

# Bachelor Degree Project



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## **ESTABLISHING A BIOPSYCHOSOCIAL MODEL FOR CONSPIRACY THEORY IDEATION**

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# A BIOPSYCHOSOCIAL MODEL FOR CONSPIRACY THEORY IDEATION

## **Abstract**

This paper aims to provide the grounds for a biopsychosocial understanding of the underpinnings of conspiracy theorist ideation by studying research articles from different scientific disciplines. Cross-disciplinary concurring results are presented and discussed, as well as some examples of how conspiracy theories have been used during the 20<sup>th</sup> century. Also discussed is how this is used in political discourse in the populist climate of today, with the rise of radical right-wing movements, the justification of “alternative facts” from higher governmental ranks, and religious fundamentalism, making it a societal issue of possible big magnitude. Neurological similarities was found between religiousness and proneness to conspiracy theory ideation, and the articles concerning neural correlates therefore stem from research on religious individuals due to the lack of neuro-biopsychological research on actual conspiracy theorists. Since conspiracy theory ideation has shown the ability to cause negative consequences it is also advised that governmental agencies and society as a whole revise its stance on populism and the spread of flawed information, in order to maintain an open society. Also presented are a few ideas on how to begin countering the rise of populism.

*Keywords:* conspiracy theory ideation, cognitive neuroscience, psychology, social-psychology, radicalization, populism

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## Introduction

In the end of the 20<sup>th</sup> century, Wakefield et al. (1998) published a study in the British medical journal *the Lancet*, wherein they stated that children who took part of the MMR (measles, mumps, and rubella) vaccine-program could be at higher risk of develop autism. Their research was later criticized for being of poor quality due to questionable conclusions drawn from data compiled from a mere twelve children, and was even retracted (Lancet, 2010) in part since the conclusions made by the original research team were continuously refuted by other research teams trying to replicate the study. Even so, the article itself had already gained interest and spread to the general population causing concerned parents to question whether their children really needed to receive their MMR vaccinations (Rao & Andrade, 2011). The emergence of the so called “anti-vaxxer”-movement has led to a significant increase in reported cases of measles in the United States of America (Phadke, Bednarczyk, Salmon, & Omer, 2016) and is currently being propagated for by several North American celebrities, whose lack of proper medical education does not seem to bother the people who believe them.

Now, in the beginning of the 21<sup>st</sup> century we have groups claiming that commercial airplanes release lethal chemicals, the earth is flat, the holocaust of World War 2 (WWII) never happened, and even that the world is run by interdimensional lizard people (Icke, 2001). There are political leaders who claim that climate change is a hoax, a present day display of a technique which people in power have always made sure to take advantage of: scared peoples tendency to believe in conspiracy theoretical explanations. Leaders have utilized this throughout history in order to justify war and other atrocities, such as the scientific community loudly opposing and ridiculing Darwin’s and Wallace’s theories of evolution, claims from the Bush and the Blair administrations that Iraq harbored weapons of mass-destruction, or Hitler – partly – blaming the

Jewish population for Germany's financial situation. These ideas could all be viewed as conspiracy theories: beliefs regarding events or scientific conclusions, which go against general consensus and frame a certain group of people as mischievous villains (Prooijen & Jostmann, 2012; Rahman, 2018).

From what we now know about the historical events that have previously been mentioned it is not farfetched to claim that such straightforward charges can have dire consequences on groups of people, larger populations spanning larger geographical areas. For example, the Ruby Ridge siege in the United States in 1992, wherein the Weaver family were in a stand-off with the Federal Bureau of Investigation (FBI), causing the death of Deputy U.S. Marshal William Francis Degan, the mother of the Weaver family (Vicki Weaver), their teenage son (Samuel Weaver), and the family dog (Striker). The general views of the Weaver family could be considered right-wing extremist: they withheld a firm belief in the Christian God, had a close connection to Aryan Nation (a white supremacist group), and were convinced that the government were out to cause them harm in different ways (U.S. Department of Justice, 1994).

A similar incident occurred in Waco, Texas in 1993 (United States Department of Justice, 1993) where more than 80 people were killed during a deadlock between the FBI and a cultist group called the Branch Davidians. This cult was led by the charismatic David Koresh who was convinced that God spoke to him and that the day of judgement was imminent. Koresh managed to convince the men who followed him to surrender their wives, effectively causing divorce between spouses. Parents would let him go to bed with their underage daughters, considering it a privilege, and eventually several dozens were willing to give their lives to his cause, all because they believed that his conspiracy theories regarding the end of the world, the government, and the second coming were true (United States Department of Justice, 1993). But this does not only

occur at small scale. Returning to the conspiracy theories mentioned earlier, the holocaust claimed the lives of more than six million Jewish Europeans along with millions of other civilians (United States Holocaust Memorial Museum, 2018) , and the war in Iraq supposedly claimed somewhere between ~400 000 to ~900 000 civilian deaths in between the years 2003 and 2006 (Burnham, Lafta, Doocy, & Roberts, 2006). Both of these are complex issues which have given rise to several conspiracy theories (Prooijen & Douglas, 2017).

Now, most of those who entertain conspiracy theories will probably never act them out in such a physically violent manner against those who believe differently, yet many will start to ostracize themselves from the rest of society in favor of their in-group (the group which they perceive themselves as belonging to) which will lead to a “narrowed down” media influx, which in turn might further their conspiratorial beliefs leading to advancing the paranoid behavior already exhibited by these individuals to dangerous levels.

This article seeks to establish a model of the biopsychosocial underpinnings of CTI and to give examples which affect CTI can have as a political tool. In this essay the term CTI refers to the psychopathology of individuals that believe in conspiracy theories. It is the author’s opinion that a cross-disciplinary approach is desirable since current existing data on the subject stem from several different scientific fields, which should all be accounted for in order to cover both the natural and environmental impact preceding the acceptance of conspiracy theories. This information could be of importance to governmental agencies as well as the general public since proposed precursors include (but are not limited to) mental illness stemming from absence of social security, lack of healthy relationships, a reduced belief in established political ideals such as democracy, weaker analytical reasoning skills and epistemological deficiencies. The term epistemology is in this essay synonymous with knowledge and deficiencies in this area have

been found to be of particular importance in developing CTI since the digital world of today provide individuals with an easy way to find and socialize with likeminded people in groups on social media. In some cases, the previously mentioned precursors may also predict radicalization of individuals, which could become problematic for the rest of society if left to grow unattended. Hopefully, by presenting these underpinnings society can gain a greater understanding as to why some people become conspiracy theorists, and maybe even be able to help those who risk developing harmful behavior towards others due to radicalization.

The author also wishes to clarify further that not all of the individuals who display these traits are conspiracy theorists, nor will they ever be. However, research shows that conspiracy theorists tend to exhibit these traits.

### **The Importance of This Review**

A theoretical model could be of sociopolitical importance since articles on the subject indicate that conspiracy theorists tend to perceive themselves as lacking self-esteem (Galliford & Furnham, 2017; Sunstein & Vermeule, 2009), social stability (Barron et al., 2018; Douglas, Sutton, & Cichocka, 2017; Freeman & Bentall, 2017; Galliford & Furnham, 2017; Sunstein & Vermeule, 2009), they tend to lack both analytic cognitive abilities (Barron et al., 2018; Brotherton & French, 2014; Orosz et al., 2016; Prooijen, 2016; Ståhl & Prooijen, 2018; Swami, Voracek, Stieger, Tran, & Furnham, 2014) and epistemological understanding (Challies, Hunt, Garry, & Harper, 2011; Dagnall, Drinkwater, Parker, Denovan, & Parton, 2015; Douglas et al., 2017; Elk, 2015; Franks, Bangerter, & Bauer, 2013; Jolley & Douglas, 2017; Rahman, 2018; Sunstein & Vermeule, 2009). Further, subscribing to CTI leads people to doubt scientific results (Galliford & Furnham, 2017; Jolley & Douglas, 2017; Lewandowsky, Gignac, & Oberauer, 2013; Sunstein & Vermeule, 2009) and increases belief in populist ideas (Heath, Bell, &

Sternberg, 2001; Sapountzis & Condor, 2013; Silva, Vegetti, & Littvay, 2017). Since conspiracy theorists tend to conform to the values of their in-group (Galliford & Furnham, 2017; Leone, Giacomantonio, & Lauriola, 2017; Sunstein & Vermeule, 2009) and see the group as morally superior (Rahman, 2018; Smallpage, Enders, & Uscinski, 2017), and in some cases also seek to force the values of the group onto the rest of society (Rahman, 2018; Sapountzis & Condor, 2013), there could be an increased risk of aggressive radicalization when individuals are subjected to conspiracy theories (Rahman, 2018; Rothschild & Keefer, 2017; Sunstein & Vermeule, 2009). These examples explain this reports psychological and social-psychological importance but not necessarily the importance of mapping the biological/neurological correlates. However, based on the biopsychosocial model presented by Gazzaniga, Heatherton, and Halpern (2013) social and psychological issues can stem from neurological deficiencies, which has been exemplified in the case of analytic reasoning where activation in a certain part of the brain correlates with lack of analytic ability (Goel & Dolan, 2003; Tsujii & Watanabe, 2009, 2010; Tsujii et al., 2010). CTI has gained ground and can in some instances be directly harmful to humans and others, for example the belief that vaccines cause autism or that global warming is a hoax (Orosz et al., 2016).

### **Biopsychosocial Underpinnings of Conspiracy Theory Ideation**

#### **Biological/Neurological Correlates**

This section provides a selection of possible neurological correlates for CTI. Extensive search for neurological correlates for CTI did not provide any neuroimaging studies, for example through functional magnetic resonance imaging (fMRI) or repetitive transcranial magnetic stimulation (rTMS) done on conspiracy theorists, perhaps due to their tendency to distrust the scientific community (Douglas et al., 2017; Franks, Bangerter, Bauer, Hall, & Noort, 2017;

Grimes, 2016; Lewandowsky et al., 2013). Therefore the author has decided to include selected reports regarding neural correlates for religious belief/disbelief since there appears to exist some similarities between religious believers and individuals who believe in conspiracy theories, for example a lack of epistemological understanding of the physical world in teleological reasoning (Willard & Norenzayan, 2013) and conspiracy theorist ideation (Barron, Morgan, Towell, Altemeyer, & Swami, 2014; Dagnall et al., 2015; Prooijen & Jostmann, 2012; Sunstein & Vermeule, 2009) as well as feelings of moral concern (Jack, Friedman, Boyatzis, & Taylor, 2016; Leone et al., 2017), and the tendency to perceive intentional causes to things that occur around them (Banerjee & Bloom, 2013; Tempel & Alcock, 2015). Religious individuals have been shown to score lower on tests regarding analytic reasoning (Jack et al., 2016; Pennycook, Ross, Koehler, & Fugelsang, 2016; Westman & Alexander, 2004) which is also true for conspiracy theorists (Barron et al., 2018; Prooijen, 2016; Ståhl & Prooijen, 2018; Swami et al., 2014), and religious individuals have been shown to be more open to conspiracy theories than non-religious individuals (Galliford & Furnham, 2017).

Douglas et al. (2017) suggest that part of the temptations of CTI rely on its ability to give clear answers to ambiguous questions, the connection one feels to others when ideas of how the world functions concur, and a feeling of control and certainty. Franks et al. (2013) have gone on to propose that CTI relies on similar cognitive components as religion, and Silva et al. (2017) has proposed CTI to be a monological worldview, e.g. a belief system that withstands on its own: the convictions coherently support each other, just like religious explanations tend to do.

It is important to note however that this limited, proposed connection is not intended to be used in order to draw conclusions regarding teleological reasoning as a phenomenon, nor to draw

conclusions regarding religious individuals. This paper does not concern religiousness. This comparison merely acts as a proposition for the possible neurological underpinnings of CTI.

### **Inferior frontal cortex and the inferior frontal gyrus.**

Research shows that one area of importance for rational reasoning might be the right inferior frontal cortex (IFC) and the right inferior frontal gyrus (IFG) (Goel & Dolan, 2003). Tsujii and Watanabe (2010) studied the difference between heuristic and analytic reasoning in the brain under chronologically challenged conditions by asking participants to answer whether the presented chain assertion – one statement, followed by a second and then a third which served as a conclusion of the two previous – was true or false within a set time limit (10 seconds). They used near-infrared spectroscopy (NIRS) to observe changes in brain activity and those measurements indicate that the limited time factor reduced activity in the right IFC ( $F = 18.02$ ,  $p < 0.01$ ), leading to difficulties in logical reasoning. In comparison, when time span was increased (from 10 s. to 20 s.) participants were more prone to assess the statements correctly, which concur with findings by Rosset (2008).

In another research article by Tsujii and Watanabe (2009) participants were asked to decide the validity of the same chain of statements, only this time they were asked to simultaneously perform one out of two secondary tasks, one easier and one more difficult. The neural process was once again observed through NIRS which provided further data that activation in the right IFC was reduced when participants were asked to simultaneously perform the more difficult task ( $F = 24.57$ ,  $p < 0.01$ ), inhibiting participants' ability to determine whether statements were true or false.

Lastly, in a third research article by Tsujii, Masuda, Akiyama and Watanabe (2010) the researchers used rTMS to inhibit activity in the right IFC. To control for results obtained in the

rTMS measurement, participants were asked to perform the exercise twice, once having the procedure being done with legitimate rTMS and once with a fake device that looked and sounded exactly like the real one. Test results showed that participants had a harder time determining whether a false chain of statements was true or not when activity in the right IFC was decreased ( $F = 3.99, p < 0.05$ ), once again displaying the importance of this areas importance during logical reasoning tasks. Mendez and Fras (2011) hypothesize that lower activity in the right IFC might play a crucial role in people who are prone to suggestion, who tend to experience false memories and made-up narrations as truth, and this area might also serve a social purpose.

When, in a study by Kapogiannis et al. (2009), religious participants were asked questions regarding their teleological beliefs, activity in the right lateral IFG would increase in participants reporting that they believe in a passive God who does not intervene in events occurring in the world. The same study also indicate that the right lateral inferior frontal gyrus (IFG) is activated when we try to understand the behaviors and reactions of others, as well as when we try to interpret things that we observe and the probable reasons as to *why* the thing/things we observed actually happened.

Regarding corresponding areas in the left hemisphere, results are conflicting. Tsujii et al. (2010) found that rTMS in the left IFC area did in fact impair logical reasoning, but not in as apparent way as inhibition of the right IFC. However, Luo, Tang, Zhang, and Stuppel (2014) found that activation in the left IFG during logical reasoning tasks can be increased through training. In differentiating between pre- and post-test participants showed significant increase in logical reasoning after logical training, from  $< 25\%$  correct answers to  $> 79\%$  ( $p < 0.001$ ). Further, Harris, Sheth, and Cohen (2008) found activation in the left lateral IFG in people who do not believe religious claims.

These differences between the left and right IFC/IFG has been hypothesized to stem from the different assignments of the right respectively the left part of the PFC, where the left is generally more engaged in creating possible causal explanations and in distinguishing events which defy established benchmarks, and the right is more engaged in prohibiting motor responses (Luo et al., 2014).

### **Precuneus**

Gonsalves et al. (2004) studied whether individuals who merely visualized an object would be able to differentiate on whether they had actually seen the object or not at a later time. With the help of fMRI participants neural activity was scanned whilst they were asked to distinguish whether they had seen a specific image or if they had only visualized it. Results show increased activation in precuneus when participants were convinced that they had seen a certain image, even if they had only visualized it.

Another research team found an increased level of activity in the right precuneus in non-believers when asked questions regarding God, and an increased level of activity in the left precuneus in believers when asked the same questions (Kapogiannis et al., 2009). It has been suggested that this might be because the precuneus plays a part in an integrated memory network in the left hemisphere, which engages in finding and converging previously encoded epistemological information. As an example, this network appears to be activated when individuals evaluate religious, in contrast to non-religious, claims (Harris et al., 2009). Further, Luo et al. (2014) found that logical reasoning practice appear to increase activation in the Precuneus as well as the previously mentioned IFC and IFG.

**Medial prefrontal cortex.**

Harris et al. (2008) found that the ventromedial prefrontal cortex (VMPFC) appears to play a crucial role in creating a comprehensible understanding of the world. Individuals with damage to their VMPFC have trouble integrating affective responses into their perception of the world, yet are still able to feel fear and bring to mind memories that rely on emotional encoding. This concurs with results from Goel and Dolan (2003) which further states that there is an increase in the VMPFC whenever people answer according to their prejudices, even if such beliefs go against rational reason.

When studying the neurological differences between self-esteem obtained by self-evaluation versus being obtained from social feedback, Yang, Xu, Chen, Shi, and Han (2016) discovered increased activation in the medial prefrontal cortex in participants when they evaluated the feedback of other people. This concurs with results from Somerville, Kelley, and Heatherton (2010) who found increased activity in the medial prefrontal cortex in individuals with low self-esteem as they received positive and negative social feedback, in comparison to individuals with high self-esteem. The lastly mentioned also tended to exaggerate the positive feedback they received from others.

**Additional neurological correlates.**

When asking blasphemy and non-blasphemy questions to Christians and non-Christians, Harris et al. (2009) found that the neural reactions differed between the two groups. When believers responded to blasphemy questions which were deemed false, a significant increased signal change occurred in the paracingulate gyrus (PC) (~ 0.08 - 0.2 %), the middle frontal gyrus (MF) (~ 0 - 0.06 %), and the ventral striatum (VS) (~ 0.07 - 0.15 %). At the same time there was a significant decrease in the inferior parietal lobe (IP) (~ -0 - -0.05 %) and the frontal pole (FP)

(~ -0.01 - -0.07 %). When the question were instead presumed true there was a significant increase in the PC (~ 0 - 0.12 %) and the VS (~ 0.08 - 0.11 %), but also a significant decrease in the MF (~ 0 - -0.08 %), the IP (~ -0.06 - -0.11 %), and the FP (~ -0.01 - -0.09 %). For non-believers, questions deemed false elicited increased activation in the PC (~ 0 - 0.14 %) and the VS (~ 0.02 - 0.14 %), and decreased activation in the MF (~ 0 - -0.09 %), the IP (~ -0.02 - -0.12 %), and the FP (~ -0.04 - -0.16 %). For questions presumed as true there was increased activation in the PC (~ 0.06 - 0.21 %), the MF (~ -0.02 - 0.07 %), and the VS (~ 0.1 - 0.2 %), and decreased activation in IP (~ 0.03 - -0.07 %) and FP (~ 0.03 - -0.09 %).

The PC appears to be important during cognitively demanding executive tasks (Fornito et al., 2004). The MF seems to be engaged in episodic memory retrieval, attention, understanding the world, and when making decisions (Euston, Gruber, & Mcnaughton, 2012; Wirt & Hyman, 2017). The striatum is believed to be important in determining and learning proper social conduct and mediates rewards connected to behavior (Báez-Mendoza & Schultz, 2013; Graybiel & Grafton, 2015). The IP is thought to respond to new information and lesions to said area cause difficulties in responding to and incorporating new information (Singh-Curry & Husain, 2009). And the FP is hypothesized to give us the ability to be able to put actions “on hold” in order to quickly change strategy if needed to, and is also believed to play a role in generating goals (Koechlin, 2011; Tsujimoto, Genovesio, & Wise, 2011). The results from Harris et al. (2009) are accounted for in a simpler manner in table 1 (top of the next page).

<b>Believer – false</b>	<b>Believer – true</b>	<b>Non-believer – false</b>	<b>Non-believer – true</b>
<i>Increased activation:</i> - paracingulate gyrus - middle frontal gyrus - ventral striatum	<i>Increased activation:</i> - paracingulate gyrus - ventral striatum <i>Decreased activation:</i> - middle frontal gyrus	<i>Increased activation:</i> - paracingulate gyrus - ventral striatum <i>Decreased activation:</i> - middle frontal gyrus	<i>Increased activation:</i> - paracingulate gyrus - middle frontal gyrus - ventral striatum <i>Decreased activation:</i> - inferior parietal lobe
<i>Decreased activation:</i> - inferior parietal lobe - frontal pole	- inferior parietal lobe - frontal pole	- inferior parietal lobe - frontal pole	- inferior parietal lobe - frontal pole

**Table 1.** *The neurological differences found by Harris et al. (2009) between religious believers and non-believers when asked questions regarding their convictions deemed true or false.*

### **An evolutionary psychological approach.**

Prooijen and Douglas (2017) propose that CTI is a psychological phenomenon that has probably always existed in human societies, although regarding different subjects. Bost and Prunier (2013) found that people tend to accept conspiracy theories based on the extent to how its ultimate goal might affect them or their in-group. This could provide reason as to why parents who are anti-vaccine have a tendency to continuously oppose any logical explanations regarding the advantages of vaccination (Grimes, 2016).

When on the topic of our tendency to be cautious towards the intention of others, Willard and Norenzayan (2013) proposed that anthropomorphism (e.g. the tendency to adapt human-like characteristics on animals and nature) might have been an evolutionary advantageous trait since the benefits of such an ability would outweigh the detriment; someone who is constantly prepared to take action would be more ready if an action would be necessary. It has been shown to occur in lonely individuals, thus perhaps serving a socio-psychological need, and also when

entities behave in a way which was unpredictable such as a book falling of a shelf supposedly “on its own” (Willard & Norenzayan, 2013).

Regarding the neurological underpinnings of our tendency to accept teleological explanations there are conflicting results. Banerjee and Bloom (2013) argue that children who give teleological explanations to questions have been shaped by cultural values. However, research by Evans (2001) show that children aged 5-7 ( $n = 185$ ) brought up in a secular environment still partly gave teleological explanations, and Kelemen and Rosset (2009) found that when put under stressful conditions adults tend to deem teleological claims as correct (e.g. “ferns grow in forests because they provide shade” and “the sun radiates heat because warmth nurtures life”, p. 139). Even though it is un-rational to do so our brain is unable to intercept such beliefs when forced to give an answer within a limited timeframe.

Dunbar (2018) suggests that social connections are of utmost importance to our level of happiness, and other researchers have also found indications that higher level of happiness correlate with a longer lifespan (Danner, Snowdon, & Friesen, 2001). As people with CTI tend to feel socially alienated and seek social connections with others (Douglas et al., 2017) it could well be that susceptibility to the ideas of others as a mean to become socially anchored to a group might serve a valuable evolutionary purpose as well.

### **Psychological Correlates**

Freeman and Bentall (2017) have previously proposed a model regarding how CTI is formed from a psychological perspective which has been implemented in the one presented in this paper.

**Analytical reasoning and intentional bias.**

Swami et al. (2014) found that CTI correlated with low analytic ability. In their study the participants ( $N = 990$ ; age 18-71,  $M = 32.79$ ,  $SD = 13.99$ ) were tested with the Rational-Experiential Inventory (REI), a questionnaire containing in total 42 different items which measures ones analytic ability and experiential thinking which the participants rated 1-5. 1 meant that the participant strongly disagreed with the claim, while 5 meant that the participant strongly agreed with it. Those who strongly believed in CTI were less prone to engage in analytical reasoning regarding the theory ( $-0.25$ ,  $p < 0.001$ ), and after receiving analytical reasoning training these participants became less positive to conspiracy theories. The same results were found by Orosz et al. (2016), where people who receive analytic training and proper information tend to be more skeptical of conspiracy theories, and results from Brotherton and French (2014) show that as CTI increased, participants make more conjunction errors when answering questions requiring rational analysis.

Both Barron et al. (2018) and Prooijen (2016) found that analytic reasoning correlate negatively with belief in conspiracy theories ( $-0.14$ ,  $p < 0.05$ ;  $-0.13$ ,  $p < 0.001$ ). Prooijen also found that higher education correlate with a lower tendency to believe in conspiracy theories ( $N = 4062$ ;  $0.15$ ,  $p < 0.001$ ), and similar results were obtained by Freeman and Bentall (2017) where number of years in education predicted whether one believed in conspiracy theories or not. As an example, 42.2 % of individuals with 0-11 years of education stated that they believe in any number of conspiracy theory while 13.7 % of individuals with  $\geq 16$  years of education believed in at least one conspiracy theory. Ståhl and Prooijen (2018) propose that the analytic reasoning skill is mediated by ones general cognitive ability and not ones analytic cognitive style. Results concur with previously presented results in that analytic reasoning corresponds positively with an

educated and sceptic worldview, but a second (replication) study featured in the same article did not show any significant correlation between analytic reasoning skill and CTI. However, Rosset (2008) found that time pressure cause people to be less rational when given rational reasoning tasks, which concur with the previously discussed findings of Tsujii and Watanabe (2010).

Sunstein and Vermeule (2009) and Barron et al. (2014) also suggest that the individual tendency to believe in conspiracy theories somewhat rely on the idea that all consequences are preceded by intentions, which conclude with research by Prooijen, Douglas, and Inocencio (2017), Sapountzis and Condor (2013), and Rosset (2008) who also found that people tend to believe in conscious intention behind events that occur in the world, a conclusion also made in Kelemen and Rosset (2009).

### **Epistemological understanding and flawed information.**

Whenever we receive new information it is incorporated into or tested against our previous knowledge, which – if flawed – can be detrimental to our understanding of the world, as shown by research by Challies et al. (2011). Results from said study implies that errors stemming from sources deemed credible by the recipient can alter their memory of a situation, which in extension may change the recipients perception, as has been shown in research by Thomas and Loftus (2002). Elk (2015) explain that this happens because our beliefs govern the way we perceive the world and make decisions. Sunstein and Vermeule (2009) propose that such impaired epistemological understanding of the world has its grounds in lack of proper information, where individuals actually draw rational conclusions but from a very limited set of information which might lead to a conspiracy theory being the most logical conclusion.

According to Douglas et al. (2017), the lack of epistemological understanding in CTI does not necessarily matter since conspiracy theories usually provide internally consistent

explanations, thus causing the person to feel compelled to defend these beliefs even when overwhelming evidence from mainstream sources are presented against them. This, however, goes against the findings of Orosz et al. (2016), which states that people with CTI are prone to change their mind (causing them to be skeptic towards their previous CTI beliefs) if the evidence is presented in a logical manner with statistics and rational inferences. However, ridiculing someone who holds their CTI at high regard will more likely cause that person to become even more convinced of the supported conspiracy theory/theories, which concur with further findings by Franks et al. (2017).

Dagnall et al. (2015) found that delusional worldviews can be predictors of CTI even in individuals who do not meet the criteria for a clinical diagnosis, for example parents who chose not to vaccinate their children due to uncertainty regarding the intentions of the authorities accountable for these vaccinations and its possible – based on their understanding – negative consequences (Jolley & Douglas, 2014; Rahman, 2018). ). Such lack of trust towards authorities has been proposed by Prooijen and Jostmann (2012) to originate from general distrust regarding morality aimed at politicians and other authoritarian figures. These feelings could in extension make people lose interest in politics as they perceive themselves to lack influence in political questions directly affect them (Douglas et al., 2017; Jolley & Douglas, 2013). This tendency to perceive things as more dangerous than they might be has been proposed to stem from negative experiences during the childhood years, causing the individual to become more anxious later in life, more distrusting of the intentions of others, and more prone to teleological reasoning, according to Green and Douglas (2018). Norenzayan and Gervais (2013) give an example of this in their proposition that the reason as to why Scandinavian countries are generally secularist is due to the high level of social security supplied by different institutions. In countries with less

functional social security, teleological explanations are more common, as well as the belief in conspiracy theories. Muis and Immerzeel (2017) and Speed and Mannion (2017) propose that this has started to change since even people in democratic societies are becoming increasingly accepting of populist ideas and conspiracy theories regarding shortcomings they perceive.

**Low self-esteem, social alienation, and a perceived lack of control.**

The appealing factor of conspiracy theories has been hypothesized to stem from three different aspects: (1) it offers clear and understandable answers to difficult and hard questions, (2) it provides a feeling that one is secure and in control, and (3) create social ties with other people (Douglas et al., 2017). Research results from Xiao, Yue, He, & Yu (2017) indicate that one can increase ones self-esteem with mindfulness exercises.

Prooijen and Acker (2015) found a correlation between how individuals perceived threats towards their level of control (LOC) and whether they supported conspiracy theories or not. Individuals who believed their LOC to be in imminent danger tended to accept more conspiracy theories than those who did not believe that their LOC was in any danger, or that chances of them losing control were insignificant. This has also been suggested by Tempel and Alcock (2015). Freeman and Bentall (2017) and Abalakina-Paap, Stephan, Craig, and Gregory (1999) also found that conspiracy theorists tend to report a perceived lack of control, Whitson and Galinsky (2008) found that people lacking control are more inclined to see patterns in their surroundings, and results from Prooijen et al. (2017) indicate that the existence of such pattern recognition cognitive mechanism is a precursor to the development of CTI. Speed and Mannion (2017) propose that such individuals may be targets for populist ideas, because anxious individuals tend to overestimate the gravity of possible environmental perils (Green & Douglas, 2018). Such anxiousness might also cause people to long for partnership in a social community

and cause them to make hasty conclusions (Husting & Orr, 2007). Swami et al. (2016) found that stress leads to anxiety, and anxiousness has shown to be a predictor of CTI (Green & Douglas, 2018). Individuals with anxious attachment also report lower levels of self-esteem (Roberts, Gotlib, & Kassel, 1996), which is another predictor of CTI (Darwin, Neave, & Holmes, 2011; Galliford & Furnham, 2017; Swami et al., 2016). The more stressful an individual deemed their life had been the more likely they were to believe in conspiracy theories. This concurs with Prooijen and Douglas (2017) who found that some people start to believe in conspiracy theories when at a life crisis or faced with major setbacks.

People who believe themselves as being of lower social standing than others, that they lack social connections, and report that they had a problematic/difficult childhood are also at a bigger risk to subscribe to conspiracy theories, which is suggested in Freeman and Bentall (2017). Participants with CTI report having weak social networks and generally distrust the intentions of other people: strangers, friends and family alike (Abalakina-Paap et al., 1999; Freeman & Bentall, 2017), and they report to have trouble trusting friends and family if a serious issue would arise (Freeman & Bentall, 2017). But even though CTI might provide temporary existential support research has shown that conspiracy theories are more appealing than they are satisfying (Douglas et al., 2017), and those who actually seek cognitive closure on matters are less prone to embrace a conspiracy theory (Leman & Cinnirella, 2013). It is also noticeable that employed individuals tend to be less accepting of conspiracy theories (23.4 %) than those who are unemployed and looking for a new place of work (29.9 %), and those who are unemployed and does not engage in any job search (32.8 %) (Freeman & Bentall, 2017).

It has been proposed by Imhoff and Lamberty (2017) that another predictor in developing CTI is the need to stick out from the crowd; to feel unique. Participants with CTI were more

prone to accept a conspiracy theory if it was said to only be supported by a minority of other participants, which are similar to the results of Lantian, Muller, Nurra, and Douglas (2017). However, results from Sunstein and Vermeule (2009) indicate that individuals tend to strive towards mimicking the most dominant member of the group, which could conflict with previously mentioned conclusion.

### **Paranoid tendencies and schizotypy.**

Morrison (2014) states that people with schizotypal personality disorder have difficulties in maintaining close connections with others, have a distorted worldview, are anxious in the company of people they do not know, and tend to have supernatural beliefs. They are usually suspicious of the intention of other people and have a tendency to be superstitious. Douglas et al. (2017) also state that CTI tend to correlate with narcissism and paranoid ideation. Darwin et al. (2011) has suggested that people with high levels of paranoia tend to believe that there is intention behind events that occur in the world, which has previously been discussed as a predictor to CTI.

Darwin et al. (2011) tested participants ( $n = 120$ ) partially on their levels of paranoia by using the Paranoid Ideation Scale, a questionnaire containing 20 statements that participants were asked to rate on a scale of 1 to 5, where 1 = not at all applicable to me, and 5 = extremely applicable to me. They were also asked to fill out the Schizotypal Personality Questionnaire containing 22 items, and the Conspiracy Theory Questionnaire, which contain 38 conspiracy theory claims which the participants were asked to rate on a Likert-type scale, where 1 = extremely unlikely, and 9 = certainly. The authors found correlation between CTI and levels of paranoia, and also between CTI and schizotypy (e.g. believing in unconventional, supernatural ideas, for example that there is intention behind most/all events that occur in the world), which

provide support to the idea that people who believe in conspiracy theories also tend to have higher levels of paranoia and differ in a neuropsychological and/or phenomenological sense from those who do not subscribe to CTI.

Tempel and Alcock (2015) identified similar results. Participants ( $n = 185$ ) who scored high on the Schizotypal Personality Questionnaire-brief test were also more prone to believe in conspiracy theories, and are more likely to develop schizophrenia and/or psychosis sometime during their life, which concur with Morrison (2014). Also, males are generally more paranoid than females, while females are generally more inclined to perceive causal patterns in their surroundings. Freeman and Bentall (2017) has found that in addition to this, men are more likely to develop mental illness and Galliford and Furnham (2017) has presented support for the idea that lack of emotional stability correlated with belief in conspiracy theories. It has also been proposed by Oliver and Wood (2014a) that CTI does not have to be symptoms of psychopathological illness, and that it can occur in anyone depending on how they perceive the world (Oliver & Wood, 2014b).

Brotherton and Eser (2015) also found correlation between paranoia and CTI when testing participants ( $n = 150$ ) with the Paranoia scale, containing 20 items to be rated on a scale from 1-5 where 1 = not at all applicable to me and 5 = extremely applicable to me, and the Generic Conspiracist Beliefs scale consisting of 15 conspiracy theory claim to which they were asked to rate the probability of (1 = definitely not true; 5 = definitely true). Participants were also asked to fill out the Boredom Proneness scale, with questions regarding how easily they became bored. Results in this study show that boredom can be a predictor to the development of CTI, but only if the individual have higher levels of paranoia as well. Results by Douglas and Sutton (2011) further indicate that individuals who report that they would be willing to conspire with others if

they had the power which they deem the conspirators have were more prone to believe in conspiracy theories, e.g. exploiting others in order to remain in/gain power. A psychological feature referred to as Machiavellianism which is related to psychopathy.

### **Overvalued beliefs and moral absolutism.**

When individuals hold the values of the group higher than that of the rest of society, and distrust sources that present conflicting information, a narcissistic attitude towards the in-group can emerge (Douglas et al., 2017). As an example of this, Lewandowsky et al. (2013) found that conservative U.S. citizens tend to question research findings that support limiting regulations, such as global warming or the right to bear arms, while liberal U.S. citizens instead question research findings that support regulations that have direct physical impact, such as genetically modified organisms (GMO) and vaccination. Further, Sunstein and Vermeule (2009) proposed that individuals tend to become even firmer in their belief when their CTI is shared with others.

Cognitive dissonance is when a person hold two opposing views at the same time, for example a smoker who knows how dangerous smoking is yet still tell non-smokers that it is good that they are not smoking since “it is bad for you”. Should such dissonance arise between our moral standing and our actions we tend to try and justify it in front of others, for example by becoming even more explicit in both verbal and physical sense: in order to “whitewash” ones social standing, one can excessively separate oneself from the negative aspects in order to properly display ones opposition to it (Rothschild & Keefer, 2017). The social factor is one of the benefits of CTI, where others concur with the ideas one has which secure ones place in a group and also give fuel to the belief that these ideas are correct – according to Douglas et al. (2017). Rahman (2018) present the dangers of such overvalued beliefs (OB) by referring to cults such as Daesh (Islamic State) and Heaven’s Gate among others, which according to the author

are prime examples of OB's leading up to fatal consequences. It has been suggested by Leone et al. (2017) that OB's might be preconditioned by belief in the world to be a dangerous and treacherous place, where moral absolutism is of utmost importance. Such moral absolutism can lead to developing a strong need to protect certain others which may lead to negative consequences for a third party, as proposed by Jack et al. (2016). Conspiracy theorists, like terrorists and mass murderers, tend to believe that their actions stem from moral superiority, which – according to themselves – justify their ideas, actions and methods (Rahman, 2018). People who prefer their own group and/or culture might succumb to in-group narcissism, in where they will develop conspiratorial thinking regarding groups whom with they compete for resources (Douglas et al., 2017).

When asked what they think of the term, some conspiracy theorists report that it is used to downplay them in order for those in power to remain in such positions, according to Franks et al. (2017). The conspiracy theorists call themselves “truth seekers”, “awoke” and “connected”, and the opposition is divided into “conspirators” and “sheep” (the ignorant majority). Franks and colleagues go on to suggest that conspiracy theorists can be divided into five categories: type 1 begins to feel that something is not right; type 2 believe that there are things that we are unaware of, and is simultaneously curious about it; type 3 thinks that some of the information that is handed to us through media and authoritarian figures simply are not true; at type 4, the individual has become “awakened” and has conscribed to the idea that all mainstream informational sources are falsehoods and that reality lies beyond; and type 5 believe that everything we perceive to be real is fake. The last stage has been discussed by Douglas et al. (2017) who goes on to lift a serious problem when trying to counter CTI: it is unfalsifiable.

In the eyes of the conspiracy theorist, since the targets of the conspiracy theory are dishonest regarding their intentions, one cannot rely on information from channels deemed to be under the influence of said target, such as scientific and official institutions (Lewandowsky et al., 2013; Silva et al., 2017). People who have already decided what they believe in and are disinclined to change their minds on the matter can be subjected to confirmation bias (only locating and settling for information that supports ones position) (Bessi et al., 2015; Clancy, 2009; Kassin, 2005; Leman & Cinnirella, 2013) and the backfire effect (when opposition itself is deemed to be proof that one is actually right) (Grimes, 2016; Leman & Cinnirella, 2013).

### **Sociological/Social-psychological Correlates**

#### **How our moral foundations can be shaped by the environment.**

Results from a study by Evans (2001) indicate that U.S. children tend to lean towards creationist explanations of the environment, which has been disputed by Banerjee and Bloom (2013) who say that religious conviction is a social construct. However, Evans does not rule out other explanations but suggest that while teleological views are dependent on the social environment and therefore subject to change, the neurological component appear to be recurrent in both Christian and non-Christian children. Evans suggests that individuals close to the child will encourage some ideas and suffocate others which do not concur with their own (Evans, 2001). This idea is also supported by Elk (2015) who propose that our socialization process also include the forming of perceptual biases: the perceptions of a person raised in one culture will differ from that of another. One who is raised in a protestant home will differ from one who is raised in a catholic one, and one who is raised in an Asian country will differ from one raised in a European country. Elk states that these differentiations partially stem from the view on

dependence and cooperation, where western cultures usually emphasize personal independence while eastern cultures tend to emphasize collectivism (Elk, 2015).

Dagnall et al. (2015) go on to suggest that the conspiracy theorists assumption that the conspirator is always deceiving and therefore not trustworthy compromise the influx of conflicting informational from outside of the in-group, leaving conspiracy theorists to a limited number of sources. Leone et al. (2017) has proposed that individual moral foundations stemming from such lack of information can function as a predictor to CTI, as someone with a worldview which rationally coincide with a conspiracy theory explanation could be more susceptible to subscribe to such ideations. Both the Weaver family in Ruby Ridge and the Branch Davidians in the Waco, Texas siege were convinced that the government had plans that were detrimental to their continued way of life (U.S. Department of Justice, 1994; United States Department of Justice, 1993), and the people at Heaven's Gate strongly believed that they would be collected by an alien species as long as they committed suicide as the comet Hale-Bopp passed earth (Rahman, 2018).

Leone et al. (2017) go on to further propose that perceived threats to ones way of life can trigger CTI, which would explain why the two catastrophic incidents mentioned above could come about. But in the cases mentioned above the perception of reality did not end in CTI, instead CTI caused the Weaver family, the Branch Davidians, the people at Heaven's Gate, and others who have succumbed to different conspiracy theories to separate themselves from important sources of information due to disbelieving them (Rahman, 2018).

A conspiracy theorist might justify the beliefs and actions taken by these groups by claiming that their engagement existed in order to assure that the group which they perceived to be victimized (in these cases themselves) would not come to any harm (Silva et al., 2017). The

increased aggression following CTI has been proposed by Rothschild and Keefer (2017) to be a byproduct of experienced cognitive dissonance.

### **Group psychology and the need to belong.**

Smallpage et al. (2017) found that conspiracy theories are always directed towards groups that stand in direct opposition to the goal of the in-group, never neutral groups or ones with similar agendas as ones' own in-group. Sapountzis and Condor (2013) further propose that conspiracy theories can be used to merge individuals closer together by promoting the image of an external threat for individuals to bond against in good moral conscience. Such an example is the consequent use of separating linguistics: calling co-conspiracy theorists "truth-seekers", those who do not believe in the conspiracy theory "sheep", and those who are deemed to be the dangerous antagonists "the conspirators". In extension, the group strives to make others surrender to their ideals, since a groups power is defined by its societal influence (Franks et al., 2017).

Douglas et al. (2017) suggest that conspiracy theories serve to sever the ties between the conspiracy theorist and rest of society, especially mainstream authoritarian and informational sources such as the media, politicians and scientists, which create a downward spiral where – over time – the individual will have invested enough "social resources" to face difficulties if leaving the path they are on for another one (Bullens, Harreveld, Förster, & Van Der Pligt, 2013). Sunstein and Vermeule (2009) propose that a feeling of in-group solidarity mediate whether individuals adapt the conspiratorial beliefs held by the group, and Rahman (2018) suggest that individuals who believe that their group has moral superiority are more likely to be radicalized. These conclusions are similar to those in Franks et al. (2017) where it was found that if one believes the group to be morally superior to other groups' one will be less critical toward

claims made within the group. If one believe the group to be morally superior and in dire need of said group, one is at higher risk of accepting a conspiratorial explanation if one believe oneself or the in-group to be threatened (Douglas et al., 2017). Individuals who are not narcissistic regarding their in-group are less prone to accept conspiratorial reasoning regarding other groups (Douglas et al., 2017).

Cohen (2003) found that political sympathizers are more prone to lean in the direction of their party, no matter what said direction regard, than to express opposing views on matters which are discussed. Same people tend to report that their views are independent from those of the political group yet believe individuals in opposing parties are prone to sway in the direction of their party. This has been exemplified by Lewandowsky et al. (2013) who found that U.S. conservatives tend to be against regulations of individual freedom regardless of scientific consensus. Bond et al. (2012) stated that people are “reluctant to correct misinformation in their memories if it fits in with their political beliefs” (p. 8).

Leone et al. (2017) found that people who are ready to sacrifice their individuality in order to connect with others are at higher risk of developing CTIs promoted by the group, than those who prefer to retain their individuality when partaking in groups. If someone is ready to adapt to a group that believe the world to be a dangerous, competitive place, and in turn see itself as morally superior, the chances increase that the person will uphold the conspiracy theories endorsed by the group. Rothbaum, Weisz, and Snyder (1982) further propose that when people believe there are forces in the world that might cause them harm, they are also more liable to surrender their control and instead take more symbolic control, for example believing that they have knowledge that few others have, and Douglas et al. (2017) propose that CTI could be one way to claim to have such knowledge.

After surrendering their control, individuals are capable of performing gruesome acts justified by the idea that they were told to do so by respected, authoritative figures. This has been shown in experiments by Stanley Milgram (Haslam, Loughnan, & Perry, 2014), where people were asked to administer electrical shocks of up to 450 volts into another person when ordered to do so by a researcher. The human receiving these shocks was an actor and the shocks themselves were not real, but this was unknown to the participants. Averagely, 43.6 % would continue administer the increased shocks to the maximum limit, justifying their actions by stating that the researcher told them to do so. Haslam et al. (2014) also found indications that the social context influences the rate at which this phenomenon occurs, for example by comparing compliance at different locations such as the industrial town of Bridgeport (47.5 %) and the Ivy League Yale University (62.5 %). Further evidence on this socio-psychological phenomenon is addressed in Mastroianni (2015) where the author suggest that the events of the holocaust were not simply the cause of strict obedience, but was also made possible due to the acceptance of the majority civilian population. However, Mastroiannis proposition that human beings do not simply become overly hostile against others after a short time in a laboratory study go against the results of the Stanford Prison Experiment (Sternberg & Fiske, 2015), where the 14-day experiment had to be aborted after less than half that time due to untenable misconduct towards the participants playing the role of prisoners by the participants posing as guards.

### **Populism and conspiratorial mentality.**

It was previously mentioned in Sunstein and Vermeule (2009) that individuals will try to make conclusions based on the information that they have, and if such information stem from a limited cluster or populist sources individuals may develop flawed conclusions leading to the development of CTI or even radicalization (Rahman, 2018). Husting and Orr (2007) suggest that

CTI should be considered a symptom of a confused sociopolitical climate which individuals try to make sense of, and Muis & Immerzeel (2017) found that when political parties reach an agreement and come together in certain issues they leave a gap further out on the political scale which populist forces can use to their advantage. They also mention that other studies have found indications that populist radical right parties might be more successful when the mainstream right-wing parties take a more centrist position on political issues such as immigration.

Populist parties gain from media coverage, but only as long as statements made by their representatives are not too offensive. Therefore it is crucial for populist parties to navigate between gaining enough interest to attract media attention and expressing challenging statements, without being too boring or too provocative, in order to stay in the media spotlight and get their message across to potential voters (Bos, Brug, & Vreese, 2010).

Prooijen and Douglas (2017) found that people are more inclined to believe in conspiracy theories when facing setbacks, which could consist of a perceived possible loss of cultural elements deemed important to the individual, or a fear of losing power to other groups (Muis & Immerzeel, 2017). Speed and Mannion (2017) suggest that this fear can be utilized by populist groups in order to reach their goals, which is further supported in research by Sapountzis and Condor (2013), meaning that these populist groups may depict the opposition as part of a conspiracy which seeks to undermine society (Silva et al., 2017).

Silva et al. (2017) state that populist groups hold that the population is oppressed and an elite group rule. They also emphasize the importance on the general public in politics. Populistic ideas and conspiracy theories both seek to explain complex, negative societal matters as purposefully constructed with intention in mind. This is a central part of both populism and CTI which is referred to as Manichean narratives, a cognitive dichotomy which boil all issues down

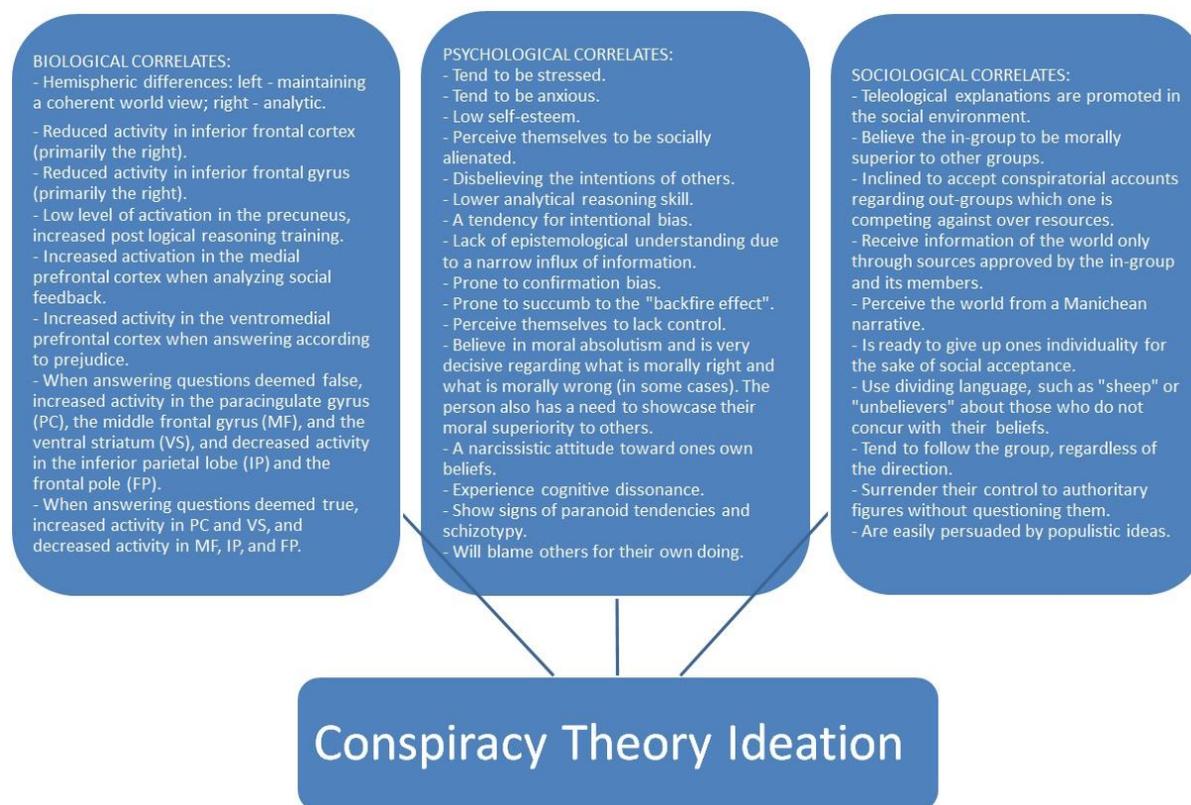
to a fight between good and evil (Oliver & Wood, 2014b; Silva et al., 2017). Stoica (2017) suggest that populist groups picture their opposition as the evil side of this dichotomy using conspiracy discourse, and appointing themselves as “saviors” out to “unify the people” and lead them to a “golden age”, and these “saviors” proclaim that in order to find the truth one must turn to alternative “researchers” (Ylä-Anttila, 2018).

### **Discussion**

Whether aimed towards religious groups such as the Jewish, Copernicus’ proposition that the Earth is not the center of the universe or Darwin’s and Wallace’s theories regarding evolution, CTI has always been present in human society (Prooijen & Douglas, 2017). Although these examples are macro-level conspiracy theories proposed by those in charge at the time, a form of social “top-down” perspective, nowadays many conspiracy theories are aimed from lower down the societal hierarchical ladder upwards: a social “bottom-up” perspective.

There are a couple of clear indications of what traits a conspiracy theorist tends to exhibit. They generally lack understanding of how the world functions and have a very limited influx of information to make rationalizations from, causing their conclusions to appear correct but be flawed. This correlates with a decreased activity in the IFC and the IFG, areas deemed important in order to properly analyze information. In general the conspiracy theorist has low self-esteem, is socially anxious and stressed, perceiving themselves as lacking control over their current situation and often report having a difficult childhood. They also distrust people in their close proximity in the event of a more serious issue arising, yet still hold their in-group in higher regards than other groups. They tend to display paranoid tendencies and schizotypal behavior, e.g. believing in supernatural explanations of how things work, tend to believe that everything that happens has an intention behind it, and are generally males. These are just a sample of the

biopsychosocial correlations which appear when studying research on CTI, and more can be found in the proposed model presented below.



**Above:** *the main biopsychosocial correlates for CTI as proposed by the author of this paper.*

The neural correlates of a religious individual are in some instances similar to that of an individual with CTI. Individuals in both cases display affection for moral absolutism (Jack et al., 2016; Leone et al., 2017) and only differ on their sources: religious ones turn to scripture while conspiracy theorists turn to obscure websites and Youtube-documentaries. In both cases they are given clear answers to puzzling issues, answers which are also self-sustaining; they support one another in a coherent way, provided one does not start to consider explanations outside of these sources (Douglas et al., 2017; Franks et al., 2013; Silva et al., 2017). It could therefore be argued that to simply ignore excessive analytical reasoning once such epistemological security has been located is a clever cognitive mechanism, since causal explanations increase feelings of security

and a belief that the individuals are autonomous beings, in control over their lives (Douglas et al., 2017). One of the primary causes of CTI appears to be flawed epistemological understanding of how the world actually works, which has been traced to hemispheric differences where the left is more engaged in maintaining a coherent view whilst the right is engaged in more analytical tasks (Harris et al., 2009). This, however, does not mean that the left hemisphere is “one particular way” and the right “another particular way”, but rather that the cognitive mechanisms appear to be more prominent on one side yet are still active on the other side, although to a lesser extent.

In research by Harris et al. (2009) we can clearly see that the right middle frontal gyrus appears to play a vital role regarding the differences between the brain of a religious believer and a non-believer. What this finding actually means is still ambiguous, but considering that the middle frontal gyrus is engaged in episodic memory retrieval, attention and in understanding the world it could be hypothesized to stem from individual self-perception and the perception of past experiences. It has been proposed by Kapogiannis et al. (2009) that believers who report God as a loving entity who does not intervene in worldly affairs displayed increased activation in the right middle frontal gyrus, while religiousness in itself tend to correlate with an increase in the left middle frontal gyrus. This would concur with the theory of differentiation between the hemispheres, where perceiving God as loving could be the result of rational reasoning (right hemisphere) and the belief in religion itself would be a way to maintain a coherent understanding of the world (left hemisphere). That God is all loving and at the same time does not intervene would make logical sense since if God did intervene it could be considered morally problematic to be a supporter of God in a world where people starve to death, get killed in wars, and are sometimes subjected to horrific deeds by other creatures.

The differentiation in between the hemispheres was also present when Kapogiannis et al. (2009) studied the precuneus in believers and non-believers: when asked questions about God activity in the left precuneus increased in believers, while activity in the right precuneus increased in non-believers. Further, it has been found that the paracingulate gyrus, which is also an important component when deciding whether a proposition is true or not, plays a mediating role in the development of schizophrenia, a psychological problem that could be preceded by paranoid ideation (Calabrese et al., 2008; Koo et al., 2008; Wang et al., 2007) which in turn correlate with belief in CTI.

When cognitive dissonance arises from opposing moral ideas of how the world is constructed, such as the God-related one previously mentioned, individuals might become more extreme, susceptible to the beliefs of the group, and even radicalized in their views, partly in order to try and “smooth over” these moral issues (Franks et al., 2017; Rahman, 2018; Rothschild & Keefer, 2017). Individuals reach this stage when they are generally opposed to the idea of themselves being wrong, and begin to see evidence for their beliefs everywhere; they succumb to so-called “confirmation bias” (Grimes, 2016), which becomes even greater when in company with others who share the same beliefs (Douglas et al., 2017; Sunstein & Vermeule, 2009). These types of moral absolutions lead to prejudices and stereotyping which has been hypothesized to occur in roughly 53 % of the population (DeNeys & Franssens, 2009). They can cause people to believe that for example all politicians are dishonest and in extension lose interest in politics due to believing that they lack power in that domain, that politicians do not care about the general public, and the belief that there might be more to the world than what we have been told, which has been proposed as being the first step in developing CTI (Franks et al., 2017). This mentality is shared with cults and other extremist groups, further showing the

importance of governmental and societal interest in the conspiracy theorist phenomenon and its precursors.

Now, if people believe themselves to lack control over their situation, they will be prone to develop CTI generally aimed toward the groups they believe to be the root cause of these feelings (Douglas et al., 2017; Dagnall et al., 2015; Smallpage et al., 2017). In today's society there is a rise in radical right-wing views generally aimed towards dissatisfaction with policies regarding immigration and security, and people tend to express (among other things) fear over loss of cultural elements, which increase proneness to conspiracy theoretical explanations and populist ideas (Muis & Immerzeel, 2017). Neurologically, this has been traced to decreased activation in the IFC (Mendez & Fras, 2011) an area generally found to be important for analytic ability (Goel & Dolan, 2003; Tsujii & Watanabe, 2009, 2010; Tsujii et al., 2010). This indicates that anxiousness regarding ones ideals and security might cause one to overstate environmental perils, make rash conclusions and in extension be more susceptible to populist ideas and also CTI (Husting & Orr, 2007; Speed & Mannion, 2017); CTI might be a symptom to a confused sociopolitical climate (Husting & Orr, 2007) and can serve as a way to measure the general population's attitudes and feelings. If people feel scared and lack security they will also act on it by surrendering control to those who claim they can solve these issues (Norenzayan & Gervais, 2013). But since individuals still need to feel they are in control, populist forces offer conspiracy theories in exchange for control over the lives of its followers, conspiracy theories which is said to be "sacred" knowledge which can only be understood by special individuals (Douglas et al., 2017). The inclusion factor of CTI is also displayed in the difference between working and non-working individuals, where those who have a steady employment are less prone to believe in conspiracy theories as opposed to those who are not employed (Freeman & Bentall, 2017).

Populist ideas and conspiracy theories have in common that they go against societal norms by claiming that the real answers lie beyond conventional research and media reports (Ylä-Anttila, 2018), often while providing “accurate sources of information” as a substitute which concur with their own beliefs that they are trying to force onto others, justified by the belief that they have moral superiority (Rahman, 2018). They take pride in sharing these sources with others and portrait themselves as the heroes, e.g. “truth-seekers”, in a fight between good and evil (referred to as a Manichean narrative which is also common in religious depictions of the world; Oliver & Wood, 2014b; Silva et al., 2017), where those who oppose them are either part of the conspiracy or gullible fools generally referred to as “sheep”, a classic social-psychological way of creating a common enemy for people to join causes against (Sapountzis & Condor, 2013) and an effective use of language to clearly state to the members of a group what is expected of them (Kelemen & Rosset, 2009). One would probably rather be referred to as a heroic truth-seeker than a cowardly sheep.

Individuals who show signs of Machiavellianism and narcissism are more prone to accept conspiracy theories since they themselves would engage in a conspiracy if they had the opportunity (Douglas & Sutton, 2011; Douglas et al., 2017). As Machiavellianism and narcissism are considered to be part of what psychiatrists call the “dark triad” along with psychopathy, it is not farfetched to believe that these compositions could also feature individuals with psychopathic, however support for this was not found during this literature search. This poses a serious problem. Individuals with traits from the dark triad tend to advance in groups which causes them to eventually end up in higher positions (Rogoza & Ciecuch, 2018), and becoming the subject of idolization by – in this case – other conspiracy theorists who wish to emulate their behavior in order to further secure their place in the group (Sunstein & Vermeule,

2009). Such tendencies serve to help leaders of conspiracy theorist groups to make members cut ties with rest of society and also increase their sense of solidarity toward the group and its members, in order to preserve the integrity of the group and to make it easier to exercise control over those who subscribe to the theory (Douglas et al., 2017; Sunstein & Vermeule, 2009). The more time one spend in such a constellation the more difficult the process will be to readapt to society (Bullens et al., 2013), and perhaps this is one of the reasons as to why conspiracy theorists use the kind of language and why they have developed these conspiratorial mindset: to make sure the group is sustainable over time, regardless of the psychological repercussions to the members themselves. This is a reoccurring phenomenon in conspiracy theorist groups, cults, and populist groups (Rahman, 2018).

The conspiracy theorist also tends to display paranoid tendencies and a belief in supernatural explanations (Brotherton & Eser, 2015; Darwin et al., 2011; Douglas et al., 2017; Tempel & Alcock, 2015), e.g. schizotypal behavior, and heavy social pressure and stress might cause them to develop schizophrenia or initiate psychosis (Morrison, 2014). It would therefore be wise for such an individual, who is a part of such a group, to not question anything that is presented since this could cause a schism leading to them being cast from the group. This however, can lead to increased levels of CTI and radicalization of the individual.

Research has also shown that when individuals hand control over their actions to someone else they tend to be more accepting of actions than if they themselves are to be held accountable for it. Results from the famous Milgram experiment regarding heightened levels of electrical shocks being administered by the test subject to someone as punishment for getting answers wrong on a test, or the Stanford prison experiment where one group got to exercise power over another, indicate that human beings might have difficulties in perceiving what is morally right

and wrong when put in a position of power where they are not held accountable for their actions. While Haslam et al. (2014) propose that social context is an important component for this to occur it is still a trait that many of us appear to carry no matter, regardless of whether we attend an Ivy-League university or live in an industrial town.

As Mastroianni (2015) postulated, the holocaust was made possible by a silent majority, and therefore it would be wise for governmental agencies, as well as the general public, to consider the possible future societal repercussions that a liberal attitude towards conspiracy theories and populism could have and to find and use methods to counteract the use of conspiracy ideation in populist agendas. Such methods could include mindfulness techniques to increase the self-esteem of individuals (Xiao et al., 2017), creating social communities where these people can meet others without feeling stigmatized or alienated, making sure that these people are heard in and also met objectively in political debate, create cultural incitements for introspection to counter feelings of helplessness (Whitson & Galinsky, 2008), and reduce stress by reducing unnecessary stressful factors in society. In order to make sure that the western democracies does not take the step towards tyranny, as was proposed by Plato (Ferrari & Griffith, 2000) a process which we have seen many times before in history, it would be advisable to take action as soon as possible and counter “fake news” and “alternative facts” so as to make sure they do not guide us towards a society where freedom of speech is a thing of the past. Because as stated in the paradox of tolerance by Karl Popper (1947):

“If we extend unlimited tolerance even to those who are intolerant, if we are not prepared to defend a tolerant society against the onslaught of the intolerant, then the tolerant will be destroyed, and tolerance with them. [...] We should therefore claim, in the name of tolerance, the right not to tolerate the intolerant” (p. 226).



### **Conclusion**

This essay features research regarding the biological, psychological, and sociological underpinnings of CTI. From a biopsychological perspective it has been shown that the tendency to believe in conspiracy theories decreases when people understand how the world functions and the same correlation has been shown to exist between CTI and peoples analytic cognitive abilities. From a social-psychological perspective data has been provided displaying that individuals perceived level of control, level of self-esteem, general anxiousness, and narcissistic and Machiavellian tendencies predict whether they will be prone to adapt CTI. From a psychological/psychiatric point research indicate that paranoid tendencies and the ability to see patterns in the surroundings correlate with belief in conspiracy theories, and also that paranoid tendencies are more common in males while the ability to see patterns in the surroundings are more common in females. Ideas on how to counter these tendencies have been presented by different researchers and examples of such countermeasures consist, but are not confined to, practicing mindfulness in order to increase ones self-esteem and devote time to introspection to increase ones feeling of control. Lastly, it has been brought to light the perils that conspiracy beliefs may cause, ranging from cult suicides to the Holocaust during WWII, and also how populist forces and groups use conspiracy theoretic reasoning to gain power in our society today.

One issue with this essay is the lack of studies displaying biological/neurological correlates for CTI, an area which will hopefully be of interest to further research projects within the area on the subject. In conclusion, while a biopsychosocial model of CTI has been presented further studies on the subject are needed in order to determine its validity.

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