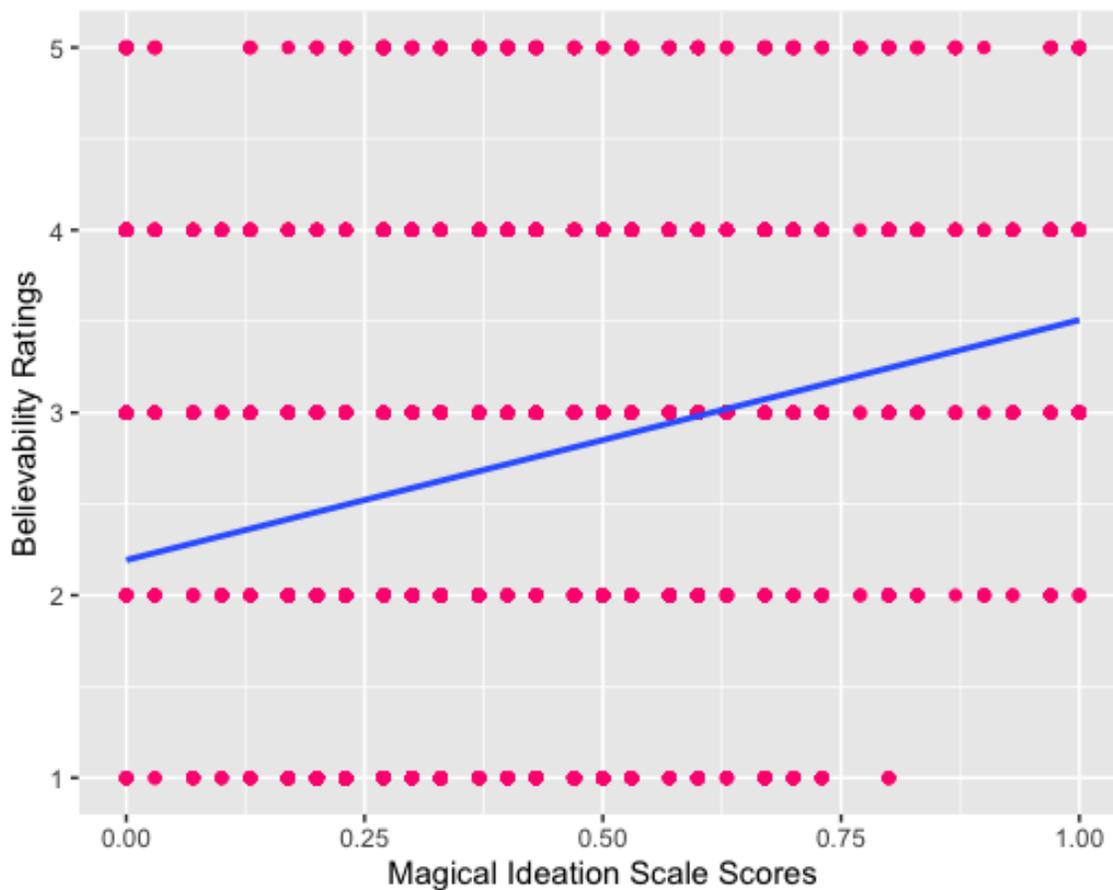
Note. Overall, as magical ideation composite scores increase, overall conspiracy theory text believability increased. Each pink data point represents a believability rating. The blue line represents the line of best fit.

Table 9. *Random effects of overall linear mixed effects model 3.*

Groups		Variance	Std.Dev.
Participant Conspiracy	Intercept	0.60	0.77
Type	Intercept	0.08	0.29
Residual		0.80	0.90

Table 10. *Fixed effects for overall linear mixed effects model 3.*

	Estimate	Standard Error	df	t	p
Intercept	2.31	0.11	37.96	21.38	0.00***
Text Type	0.04	0.04	3606.10	0.85	0.40
Delusional Ideation Score	2.12	0.26	359.38	8.29	0.00***
Text_Delusional	-0.20	0.15	3603.03	-1.30	0.20

Note. The model used metaphorical texts as the reference type for 'Language type'. 'Delusional Ideation Score' indicates the main effect of delusional ideation composite scores. 'Text_Delusional' indicates the Text Type × Believability interaction effect on delusional ideation composite scores.
.*p*<.055; **p*<.05; ****p*<.01; ***p<.001

Table 11. *Correlation of Fixed Effects for model 3.*

	Intercept	Text Type	MIS
Text Type	-0.21		
DIS	-0.50	0.23	
Text_Delusional	0.16	-0.74	-0.31

Note. Correlation matrix for the fixed effects of the overall model. 'DIS' indicates scores on the Peters et al. Delusions Inventory Scale. 'Text_Delusional' indicates the Text Type × Believability interaction effect on delusional ideation composite scores.
.*p*<.055; **p*<.05; ****p*<.01; ***p<.001

Covariates

A linear mixed effects model was conducting using the 'lme4' and 'lmerTest' packages in R to predict believability ratings from language type and the three individual difference measures and their interactions, including the demographic data (birth year, race, gender identity and primary new sources) we collected as covariates. The covariates were coded as additional predictors. In the model, language type and participant were coded as random effects. None of the covariates were found to be significant, suggesting that at least for this population, none of these covariates had an effect on the overall model, moderated effects or interaction effects. Effect size of the overall model, the fixed

effects and random effects were calculated using R package 'rsq,' and found a large effect for the overall model ($r^2 = .58$), a large effect for the fixed effects ($r^2 = .48$), and a medium effect for the random effects ($r^2 = .10$).

Figure 4.

Main Effect of Delusional Ideation Scale Scores
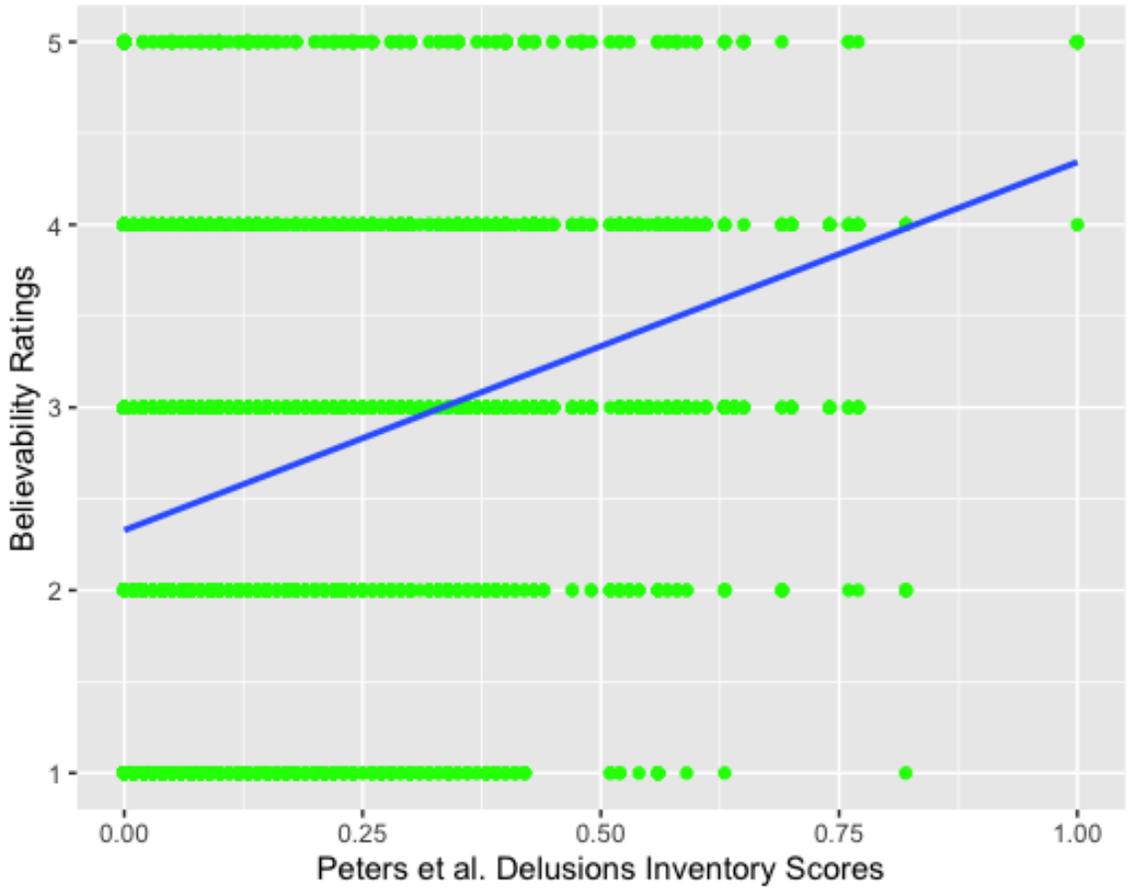
Note. Overall, as delusional ideation composite scores increase, overall conspiracy theory text believability increased. Each green data point represents a believability rating. The blue line represents the line of best fit.

Discussion

Findings

Three linear mixed effects model were conducted to the main effect of language type for conspiracy theory texts, the main effects of schizotypal ideation, magical ideation, and delusional ideation as well as the interaction of these effects. Within the model, both main effects and interaction effects of each individual difference measure composite score were measured.

There was a main effect of language type found for schizotypal ideation model (β = .12, *SE* = .06, *t(3601.97)* = 2.01*, p* = .04), such that as metaphorical conspiracy theory texts were rated as significantly more believable than literal language conspiracy theory texts. Although this main effect was not significant in the magical ideation model (β = .04, *SE* = .06, *t(3600.44)* = 0.67*, p* = .51) and delusional ideation model (β = .04, *SE* = .04, *t(3606.10)* = 0.85*, p* = .40), this significant result in the schizotypal ideation model shows that language type in conspiracy theory texts should be considered as variable that influences overall conspiracy theory belief.

For each of the models, there was a significant main effect of individual difference scores on overall conspiracy theory believability ratings: schizotypal ideation (β = .97, *SE* = .19, *t(348.95)* = 5.07, *p* = 0.00), magical ideation (β = 1.37, *SE* = .22, *t(353.51)* = 6.12*, p* = 0.00), and delusional ideation (β = 2.12, *SE* = .26, *t(359.38)* = 8.29 *p* = 0.00). Meaning, as each of these individual difference composite scores increased, overall conspiracy theory text believability ratings increased.

For the model with schizotypal ideation as a predictor, there was a significant Text Type $\times$ Believability interaction effect on schizotypy composite scores (β = -.27, *SE*

= .11, *t(3599.24) = -2.45, p = .01*), indicating that the relationship of conspiracy theory text type and overall believability ratings was influenced by schizotypal ideation composite scores. However, this effect was not found for the model with magical ideation (*β = -.11, SE = .13, t(3599.13) = -0.86, p = 0.39*) and delusional ideation (*β = -.20, SE = .15, t(3603.03) = -1.30, p = 0.20*) as a predictor, indicating that the data did not support the predicted interaction effects of both the Text Type × Believability interaction effect on magical ideation composite scores and the Text Type × Believability interaction effect on delusional ideation composite scores.

Exploratory analyses were conducted to better understand potential differences by conspiracy theory type. See Appendix E.

Limitations

When creating these materials, we controlled for the number of sentences in the text, the number of metaphors used in the metaphorical conspiracy theory texts and the subsequent literal translations. While we did expect to find more main effects of language type, there could have been several factors of the text used that impacted overall believability ratings for the difference conspiracy theory language types. These conspiracy theories cover a range of types of conspiracy theories—political, social, historical, etc. We tried to capture a variation of types of conspiracy theories in our materials. While our model did control for random effects of variance of participants and language type, we do not know how different levels of familiarity of the conspiracy theory by each participant may have influenced overall believability ratings. If several participants were unfamiliar (or conversely, very familiar), with different conspiracy

theories, the type of language used in the text may not have been a factor in their believability ratings.

Additionally, the length of the text may have impacted overall believability. We felt that a 5-sentence text would suffice to retain participants' attention as well as provide enough information about the conspiracy. It could have been that give sentences did not suffice to alter the overall believability of the text, regardless of the type of language used.

Implications and Future Directions

Although the main effect of language type was not supported for two out of three of the models, we still believe that the language type used in conspiracy theory texts should be considered as a factor for overall conspiracy theory belief. The significant main effects of the three individual difference measures show us that these individual differences can tell us about overall conspiracy theory text believability. These data support the idea that certain individual differences may impact overall language processing.

In understanding factors that may influence overall conspiracy theory belief, this can help us mitigate the spread of conspiracy theories. Research in this domain can be helpful in creating natural language processing tools through machine learning (Shahsavari et al., 2020) that can pinpoint specific aspects of language (such as metaphorical or literal), that may influence the continued spread of conspiracy theories and implications of conspiracy theory belief (Uscinski et al., 2017; Jolley & Douglas, 2014). Based on these findings, we believe future research may should more significant interaction effects of these variables. Since research has shown the persuasive nature of

metaphors within a text, we feel that these materials could be further edited and explored (Sopory & Dillard, 2002). In a future study, there are new considerations in how we would pilot these materials. First, it may be important to pilot overall believability of non-conspiracy theory texts to replicate the findings of Sopory & Dillard (2002). Additionally, the different levels of familiarity with the different conspiracy theory texts may have been a potential confound. In future research, it will be important to pilot the level of familiarity for each of the conspiracy theories or explore creating fake conspiracy theories to fully control for level of familiarity.

To further understand the cognitive neuropsychological implications of this research, it would be interesting to conduct a divided visual field study to investigate differences in the hemispheric processing of these texts. However, the current conspiracy theory texts will need to be reviewed, edited, and piloted before conducting any follow up studies. In future studies investigating conspiracy theories, we will also need to consider other potential confound such as familiarity with certain conspiracy theories.

References

Allington, D., Duffy, B., Wessely, S., Dhavan, N., Rubin, J. (2020). Health-protective behavior, social media usage, and conspiracy belief during the COVID-19 public health emergency. *Psychological Medicine*, *15*, 1763-1769. https://doi.org/10.1017/ S003329172000224X

Atbaşoğlu, E. C., Kalaycioğlu, C., & Nalçaci, E. (2003). Reliability and validity of Turkish version of magical ideation scale in university students. *Turk Psikiyatri Dergisi= Turkish Journal of Psychiatry*, *14*(1), 31-41.

Beeman, M. J., & Bowden, E. M. (2000). Right and left hemisphere cooperation for drawing predictive and coherence inferences during normal story comprehension. *Brain and Language, 71*, 310-336. https://doi:10.1006/brln.1999.2268

Beeman, M., Friedman, R. B., Grafman, J., Perez, E., Diamond, S., & Lindsay, M. B. (1994). Summation priming and coarse semantic coding in the right hemisphere. *Journal of Cognitive Neuroscience*, *6*(1), 26-45. https://doi.org/10.1162/jocn.1994.6.1.26

Blank, G. D. (1988). Metaphors in the lexicon. *Metaphor and Symbol*, *3*(3), 21-36.

Bonetto, E., Troïan, J., Varet, F., Lo Monaco, G., & Girandola, F. (2018). Priming resistance to persuasion decreases adherence to conspiracy theories. *Social Influence*, *13*(3), 125-136. https://doi.org/10.1080/15534510.2018.1471415

Bowdle, B. F., & Gentner, D. (2005). The career of metaphor. *Psychological Review*, *112*(1), 193. https://doi.org/10.1037/0033-295X.112.1.193

Bruder, M., & Manstead, A.S.R. (2009). *Questionnaire on conspiracy theories*. Retrieved from http://www.conspiracytheory.martinbruder.com/en.

Butler, L. D., Koopman, C., & Zimbardo, P. G. (1995). The psychological impact of

    viewing the film" JFK": Emotions, beliefs, and political behavioral intentions.

    Political Psychology, 237-257. https://doi.org/10.2307/3791831

Champagne-Lavau, M., & Stip, E. (2010). Pragmatic and executive dysfunction in

    schizophrenia. *Journal of Neurolinguistics*, *23*(3), 285-296.

    https://doi.org/10.1016/j.jneuroling.2009.08.009

Clark, H., & Lucy, P . (1975). Understanding what is meant from what is said: A study in

    conversationally conveyed requests. *Journal of Verbal Learning and Verbal*

    Behavior, *14*, 56-72. https://doi.org/10.1016/S0022-5371(75)80006-5

Clarke, S. (2002). Conspiracy Theories and Conspiracy Theorizing. *Philosophy of the*

    Social Sciences, *32*(2), 131–150. https://doi.org/10.1177/004931032002001

Darwin, H., Neave, N., & Holmes, J. (2011). Belief in conspiracy theories. The role of

paranormal belief, paranoid ideation and schizotypy. *Personality and Individual*

    Differences, 50(8), 1289-1293. https://doi.org/10.1016/j.paid.2011.02.027

Douglas, K. M. (2021). COVID-19 conspiracy theories. *Group Processes & Intergroup*

    Relations, *24*(2), 270-275. https://doi.org/10.1177/1368430220982068

Douglas, K. M., & Sutton, R. M. (2011). Does it take one to know one? Endorsement of

    conspiracy theories is influenced by personal willingness to conspire. *British*

    Journal of Social Psychology, *50*(3), 544-552. https://doi.org/10.1111/j.2044-

    8309.2010.02018.x

Douglas, K. M., & Sutton, R. M. (2008) The Hidden Impact of Conspiracy Theories:

    Perceived and Actual Influence of Theories Surrounding the Death of Princess

Diana. *The Journal of Social Psychology, 148*(2), 210-222.

https://doi.org/10.3200/ SOCP.148.2.210-222

Douglas, K. M., Sutton, R. M., & Cichocka, A. (2017). The Psychology of Conspiracy

Theories. *Current Directions in Psychological Science, 26*(6), 538–542.

https://doi.org/10.1177/0963721417718261

Douglas, K. M., Uscinski, J. E., Sutton, R. M., Cichocka, A., Nefes, T., Ang, C. S., &

Deravi, F. (2019). Understanding conspiracy theories. *Political Psychology,*

40(1), 3–35. https://doi.org/10.1111/pops.12568

Eckblad, M., & Chapman, L. J. (1983). Magical ideation as an indicator of schizotypy.

Journal of Consulting and Clinical Psychology, 51(2), 215–225.

https://doi.org/10.1037/0022-006X.51.2.215

Enders, A. M., Uscinski, J. E., Seelig, M. I., Klofstad, C. A., Wuchty, S., Funchion, J. R.,

Murthi, M. N., Premaratne, K., & Stoler, J. (2021). The Relationship between

Social Media Use and Beliefs in Conspiracy Theories and Misinformation.

Political Behavior, 1–24. https://doi.org/10.1007/s11109-021-09734-6

Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses

using G*Power 3.1: Tests for correlation and regression analyses. *Behavior*

Research Methods, 41, 1149-1160.

Fenigstein, A., & Vanable, P. A. (1992). Paranoia and self-consciousness. Journal of

Personality and *Social Psychology, 62*, 129–138. https://doi.org/10.1037/0022-

3514.62.1.129

Fonseca-Pedrero, E., Debbané, M., Ortuño-Sierra, J., Chan, R. C. K., Cicero, D. C.,

Zhang, L. C., ... & Jablensky, A. (2018). The structure of schizotypal personality

traits: a cross-national study. *Psychological Medicine, 48*(3), 451-462.

https://doi.org/10.1017/S0033291717001829

Fonseca Pedrero, E., Paíno Piñeiro, M. D. L. M., Lemos Giráldez, S., García Cueto, E.,

Villazón García, Ú., & Muñiz Fernández, J. (2009). Psychometric properties of

the Perceptual Aberration Scale and the Magical Ideation Scale in Spanish college

students. *International Journal of Clinical and Health Psychology*, *9*(2), 199-312.

Fonseca-Pedrero, E., Paino, M., Lemos-Giráldez, S., Sierra-Baigrie, S., & Muñiz, J.

(2011). Measurement invariance of the Schizotypal Personality Questionnaire-

Brief across gender and age. *Psychiatry Research*, *190*(2-3), 309-315.

https://doi.org/10.1016/j.psychres.2011.05.021

Fonseca-Pedrero, E., Paino, M., Santarén-Rosell, M., Lemos-Giráldez, S., & Muñiz, J.

(2012). Psychometric properties of the Peters et al Delusions Inventory 21 in

college students. *Comprehensive Psychiatry*, *53*(6), 893-899.

https://doi.org/10.1016/j.comppsych.2012.01.00

Gentner, D., & Bowdle, B. F. (2001). Convention, form, and figurative language

processing. *Metaphor and Symbol, 16*(3-4), 223-247,

https://doi.org/10.1080/10926488.2001.9678896

Glucksberg, S. (1998). Understanding Metaphors. *Current Directions in Psychological

Science, 7(*2), 39–43. https://doi.org/10.1111/1467-8721.ep13175582

Hameleers, M. (2020). My reality is more truthful than yours: Radical right-wing

politicians' and citizens' construction of "fake" and "truthfulness" on social

media—Evidence from the United States and The Netherlands. *International

Journal of Communication*, *14*, 1135-1152.

Janus, R. A., & Bever, T. G. (1985). Processing of metaphoric language: An investigation of the three-stage model of metaphor comprehension. *Journal of Psycholinguistic Research*, *14*(5), 473-487. https://doi.org/10.1007/BF01666722

Jolley, D., & Douglas, K. M. (2014). The social consequences of conspiracism: Exposure to conspiracy theories decreases intentions to engage in politics and to reduce one's carbon footprint. *British Journal of Psychology*, *105*(1), 35-56. https://doi.org/10.1111/bjop.12018

Kao, Y. C., Wang, T. S., Lu, C. W., Cheng, T. H., & Liu, Y. P. (2012). The psychometric properties of the Peters et al. Delusions Inventory (PDI) in Taiwan: reliability, validity, and utility. *Social Psychiatry and Psychiatric Epidemiology*, *47*(8), 1221-1234. https://doi.org/10.1007/s00127-011-0428-y

Kaplan, J., Brownell, H., Jacobs, J., & Gardner, H. (1990). The effects of right hemisphere damage on the pragmatic interpretation of conversational remarks. *Brain and Language, 38,* 315-333. https://doi.org/10.1016/0093-934X(90)90117-Y

Lakoff, G., & Johnson, M. (1980). Conceptual metaphor in everyday language. *The Journal of Philosophy*, *77*(8), 453-486. https://doi.org/10.2307/2025464

Mashal, N., & Faust, M. (2008). Right hemisphere sensitivity to novel metaphoric relations: Application of the signal detection theory. *Brain and Language*, *104*(2), 103-112. https://doi.org/10.1016/j.bandl.2007.02.005

Miller, B. L. (2020). Science denial and COVID conspiracy theories: potential neurological mechanisms and possible responses. *The Journal of the American*

Medical Association, *324*(22), 2255-2256.

https://doi.org/10.1001/jama.2020.21332

Mohr, C., Graves, R. E., Gianotti, L. R., Pizzagalli, D., & Brugger, P. (2001). Loose but

normal: a semantic association study. *Journal of Psycholinguistic*

Research, *30*(5), 475-483. https://doi.org/10.1023/A:1010461429079

Peters, E., Joseph, S., Day, S., & Garety, P. (2004). Measuring delusional ideation: the

21-item Peters et al. Delusions Inventory (PDI). *Schizophrenia Bulletin*, *30*(4),

1005-1022. https://doi.org/10.1093/oxfordjournals.schbul.a007116

Raine, A. (1991). The SPQ: a scale for the assessment of schizotypal personality based

on DSM-III-R criteria. *Schizophrenia Bulletin*, *17*(4), 555-564.

https://doi.org/10.1093/schbul/17.4.555

Raine, A., & Benishay, D. (1995). The SPQ-B: A brief screening instrument for

schizotypal personality disorder. *Journal of Personality Disorders*, *9*(4), 346-355.

https://doi.org/10.1521/pedi.1995.9.4.346

Romer, D., & Jamieson, K. H. (2020). Conspiracy theories as barriers to controlling the

spread of COVID-19 in the US. *Social Science & Medicine*, *263*, 113356.

https://doi.org/10.1016/j.socscimed.2020.113356

Rucker, D. D., Tormala, Z. L., & Petty, R. E. (2004). Individual differences in resistance

to persuasion: The role of beliefs and meta-beliefs. *Resistance and Persuasion,*

83.

Shahsavari, S., Holur, P., Wang, T., Tangherlini, T. R., & Roychowdhury, V. (2020).

Conspiracy in the time of corona: Automatic detection of emerging COVID-19

conspiracy theories in social media and the news. *Journal of Computational Social Science*, *3*(2), 279-317. https://doi.org/10.1007/s42001-020-00086-5

Shermer, M. (2020). Why people believe conspiracy theories. *Skeptic*, *25*(1), 12-17.

Sopory, P., & Dillard, J. P. (2002). Figurative language and persuasion. *The Persuasion Handbook: Developments in Theory and Practice*, 407-426. https://doi.org/10.3390/fi13060142

Spradling, M., Straub, J., & Strong, J. (2021). Protection from 'fake news': The need for descriptive factual labeling for online content. *Future Internet*, *13*(6), 142. https://doi.org/10.3390/fi13060142

Swami, V., Chamorro-Premuzic, T., & Furnham, A. (2010). Unanswered questions: A preliminary investigation of personality and individual difference predictors of 9/11 conspiracist beliefs. *Applied Cognitive Psychology, 24*(6), 749-761. https://doi.org/10.1002/acp.1583

Swami, V., Pietschnig, J., Tran, U. S., Nader, I. W., Stieger, S., & Voracek, M. (2013). Lunar lies: The impact of informational framing and individual differences in shaping conspiracist beliefs about the moon landings. *Applied Cognitive Psychology, 27*(1), 71-80. https://doi.org/10.1002/acp.2873

Tobacyk, J., & Milford, G. (1983). Belief in paranormal phenomena: Assessment instrument development and implications for personality functioning. *Journal of Personality and Social Psychology, 44*, 1029–1037. https://doi.org/10.1037/0022-3514.44.5.1029

Uscinski, J. E., Douglas, K., & Lewandowsky, S. (2017). Climate change conspiracy theories. *Oxford Research Encyclopedia of Climate Science*. https://doi.org/10.1093/acrefore/9780190228620.013.328

Uscinski, J., & Parent, J. M. (2014). *American conspiracy theories*. Oxford University Press.

Varga, E., Schnell, Z., Tényi, T., Németh, N., Simon, M., Hajnal, A., ... & Herold, R. (2014). Compensatory effect of general cognitive skills on non-literal language processing in schizophrenia: a preliminary study. *Journal of Neurolinguistics*, *29*, 1-16. https://doi.org/10.1016/j.jneuroling.2014.01.001

Appendix A: Metaphorical and Literal Language Conspiracy Texts and

Believability

Topic	Metaphorical Text	Literal Text
Pizzagate	In March 2016, John Podesta's personal email was hacked & his *deep dark secrets* were thankfully published on WikiLeaks. Podesta, Hillary Clinton's 2016 presidential campaign chair with c*otton balls for a brain*, was revealed to be part of a heinous underground child trafficking scandal. Mainstream media *jumped the gun* and made a mockery of these claims after a brave individual raided Comet Ping Pong with the intent to save the children. Democratic officials & the media *stuck to their guns* and claimed that the emails did not include coded messages. The downplaying of this event leaves hundreds of children in danger, leaving them in the *path of exile*.	In March 2016, John Podesta's personal email was hacked & these emails contained **private information** that were published on WikiLeaks. Podesta, the **idiotic** campaign chair for Hillary Clinton's 2016 presidential campaign, was part of an underground child trafficking scandal. Mainstream media **acted too hastily** and made a mockery of these claims after a brave individual raided Comet Ping Pong with the intent to save the children. While democratic officials & the media have **repeatedly** stated that the emails did not include coded messages, politicians have long been affiliated with such crimes. The downplaying of this event leaves hundreds of children in danger, leaving them in an **unsafe state**.
Sandy Hook	December 14th, 2012 was the alleged Sandy Hook Elementary school shooting, but the whole tragedy is *built on a house of cards*. It is rather a fake story by the mainstream media in order to *push the envelope* for gun control reform. Events like these are causing a *domino effect* of individuals who distrust mainstream media. It was reported that 28 people were *covered in a sea of bullets*--27 at the shooting & the perpetrators mother. To make up such a sick & twisted story about children dying for a political agenda isn't the first or last time the	December 14th, 2012 was the date of the alleged Sandy Hook Elementary school shooting but the whole event is based on **unreliable details**. What would be regarded as a tragedy is unfortunately not true & is a fake story by mainstream media in order to **extend past limits** in support of gun control reform. Events like these are **directly causing** more individuals who distrust mainstream media. It was reported that 28 people were **killed** during the shooting. To make up an evil story about children dying for a political

	government has led us down a painful *slippery slope*.	agenda is not the first or last time the government has **caused uncertainty**.
Denver Airport	The truth surrounding the Denver International Airport since its opening in 1995 remains *under wraps*. The sheer size of the airport provides the ideal *blanket to cover suspicious activity*; even though it ranks as the 5th busiest airport in America, it touts itself as the largest in North America. Outside one of the main entrances is a plaque with the Freemason symbol, further proving that the airport's underground tunnels for the social & political elite are being *locked away from public knowledge.* Additionally, the runways of the airport *stand out a mile* with the matching symbol of a swastika. While the media has bought into the jokes about this location, the public still awaits a *sea of knowledge* about the airport or an opportunity to see the underground tunnels.	The truth surrounding the Denver International Airport since its opening in 1995 remains **known to very few people**. The **size** of the airport lends itself to suspicious **activity that can easily be covered**; even though it ranks as the 5th busiest airport in America, it touts itself as the largest in North America. Outside one of the main entrances is a plaque with the Freemason symbol, further proving that the airport's underground tunnels may be a hidden bunker space for the social & political elite **and that this information is hidden from the public**. Additionally, the runways of the airport very **obviously display** the symbol of a swastika. While the media has bought into the jokes about this location, the public still waits for a **lot of information** about the airport or an opportunity to see the underground tunnels.
Holocaust	While it is true that the Jewish people were poorly mistreated during World War II, the claims that 6 million Jews died in German death camps is nothing more than a *cloudy memory*. There is no *concrete foundation of evidence* of concentration camp existence (limited photos & documents) because there was not much to begin with. About 400,000 Jews did die during this time, but this was due to rampant disease that carried the *smell of death* across Europe, and not from direct harm of the Germans. The Germans were wrong to forcefully deport Jewish	Jewish people were mistreated during World War II, but the claims that 6 million Jews died in German death camps is **vague and unclear**. There is not much **physical evidence** of concentration camp existence by photos & documentation. About 400,000 Jews did die during this time, but this was due to rampant disease that carried **inevitable death** across Europe, and not from direct harm of the Germans. The Germans were wrong to deport Jewish people from their homes, but it is a **unjust** to make such accusations that they were

	people from their homes, but it is *miscarriage of justice to make* such awful accusations that they were responsible for the genocide of an entire group of people. Such accusatory talk can lead individuals to the *point of no return*, as it is punishable by law.	responsible for the genocide of an entire group of people. Such accusatory talk can lead individuals to **a stage at which it is no longer possible to stop repercussions**, trying to talk about this is against the law.
Dyatlov Pass	The *bitter end* of nine Russian hikers in the Ural Mountains remains a large mystery. After their mysterious disappearance in February of 1959, not only did it take investigators a month to locate the remains, most scientists, *who are walking and talking encyclopedias*, still cannot explain the cause of their death. Some have accredited the accident to an avalanche, although there is no evidence after the incident that an avalanche had caused such a *ripple effect.* The details surrounding the event are *misted with uncertainty*; some of the bodies found were completely naked, despite freezing temperatures, with their eyes & tongues cut out. No scientist or government official can conclude what actually happened here, leading many to believe this event could be *beyond this realm.*	The **last details of the death** of nine Russian hikers in the Ural Mountains is still unknown. After their unsuitable death in February of 1959, it took investigators a month to locate the remains and most scientists, **who are very knowledgeable**, are unsure of the cause of their death. Some have said the accident is due to an avalanche, although there is no evidence after the incident that an avalanche had **caused other events to happen**. The details surrounding the event are unclear; some of the bodies found were completely naked, despite cold temperatures, with their eyes & tongues cut out. No scientist or government official can conclude what actually happened here, leading many to believe this event could be caused by **some extraterrestrial force**.
Assassination of JFK	On November 22nd, 1963, John F. Kennedy was *murdered in cold blood* by Lee Harvey Oswald, although this was not a solo job. Oswald was just a *pawn in the government's chess game* where he took all the blame. There were 4 shots & it is *a difficult idea to swallow* that one bullet to have hit his body in the manner that it did. Many have tried to refute this with the "single bullet theory," although	On November 22nd, 1963, John F. Kennedy was **assassinated** by Lee Harvey Oswald, although this was not a solo job. Oswald was simply **an easy figure for the government to target**, causing Oswald to be blamed. There were 4 shots & it is **hard to conceptualize** that one bullet hit his body in the manner that it did. Many have tried to refute this with the "single bullet theory,"

	it would be physically impossible in this case due to the *speeding bullet's* trajectory. People attempt to *silence the masses* in order to prevent the public from accepting the CIA's involvement in President Kennedy's murder.	although it would be physically impossible in this case due to the bullet's **fast trajectory**. There have been attempts to **quell these many theories** due to the nature of CIA involvement in President Kennedy's murder.
9/11	Many believe that the crashing of two planes caused the Twin Towers to fall in the September 11th attacks, *setting the stage* for political backlash against the Middle east. The majority of most physicists & civil engineers agree that *diamond-strength* structures could not collapse from a plane crash alone. Most likely, the Twin Towers fell due to explosives that were placed inside the building, indicating that the attacks were done by *pulling strings behind the curtain.* Currently, about 55% of Americans believe that the government had *behind-the-scenes* involvement in the September 11th attacks. The exact motivations of the attack are still unknown, and continued research could reveal other *tight-lipped* government secrets.	Many believe that the crashing of two planes caused the Twin Towers to fall in the September 11th attacks, **creating a political presence** for political backlash against the Middle east. The majority of most physicists & civil engineers agree that such **strong structures** could not collapse from a plane crash alone. Most likely, the Twin Towers fell due to explosives that were placed inside the building, **indicating that the attacks were caused by another involved party**. Currently, about 55% of Americans believe that the government had **hidden involvement** in the September 11th attacks. The exact motivations of the attack are still unknown, and continued research could reveal other **well-kept** government secrets.
Moon Landing	There has been long-standing evidence that the moon landing was faked in order to *cut corners* in the Space Race. The photos were clearly altered, as evidenced by the incorrect shadow and camera crosshair placement, in order to *pull the wool over our eyes*. Aside from the photos, there is a *mountain of evidence* by which this event can be proven fake such as the fake moon-rock samples NASA tried to use to prove that the landing had occurred and the false video footage. Since the moon	There has been long-standing evidence that the moon landing was faked in order to allow America to **skip steps** in the Space Race. The photos were clearly altered, as evidenced by the incorrect shadow and camera crosshair placement, in order to **misguide our judgment**. Aside from the photos, there is a **large amount of evidence** by which this event can be proven fake such as the fake moon-rock samples NASA tried to use to prove that the landing had

	landing occurred, public disbelief about the Apollo 11 moon landing has increased to 67%, showing that the *scales have fallen from the public's eyes*. It is up to us to continue *digging up the dirt* so the truth may be told.	occurred and the false video footage. Since the moon landing occurred, public disbelief about the Apollo 11 moon landing has increased to 67%, showing that the public **knows the truth and they no longer believe a false story**. It is up to us to continue **searching for answers** so the truth may be told.
COVID-19	Since the initial spread of Covid-19, many live *frozen with fear* of continued transmission. Currently, we are seeing *ballooning* in cases, even in areas that are majority vaccinated and breakthrough cases show the vaccine can cause infertility, autism, and other complications. This shows that the vaccine is *the invisible enemy* contributing to the continued spread of Covid-19 and the creation of mutations. When herd immunity is reached what may appear to be *two steps forward is one step back* because the disease is able to mutate from the community spread of vaccinated individuals. This, in turn, harms those who wisely choose to not get vaccinated, especially when we know that some diseases must *run their course*.	Since the initial spread of Covid-19, many **are very afraid** of continued transmission. Currently, we are seeing a **large increase** in cases, even in areas that are majority vaccinated and breakthrough cases show the vaccine can cause infertility, autism, and other complications. This shows that the vaccine is an **overlooked contributor** to the continued spread of Covid-19 and the creation of mutations. When herd immunity is reached, **what may appear to be progress will actually be regression** because the disease is able to mutate from the community spread of vaccinated individuals. This, in turn, harms those who wisely choose to not get vaccinated, especially when we know that some diseases must **die out on their own**.
Titanic	Although many believe that the Titanic fell *into the deep abyss* after striking an iceberg on April 15th, 1912, it was actually her sister ship, the Olympic, that sank. Both these ships were *two peas in a pod* besides some minor physical differences. However, before the voyage, the Olympic was disguised as a *mirror image* of the Titanic as part of an insurance scam, as the actual Titanic required repairs prior	Although many believe that the Titanic **sank into the ocean** after striking an iceberg on April 15th, 1912, it was actually her sister ship, the Olympic, that sank. Both these ships **were identical** besides some minor physical differences. However, before the voyage, the Olympic was very **clearly disguised** as the Titanic as part of an insurance scam, as the actual Titanic required repairs

	to its maiden voyage. J. P. Morgan helped plan the switch and the sinking of the ship in *a **desperate shadow boxing match*** to kill rival billionaires Jacob Astor, Isidor Straus, and Benjamin Guggenheim, all of whom were aboard during the accident. Those stakeholders who planned this tragic event did earn a very lucrative insurance claim, but their hearts are ***made of ice***.	prior to its maiden voyage. J. P. Morgan helped plan the switch and the sinking of the ship in a **one-sided rivalry** to kill rival billionaires Jacob Astor, Isidor Straus, and Benjamin Guggenheim, all of whom were aboard during the accident. Those stakeholders who planned this tragic event did earn a very lucrative insurance claim, but are **incapable of empathy**.
Princess Diana	It has become widely known that Princess Diana died because the British royal family, the paparazzi, and the foreign intelligence agency MI6 orchestrated her ***untimely death***. In the ***waking hours*** of August 31, 1997, Diana, Princess of Wales, was involved in a car crash in a tunnel in Paris. In 2003, Diana's butler Paul Burrell set *the **rumors ablaze*** when he published a note he allegedly wrote to Diana in 1995, claiming that her ex-husband was planning a car crash from brake failure. Dodi Fayed, Diana's boyfriend at the time, also suffered an ***unfortunate fate***. Fayed's father & esteemed business man, Mohamed al-Fayed, claimed that Diana was pregnant with his son's child, and the royal family was horrified at the prospect of ***sharing the limelight*** with a Muslim family.	It has become widely known that Princess Diana died because the British royal family, the paparazzi, and the foreign intelligence agency MI6 orchestrated her **early death.** In the **early hours** of August 31, 1997, Diana, Princess of Wales, was in a fatal car crash in a tunnel in Paris. In 2003, Diana's butler Paul Burrell started a **lot of public discourse** when he published a note he wrote to Diana in 1995, stating that her ex-husband was planning a car crash from brake failure. Dodi Fayed, Diana's boyfriend at the time, also **died in the crash**. Fayed's father & esteemed business man, Mohamed al-Fayed, claimed that Diana was pregnant with his son's child, and the royal family feared the potential of **sharing their status and wealth** with a Muslim family.
California Drought	With the ***force of a thousand winds***, the United States government is working to slow climate change by manipulating weather conditions, leading to drought conditions in the western United States from chemtrail scattered aerosols & condensation clusters. Climate engineering is	With **significant force**, the United States government is working to slow climate change by manipulating weather conditions, leading to drought conditions in the western United States from chemtrail scattered aerosols & condensation clusters. Climate engineering is happening

	happening and it's causing California's alleged ***bone-dry*** drought, which has been proven to be present in the state's record-low rain statistics-- only four inches in the past ten years. The governor of California, Gavin Newsom, declared a prolonged drought emergency for 41 of the 58 counties on Monday, citing ***fiery temperatures*** and dry conditions in April and May. Newsom will unfortunately use ***brute force*** on his residents to force them to reduce their water use by at least 15% to ensure adequate supplies if the drought continues for another year. With lawsuits against the government in the early stages, the world may soon see what ***shakes out from the sky.***	and it's causing California's alleged **extremely dry drought**, which has been proven to be present in the state's record-low rain statistics-- only four inches in the past ten years. The governor of California, Gavin Newsom, declared a prolonged drought emergency for 41 of the 58 counties on Monday, **citing very hot temperatures** and dry conditions in April and May. Newsom will unfortunately use **violent force by law** on his residents to force them to reduce their water use by at least 15% to ensure adequate supplies if the drought continues for another year. With lawsuits against the government in the early stages, the world may soon see the **real causes of the drought.**
Flat Earth	Flat earth theory ***unearths the truth*** around the orientation of Earth advocated by modern flat-earth societies and independent & through individual spread on social media. Many ancient cultures have ***dedicated their lives*** to flat earth Cosmography, including Greece during the Classical Period (323 BC), Bronze and Iron Age civilizations in the Middle East during the Hellenistic Period (31 BC), India during the Gupta Period (early centuries AD) and China in the 17th century. While NASA, National Geographic, & other organizations have tried to prove that the earth is spherical by hosting live events to measure the curvature of the Earth, their findings ***fell flat.*** There is a reason why when you walk on earth, it looks & feels flat--despite falsified "photos" of Earth that are actually	Flat earth theory **looks for evidence** around the orientation of Earth advocated by modern flat-earth societies and independent & through individual spread on social media. Many ancient cultures have **dedicated a considerable amount of time** to flat earth Cosmography, including Greece during the Classical Period (323 BC), Bronze and Iron Age civilizations in the Middle East during the Hellenistic Period (31 BC), India during the Gupta Period (early centuries AD) and China in the 17th century. While NASA, National Geographic, & other organizations have tried to prove that the earth is spherical by hosting live events to measure the curvature of the Earth, their findings **did not have enough evidence to be proven to be true**. There is a reason why when

	just a ***distorted perception of reality***. The motives of the world government for concealing the true shape of the Earth cannot be determined, but eventually the truth ***will be unearthed.***	you walk on earth, it looks & feels flat--despite falsified "photos" that are actually just **altered documents**. The motives of the world government for concealing the true shape of the Earth cannot be determined, but eventually the truth **will be known publicly**.

1. How believable is the idea that Hillary Clinton was involved in underground child trafficking ring?
2. How believable is the idea that mass media lied about the Sandy Hook shooting to push for gun reform?
3. How believable is the idea that the Denver Airport is a secret bunker for the social and political elite?
4. How believable is the idea that the death toll of the Holocaust is an overestimation?
5. How believable is the idea that nine Russian hikers went missing due to some paranormal force?
6. How believable is the idea that the CIA was involved in John F. Kennedy's murder?
7. How believable is the idea that the U.S. Government was involved in 9/11?
8. How believable is the idea that the Apollo 11 moon landing was faked?
9. How believable is the idea that the COVID-19 vaccine is contributing to the spread and mutation of COVID-19?
10. How believable is the idea that it was not actually the Titanic that sank?
11. How believable is the idea that the royal family was involved in Princess Diana's death?
12. How believable is the idea that the California drought is caused by climate engineering?
13. How believable is the idea that Earth is flat?

0= Completely unbelievable
1= Mostly unbelievable
2= Somewhat believable
3= Mostly believable
4= Completely believable

Appendix B: Brief Schizotypal Personality Questionnaire
(Raine & Benishay, 1995)
Instructions: You will read and answer a series of yes or no questions.

Cognitive-Perceptual (Factor 1)
1. Have you ever had the sense that some person or force is around you, even though you cannot see anyone?
2. Are you sometimes sure that other people can tell what you are thinking?
3. Have you ever noticed a common event or object that seemed to be a special sign for you?
4. Do you often pick up hidden threats or put-downs from what people say or do?
5. When shopping do you get the feeling that other people are taking notice of you?
6. Have you had experiences with astrology, seeing the future, UFOs, ESP, or a sixth sense?
7. Do you ever suddenly feel distracted by distant sounds that you are not normally aware of?
8. Do you often have to keep an eye out to stop people from taking advantage of you?

Interpersonal (Factor 2)
9. People sometimes find me aloof and distant.
10. I feel I have to be on my guard even with friends.
11. I feel very uncomfortable in social situations involving unfamiliar people.
12. Have you found that it is best not to let other people know too much about you?
13. I tend to keep in the background on social occasions.
14. Do you feel that you are unable to get "close" to people?
15.I feel very uneasy talking to people I do not know well.
16. I tend to keep my feelings to myself.

Disorganized (Factor 3)
17.People sometimes comment on my unusual mannerisms and habits.(14)
18.Some people think that I am a very bizarre person.(32)
19.Some people find me a bit vague and elusive during a conversation.(42)
20. I sometimes use words in unusual ways. (50)
21. 1 am an odd, unusual person. (67)
22. I find it hard to communicate clearly what I want to say to people. (69)

Appendix C: Magical Ideation Scale
(Eckblad & Chapman, 1983)

Instructions: You will read a series of statements and be asked if you think the statement is true or false.

1. Some people can make me aware of them just by thinking about me (true).
2. I have had the momentary feeling that I might not be human (true).
3. I have sometimes been fearful of stepping on sidewalk cracks (true).
4. I think I could learn to read other's minds if I wanted to (true).
5. Horoscopes are right too often for it to be a coincidence (true).
6. Things sometimes seem to be in different places when I get home, even though no one has been there (true).
7. Numbers like 13 and 7 have no special powers (false).
8. I have occasionally had the silly feeling that a TV or radio broadcaster knew I was listening to him (true).
9. I have worried that people on other planets may be influencing what happens on earth (true).
10. The government refuses to tell us the truth about flying saucers (true).
11. I have felt that there were messages for me in the way things were arranged, like in a store window (true).
12. I have never doubted that my dreams are the products of my own mind (false).
13. Good luck charms don't work (false).
14. I have noticed sounds on my records that are not there at other times (true).
15. The hand motions that strangers make seem to influence me at times (true).
16. I almost never dream about things before they happen (false).
17. I have had the momentary feeling that someone's place has been taken by a look-alike (true).
18. It is not possible to harm others merely by thinking bad thoughts about them (false).
19. I have sometimes sensed an evil presence around me, although I could not see it (true).
20. I sometimes have a feeling of gaining or losing energy when certain people look at me or touch me (true).
21. I have sometimes had the passing thought that strangers are in love with me (true).
22. I have never had the feeling that certain thoughts of mine really belonged to someone else (false).
23. When introduced to strangers, I rarely wonder whether I have known them before (false).
24. If reincarnation were true, it would explain some unusual experiences I have had (true).
25. People often behave so strangely that one wonders if they are part of an experiment (true).
26. At times I perform certain little rituals to ward off negative influences (true).
27. I have felt that I might cause something to happen just by thinking too much about it (true).
28. I have wondered whether the spirits of the dead can influence the living (true).

29. At times I have felt that a professor's lecture was meant especially for me (true).
30. I have sometimes felt that strangers were reading my mind (true).

Appendix D: Delusional Ideation Scale
(Peters et al., 2004)
Instructions: You will read a series of statement and be asked if you think the statement is true or false.

1. Do you ever feel as if people seem to drop hints about you or say things with a double meaning? (NO/YES)
   If yes,
   1 (not at all distressing) to 5 (Very distressing)
   1 (Hardly ever think about it) to 5 (Think about it all the time)
   1 (Don't believe it's true) to (Believe it is absolutely true)
2. Do you ever feel as if things in magazines or on TV were written especially for you ?
   If yes,
   1 (not at all distressing) to 5 (Very distressing)
   1 (Hardly ever think about it) to 5 (Think about it all the time)
   1 (Don't believe it's true) to (Believe it is absolutely true)
3. Do you ever feel as if some people are not what they seem to be?
   If yes,
   1 (not at all distressing) to 5 (Very distressing)
   1 (Hardly ever think about it) to 5 (Think about it all the time)
   1 (Don't believe it's true) to (Believe it is absolutely true)
4. Do you ever feel as if you are being persecuted in some way?
   If yes,
   1 (not at all distressing) to 5 (Very distressing)
   1 (Hardly ever think about it) to 5 (Think about it all the time)
   1 (Don't believe it's true) to (Believe it is absolutely true)
5. Do you ever feel as if there is a conspiracy against you?
   If yes,
   1 (not at all distressing) to 5 (Very distressing)
   1 (Hardly ever think about it) to 5 (Think about it all the time)
   1 (Don't believe it's true) to (Believe it is absolutely true
6. Do you ever feel as if you are, or destined to be someone very important?
   If yes,
   1 (not at all distressing) to 5 (Very distressing)
   1 (Hardly ever think about it) to 5 (Think about it all the time)
   1 (Don't believe it's true) to (Believe it is absolutely true)
7. Do you ever feel that you are a very special or unusual person?
   If yes,
   1 (not at all distressing) to 5 (Very distressing)
   1 (Hardly ever think about it) to 5 (Think about it all the time)
   1 (Don't believe it's true) to (Believe it is absolutely true)
8. Do you ever feel that you are especially close to God?
   If yes,
   1 (not at all distressing) to 5 (Very distressing)
   1 (Hardly ever think about it) to 5 (Think about it all the time)
   1 (Don't believe it's true) to (Believe it is absolutely true)
9. Do you ever think people can communicate telepathically?

If yes,
1 (not at all distressing) to 5 (Very distressing)
1 (Hardly ever think about it) to 5 (Think about it all the time)
1 (Don't believe it's true) to (Believe it is absolutely true)

10. Do you ever feel as if electrical devices such as computers can influence the way you think?
   If yes,
   1 (not at all distressing) to 5 (Very distressing)
   1 (Hardly ever think about it) to 5 (Think about it all the time)
   1 (Don't believe it's true) to (Believe it is absolutely true)

11. Do you ever feel as if you have been chosen by God in some way?
   If yes,
   1 (not at all distressing) to 5 (Very distressing)
   1 (Hardly ever think about it) to 5 (Think about it all the time)
   1 (Don't believe it's true) to (Believe it is absolutely true)

12. Do you believe in the power of witchcraft, voodoo or the occult?
   If yes,
   1 (not at all distressing) to 5 (Very distressing)
   1 (Hardly ever think about it) to 5 (Think about it all the time)
   1 (Don't believe it's true) to (Believe it is absolutely true)

13. Are you often worried that your partner may be unfaithful?
   If yes,
   1 (not at all distressing) to 5 (Very distressing)
   1 (Hardly ever think about it) to 5 (Think about it all the time)
   1 (Don't believe it's true) to (Believe it is absolutely true)

14. Do you ever feel that you have sinned more than the average person?
   If yes,
   1 (not at all distressing) to 5 (Very distressing)
   1 (Hardly ever think about it) to 5 (Think about it all the time)
   1 (Don't believe it's true) to (Believe it is absolutely true)

15. Do you ever feel that people look at you oddly because of your appearance?
   If yes,
   1 (not at all distressing) to 5 (Very distressing)
   1 (Hardly ever think about it) to 5 (Think about it all the time)
   1 (Don't believe it's true) to (Believe it is absolutely true)

16. Do you ever feel as if you had no thoughts in your head at all?
   If yes,
   1 (not at all distressing) to 5 (Very distressing)
   1 (Hardly ever think about it) to 5 (Think about it all the time)
   1 (Don't believe it's true) to (Believe it is absolutely true)

17. Do you ever feel as if the world is about to end?
   If yes,
   1 (not at all distressing) to 5 (Very distressing)
   1 (Hardly ever think about it) to 5 (Think about it all the time)
   1 (Don't believe it's true) to (Believe it is absolutely true)

18. Do your thoughts ever feel alien to you in some way?

        If yes,
1 (not at all distressing) to 5 (Very distressing)
1 (Hardly ever think about it) to 5 (Think about it all the time)
1 (Don't believe it's true) to (Believe it is absolutely true)

19. Have your thoughts ever been so vivid that you were worried other people would hear them?
        If yes,
1 (not at all distressing) to 5 (Very distressing)
1 (Hardly ever think about it) to 5 (Think about it all the time)
1 (Don't believe it's true) to (Believe it is absolutely true)

20. Do you ever feel as if your own thoughts were being echoed back to you?
        If yes,
1 (not at all distressing) to 5 (Very distressing)
1 (Hardly ever think about it) to 5 (Think about it all the time)
1 (Don't believe it's true) to (Believe it is absolutely true)

21. Do you ever feel as if you are a robot or zombie without a will of your own?
        If yes,
1 (not at all distressing) to 5 (Very distressing)
1 (Hardly ever think about it) to 5 (Think about it all the time)
1 (Don't believe it's true) to (Believe it is absolutely true)

Appendix E: Exploratory Analyses: Descriptives and ANOVA by Conspiracy Type

Believability Descriptives by Conspiracy Theory.

Conspiracy Theory	Mean	Median	Standard Deviation	Variance
California Drought	2.82	3.00	1.26	1.58
Covid-19	2.83	3.00	1.36	1.84
Denver Airport	2.84	3.00	1.16	1.35
Princess Diana	3.28	3.00	1.13	1.28
Dyatlov Pass	2.82	3.00	1.24	1.54
Flat Earth	2.21	2.00	1.36	1.85
Holocaust	2.44	2.00	1.29	1.66
JFK	3.13	3.00	1.11	1.24
Moon Landing	2.77	3.00	1.23	1.51
Pizzagate	2.74	3.00	1.20	1.45
Sandy Hook	2.39	2.00	1.38	1.90
Titanic	2.65	3.00	1.25	1.57
Twin Towers	2.91	3.00	1.16	1.34

ANOVA for Conspiracy Type.

	df	Sum Squares	Mean	F Value	p
Conspiracy Topic	12	300	24.973	16.14	<.0001*
Residuals	3848	5953	1.547		

Multiple Comparisons Using Bonferonni.

Conspiracy Theory	California Drought	Covid-19	Denver Airport	Princess Diana	Dyatlov Pass	Flat Earth	Holocaust	JFK	Moon Landing	Pizzagate	Sandy Hook	Titanic
Covid-19	1.00											
Denver Airport	0.00**	1.00										
Princess Diana	0.00***	0.00***	0.00**									
Dyatlov Pass	1.00	1.00	1.00	0.00***								
Flat Earth	0.00***	0.00	0.00***	0.00***	0.00***	1.00						
Holocaust	0.01*	0.01*	0.01**	0.00***	0.01*	0.00***	0.00***					
JFK	0.21	0.23	0.32	1.00	0.21	0.00***	0.11	0.03*				
Moon Landing	1.00	1.00	1.00	0.00***	1.00	0.00***	0.23	0.01*	1.00			
Pizzagate	1.00	1.00	1.00	0.00***	1.00	0.00***	1.00	0.00***	0.02*	0.04*		
Sandy Hook	0.00**	0.00***	0.00***	0.00***	0.00**	1.00	1.00	0.00***	1.00	1.00	0.95	
Titanic	1.00	1.00	1.00	0.00***	1.00	0.00**	0.00***	1.00	1.00	1.00	0.00***	0.72
Twin Towers	1.00	1.00	1.00	0.03*	1.00	0.00***						

Note. *p<.05; **p<.01; ***p<.001