

The Psychopathological Antecedents of Conspiracy Belief

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Declaration of Authorship

I, Christopher Thomas Thresher-Andrews hereby declare that this thesis and the work presented in it is entirely my own. Where I have consulted the work of others, this is always clearly stated.

Christopher Thomas Thresher-Andrews

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Abstract

A conspiracy theory can be defined as an alternative explanation for an event that reveals the presence of a hidden group with malevolent intent. Conspiracy theories attract themselves to significant world events with political and social ramifications, and attempt to describe them through the lens of a monological belief system that sees conspiracy as the overwhelming explanation for humanity's struggles. Although the psychological work exploring the various factors associated with conspiracy belief has grown considerably, the literature has only recently moved to experimental designs that aim to explore causal mechanisms. The current thesis, using a psychopathological framework, attempts to contribute to this.

Study 1 found that participants who felt a lack of control showed significantly higher belief in conspiracy theories. Despite this causal link between personal control and conspiracy belief, further analysis in Study 2 raised doubts over the manipulation's validity.

Studies 3-5 attempted to manipulate feelings of paranoia and measure their effect on conspiracy belief; unfortunately, all three studies failed to significantly increase participants' paranoid feelings. Study 6 attempted a self-esteem manipulation, which again failed to show a significant effect. Correlational work from this chapter found significant relationships between paranoia and conspiracy theories, but not self-esteem or political orientation.

Finally, Study 7 successfully demonstrated a relationship between delusional ideation and conspiracy belief. A minority of this non-clinical sample exhibited a jumping-to-conclusions bias when measured using the beads task, but this bias was not related to delusional ideation or conspiracy belief. Study 8 found that belief in conspiracy theories was also related to schizotypy and a range of cognitive biases.

To conclude, the thesis discusses the limitations of applying psychopathological models to explain conspiracy theory belief, providing evidence that although conspiracy theories are unlikely to be products of delusion they likely share similar cognitive antecedents.

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Chapter 1

General Introduction

Overview

Princess Diana was murdered by the British Secret Service because she was pregnant with Dodi Fayed's baby. The government is adding fluoride to our drinking water in an attempt to weaken the population. Barack Obama is a Kenyan-born Muslim and thus was ineligible for the Office of the President of the United States.

All of these statements have appeared at some point or another in popular media, been debated by politicians, challenged and denied by government departments, and been propagated heavily over the internet (for a review, see Aaronovitch, 2009; Byford, 2011).

Thirty eight percent of the UK population believe Diana's death was not an accident (Gardiner & Thompson, 2012). Even after two presidential terms, 28% of Americans (and 53% of Republicans) thought Obama was not born in the United States (Moore, 2016). But these statements are not true.

They are examples of a cultural shift in the popularity of "conspiracy theories"; alternative narratives of a world overshadowed by malevolent groups hell-bent on the destruction of civil liberties, freedom and democracy (Walker, 2014). They suggest that governments, secret religious groups, scientists or private industry (often many of these combined) are responsible for either causing or covering up significant major world events for their own criminal ends.

What is a "conspiracy theory"?

Traditionally, the definition of a "conspiracy" is from the legal interpretation of an "agreement between two or more persons to commit a crime at some point in the future" (for England & Wales, see The Criminal Law Act 1977, Part 1, Section 1). Thus, in its broadest sense, a conspiracy theory is an accusation that the crime of conspiracy has taken place. However, the term has developed from a legal basis into what we culturally assume a "conspiracy theory" to be today (and the focus for this current work).

An exact definition of a "conspiracy theory" has not yet been fully forthcoming. It is in itself still a topic of debate both within psychology and further afield in sociology and political science. Broadly, psychologists feel that conspiracy theories are worth

studying because they demonstrate a particular sub-culture of often heavily political activism that is at odds with the mainstream view. The most commonly agreed framework for a definition is that conspiracy theories are unsubstantiated, less plausible alternatives to the mainstream explanation of an event; they assume everything is intended, with malignity. Crucially, they are also epistemically self-insulating in their construction and arguments (Brotherton, French, & Pickering, 2013; Byford, 2011). Part of the struggle with a definition comes from the volatile nature of what is termed “stigmatised knowledge” (Barkun, 2003, p. 26), and the epistemology of what can and cannot be proved as accurate, reliable information. This is discussed in more detail in subsequent sections.

Even with an attempt at a modern definition, conspiracy theories are not a new phenomenon. Although popular culture and the internet have played a significant role in the last 20 years in allowing these theories to propagate and become more mainstream, the conspiracy theory itself has origins in the earliest days of modern civilisation. In the first century A.D., the Roman Emperor Nero started a conspiracy theory that it was Christians who were responsible for the Great Fire of Rome (Tacitus & Goodyear, 1972). So reviled by the Christians was Nero that some even considered him the first Antichrist as prophesised in the Book of Revelation (Erdkamp, 2012). Even Nero’s suicide in 69 AD was tinged with conspiracy, with Romans believing he was being hidden (known as the Nero Redivivus legend) until he could once again enact swift revenge on his enemies (Lightfoot, 2007).

Conspiracy theories through history

Conspiracy theories have existed through time in multiple cultures throughout the world (Byford, 2011). The United States, in particular, seems to have a special relationship with the conspiracy theory, starting right from its own founding in the late 17th century. In his seminal article in 1965, Richard Hofstadter explored and charted the rise of what he saw as “movements of suspicious discontent” throughout American history. Hofstadter discussed a sermon preached by Reverend Jedidiah Morse in Massachusetts in 1798 which highlighted “secret and systematic means” used by “impious conspirators” to “undermine the foundations of this Religion”. From these early events, Hofstadter defined conspiratorial thinking as a belief in a “vast, insidious, preternaturally effective international conspiratorial network designed to perpetrate acts of the most fiendish character”. Reinforced by more recent empirical studies, the

concept central to Hofstadter's essay was that conspiracy ideation arose because it gave a voice to the "dispossessed" (Leman, 2007; Miller, 2002) or it gave people a chance to reassert their individualism or their discontent with their position in society in general (Melley, 2000; Combs, Penn & Fenigstein, 2002).

In their more modern history, particularly in the USA, conspiracy theories started out as a form of far-right anti-government rhetoric, coupled often with religious xenophobia and a search for protecting the freedoms of those who deserved them. This tended to be coupled with a feeling of political apathy or disengagement towards what the theorists and their believers felt was a failure of traditional politics (Goertzel, 1994; Byford, 2011).

What insight does psychology offer?

What in particular is it about conspiracy believers that is interesting from a psychological perspective? Psychology finds these theories and those who believe them incredibly resilient to counter-argument, driven by a strong belief in their version of the truth, coupled with a heavy political overtone in that their opinions need to be heard. We see an interesting combination of cognitive biases, personality traits and other psychological mechanisms at play in the formation, propagation and belief in conspiracy theories (Aaronovitch, 2009; Walker, 2014).

Despite their popularity, only in the last ten years has empirical psychological work been published in this area. The early work exploring conspiracy belief focused on the processes of those who tended to believe in these alternative theories and explored some of the biases and individual differences at play.

The formulation of a belief in conspiracy that is resistant to contrary evidence was argued by Goertzel (1994) to demonstrate the idea of a "monological belief system". This allows believers an easier way of providing explanations of complex new phenomena that might threaten existing belief systems. It suggests that one conspiratorial idea serves as evidence for other forms of conspiracy, which has been more recently supported by research where it was found that participants who believed theories regarding the 9/11 terrorist attacks were more likely to believe in other nonrelated theories of conspiracy (Swami, Chamorro-Premuzic, & Furnham, 2010). This remains one of the most consistently reported findings from the research to date and has been extended to demonstrate that even levels of belief in mutually contradictory theories are positively correlated. For example, the more participants

believed that Bin Laden was already dead when the Americans reached his compound in Pakistan, the more they believed he was still alive. These mutually incompatible conspiracy theories demonstrate a common theme instead, that the message is not as important as the idea that the authorities are responsible for a cover-up (Wood, Douglas, & Sutton, 2012).

The way in which this message is argued and processed can also reveal interesting observations about the power of the conspiracy theory. Research looking at the mechanisms of conspiracy theory rhetoric more closely has identified several key cognitive biases at work. These include a proportionality bias, the idea that large significant events have large significant causes (Leman & Cinnirella, 2007); an attribution bias, a tendency to overestimate the effect of dispositional factors, especially in an attempt to understand the intentionality of others (Clarke, 2002); and confirmation bias, where beliefs and ideas that are consistent with one's own ideas tend to be reinforced while alternative ideas are downplayed or ignored (Leman & Cinnirella, 2007).

If we assume we are all, to some extent, susceptible to the same cognitive biases involved in processing information, how can we determine what type of person is susceptible to belief in a conspiracy? There is a small body of work that has allowed us to predict some common characteristics of conspiracy believers using an individual differences approach. Here, research has found that conspiracy beliefs can be predicted by high levels of anomie (a lack or rejection of social norms), authoritarianism, and powerlessness, together with low levels of self-esteem and trust (Abalakina-Paap, Stephan, Craig, & Gregory, 1999). Further work has also demonstrated a relationship between conspiracist ideation and a low level of agreeableness and high levels of political cynicism (Swami et al., 2011). The findings from this perspective have reinforced the view that beliefs in conspiracy theories are a response to feeling disadvantaged, powerless, and hostile toward the traditional politics that have let one down. However, one of the major limitations of the current body of work is that it is still in its relative infancy, with a small but growing body of correlational, exploratory studies.

Aren't conspiracy theories just harmless fun?

Despite the increasing focus on this new area of research, there is a view that conspiracy theories are generally harmless and represent a typical and healthy by-

product of a thriving and open democratic society (Hodapp & von Kannon, 2011). These beliefs are often dismissed as harmless theories of minor fringe groups, but recently it has been shown that belief in conspiracy theories are having real-world consequences. The South African government's former embrace of AIDS denialism as part of a conspiracy has been estimated to have contributed to approximately 330,000 AIDS deaths as people delayed or ignored preventative measures and treatment programs (Chigwedere, Seage, Gruskin, Lee, & Essex, 2008). Similar trends have been seen where a belief in a conspiracy that pharmaceutical bodies conspire with government to administer harmful vaccinations has played a role in declining childhood vaccination rates (Salmon et al., 2005). Research has also shown that short exposure to conspiracy theories can decrease one's intention to engage with politics (Jolley & Douglas, 2014b)

The next sections will explore in more detail the current literature and aim to create a framework to introduce the context and aims of the current research.

Conspiracy theories: working definition

Early psychological work on conspiracy theories tended to either avoid directly offering a definition or else acknowledged a "debate" within the literature without necessarily contributing to it. The attempt to produce a sensible definition has incorporated work from multiple domains, including philosophy, psychology, political science and history.

As stated in the chapter overview, in its broadest sense, a definition of a conspiracy comes from the legal interpretation of an "agreement between two or more persons to commit a crime at some point in the future" (for England & Wales, see The Criminal Law Act 1977, Part 1, Section 1). However, this legal term does not offer us a definition for the contemporary use of the term "conspiracy theory" and in particular does not adequately distinguish between genuine criminal activity and the unverified and irrefutable characteristics of conspiracy theory.

For Richard Hofstadter (1964), conspiracy theories presented explanations for a "vast, insidious, preternaturally effective international conspiratorial network designed to perpetrate acts of the most fiendish character" (p. 14). In a wider explanation and discussion about what he saw as a "paranoid style" in American political discourse, he summarised a worldview that saw proponents argue that the motor of history was driven by a clandestine group of powerful people whose control over the world has apocalyptic

consequences. In particular, Hofstadter, although he does not use the word paranoia in reference to mental illness, does argue that it is intended to be pejorative. In the “paranoid style”, the conspiracy theorist is not concerned with persecution against themselves personally, but rather against their nation, their culture or their way of life. Hofstadter also provided psychologists with some interesting hypotheses to test, with arguments that conspiracy theories are a response to a lack of control amongst the general population and that they take a complex confusing world and simplify it into a narrow, over-simplified narrative focused on good and evil forces.

Within the “paranoia” argument is the extension that conspiracy theories tend to be sensationalistic in their focus, driven by the fear of persecution by this hidden group. This persecution, as Hofstadter argued, is not personal, but against all of society, driven by the unusually evil or malign intent of the conspirators. No moral violation is too great, no act of cruelty too unthinkable. Rather than a small group of people acting in their own self-interest, instead here is a group intent on significant malevolence. It is this “black and white” world of good versus evil that characterises the conspiracy theory (Bale, 2007; Barkun, 2003) that is outlined in Hofstadter’s original definition.

Karl Popper (1952) had previously used some of Hofstadter’s arguments, in particular the view that conspiracy theorists have that negative events and consequences in the world are a product of “direct design by some powerful individuals or group” (p. 341). However, Popper’s arguments dismissed all conspiracy theories outright, arguing that it is inconceivable that the intent of small groups of individuals can affect complex global geo-political situations. Thus Popper also provided psychologists with an active, testable hypothesis, that of a human need to assume intent – the intentionality bias.

As the social sciences started exploring this area in more detail, some early attempts at definitions tended to focus on the *function* of conspiracy belief to explain the causes of accidents in an attempt to restore a sense of control (Whitson & Galinsky, 2008) or otherwise attempt to prove the existence of unknown malevolent actors (Zonis & Joseph, 1994). Using these starting points, Sunstein and Vermeule (2009) created a workable definition of a conspiracy theory as “an effort to explain some event or practice by reference to the machinations of powerful people, who have also managed to conceal their role” (p. 4). Conspiracy theories under this definition aim to reveal and expose a plot by powerful hidden people.

Using this definition, the faking of the Apollo moon landings, the assassination of John F Kennedy – not by a lone shooter but by the CIA – and the invention of

HIV/AIDS to control the population can all qualify as conspiracy theories. Part of the rhetoric of typical conspiracy theories is that they act to counter the “official” story. It is implied therefore that the group of hidden people need exposing and the explanation of the truth runs counter to the widely held account of the event in question.

However, the term conspiracy theory in popular discourse is largely seen as pejorative (or at the very least, loaded; Wood, 2015) and conspiracy theories are often deemed to be characterised by low standards of evidence or to otherwise posit nonsensical arguments (Grimes, 2016; McHoskey, 1995). The Sunstein and Vermeule definition does not differentiate between conspiracy theories that have really happened and those that remain “theories”. The authors acknowledge that this definition can also include conspiracies that actually happened. The Watergate scandal (in which President Richard Nixon was implicated in bugging his political opponents and covering up his later involvement), Project MKUltra (in which the CIA performed illegal experiments on humans) and the Tuskegee Syphilis Experiment (in which US government scientists deliberately withheld treatment from humans with syphilis without consent) can also be considered conspiracy theories under that definition. These were all clandestine operations by powerful people who later concealed their role. Therefore, any definition must also establish an epistemological argument about the (perceived or actual) veracity of any claims made.

For Aaronovitch (2009), a definition of conspiracy theory must make reference to the plausibility and veracity of the claims made. The conspiracy theory term does not normally refer to events that have genuinely occurred; rather it refers to events not verified by the legitimate authorities, whether they are legal experts, governments, scientists, or historians. In part, conspiracy theories deliberately rely on this – in an attempt to preserve their version of the truth as the only legitimate one, they discredit the “official” story as one contaminated by the conspiracy. Through that, the theories then become hard to refute or falsify. Any attempt at discrediting the conspiracy theory can be absorbed as evidence of the target group trying to maintain secrecy over their involvement. This, by epistemological standards, is evidence of a circular argument and has been termed “cascade logic” (Goertzel, 2010). With this process, inconvenient data is easily explained as either evidence of a successful cover-up (you cannot find the evidence because they have destroyed it) or evidence of disinformation (this evidence has been faked to fool you).

In an attempt to collect and assess the varying definitions and build a workable definition of conspiracy theory within psychology, Brotherton (2013) used a family-resemblance approach to argue that a conspiracy theory should be defined as an *unverified* claim of conspiracy that is not the most plausible explanation of the event. Brotherton also expanded his definition to argue that conspiracy theories attract themselves to significant events with sensationalistic implications; they assume malevolent intent, are based on weak evidence and are “epistemologically self-insulating” against disconfirmatory evidence.

Van Prooijen and van Vugt (2018), in a broad attempt at establishing a future direction for conspiracy theory research, started with Bale’s (2007) definition of a conspiracy theory; that a group agrees a secret purpose in obtaining a malevolent goal. The authors expanded this and other working definitions in the field to argue that conspiracy theories contain at least five distinct components. Firstly, conspiracy theories assume causal interconnectivity, linking events and people together – something the author’s argue is a form of pattern seeking (Whitson & Galinsky, 2008). Secondly, the theories demonstrate conspirators’ intent, allowing a form of agency detection (Imhoff & Bruder, 2014). Thirdly, that conspiracy theories should involve a group of conspirators, rather than describing the actions of a single “lone-wolf”. Contemporary conspiracy theories will often argue that actions of a single perpetrator in significant events will reveal a larger group of people “pulling the strings” behind the scenes. Fourthly, conspiracy theories identified a perceived threat, mostly from the actions of the conspirators. Echoing earlier work by Brotherton (2013) and Aaronovitch (2009), the presence of malevolent intent establishes a difference between conspiracy theory, and other forms of conspiring that would result in more positive outcomes (such as planning a surprise for someone). The presence of a threat also reinforces the more pathological focus that Hofstadter (1964) argued for, referring to an overactive threat detection driven by paranoid like tendencies. Lastly, in van Prooijen and van Vugt’s definition, conspiracy theories contain elements of secrecy, although the authors do not fully expand on this point in their work. Is this the secrecy of the actions of the conspirators, or the secrecy involved in a covering-up of actions of others? While it is right to argue that most conspiracy theories claim that the perpetrators are committing their acts in secret, and that conspiracy theories often cite themselves as attempting to reveal the secret acts of others – at what point does this secrecy discontinue? If a regular minority of people believe in a certain theory, can it still be argued as being secret? The

secrecy element does have an important part to play, however, when it comes to verifying the conspiracy theory, something that van Prooijen and van Vugt (2018) do not directly refer to. If actions are completed in secret, then evidence of their existence may be hard to refute – conspiracy theories often cite the lack of evidence as evidence of a cover-up.

While existing research has been divided on whether to address the veracity of potential conspiracy theories, it also has not fully addressed the dichotomy of a conspiracy theory that has since moved into a commonly held belief. This research has used examples of “conspiracy theories that turned out to be true”, such as Watergate, Project MK-ULTRA, and the Tuskegee Syphilis study, to argue that when the events become public, they cease to be conspiracy theories. The problem with this argument is that there has been no attempt at understanding whether any of these popularly cited events were even known before legitimate sources revealed their existence. Were there conspiracy theories specifically about these events that would fit the definitions that have been discussed above? It therefore may be better to argue that a conspiracy theory is an *unverified* claim, rather than a secret one.

From this, only theories that are unverified can be included in later study. The problem with this approach, of course, is the limits of what can be argued as “verifiable”. For psychology, however, it is not our intention to get into debates about the truth of conspiracy theories. Our focus instead, is to understand what psychological processes can underlie belief in these theories, what attracts people to them, and why they reject the more plausible (at least, to the majority) explanation. The weakness of this argument is that some conspiracies have been ostensibly proven, but psychological definitions exclude these. It could be argued that belief in actual conspiracies may affect belief in unverifiable conspiracy theories, but so far the literature has been unforthcoming in tackling this limitation (Walker, 2014).

Recently published work by Douglas et al. (2019) aimed to collate and summarise the latest position of the literature, incorporating perspectives from psychology, political science, sociology as well as other disciplines across the humanities. In particular, the authors raised the importance for work in this area to correctly and sensitively define the terms used in scholarly discourse. In the review, their definition reflected the consensus of the literature – in that “conspiracy theories” are attempts to explain the significant events with “secret plots by two or more powerful actors” (p.4). The authors make a distinction here that van Prooijen and van Vugt (2018) did not; the secrecy

element refers to the actors, and conspiracy theories can be seen as ways of revealing these secret actions. Additionally, Douglas et al. (2019) also argued the importance of defining other commonly used terms in the literature. If an attempt is made to define conspiracy theories, then the terms “conspiracy belief” and “conspiracy theorist” should also be clearly defined. In their review, the authors define “conspiracy belief” as believing in a specific conspiracy theory, or a range of them. They also argue that this should not necessarily be conflated with the term “conspiracy thinking” or “conspiracist ideation”, which reflects a generalised attitude or tendency for certain people to prefer conspiracy theories over official accounts. The authors also warn about the use of the term “conspiracy theorist” which does not adequately identify people who believe in conspiracy theories and people who actively create or propagate them. The term itself is loaded and easily used to dismiss criticism by those in power (see Wood, 2015).

Conspiracy belief is widespread, but not total – belief varies between individual theories, affected by a large number of socio-demographic and individual difference factors. If these theories could be boiled down to purely evidential terms, it would suggest all humans approach evidence gathering and appraisal in the same way – which existing psychological work demonstrates is unlikely.

For the basis of this work therefore, the conspiracy theory should be defined, for the purpose of psychological study, as:

- An unverified claim of conspiracy that is not generally considered to be the most plausible explanation of a significant event.
- It has sensationalistic implications that assume malevolent intent.
- The conspiracy is the work of a group of people, sometimes unidentifiable.
- An attempt to explain a causal connection between events, people or objects.
- The evidence supporting the theory is weak and is resistant to disconfirmation using a form of cascade logic that self-insulates it against refutation.

Conspiracy theories range widely in their target, dissemination and popularity, but work towards a definition for psychology, at the very least, helps establish what we are most interested in, and what practically we can measure and test scientifically. For this work, and the summary of literature that follows, the definition above is applied to most of the current psychological work, with a few exceptions.

From this, it is important to also consider how conspiracy theories are measured in empirical work. While a concrete definition has not been entirely forthcoming, several researchers have attempted to unify existing piecemeal attempts at measurement into broader scales (Abalakina-Paap, Stephan, Craig, & Gregory, 1999; Brotherton, French, & Pickering, 2013; Douglas & Sutton, 2011; Imhoff & Bruder, 2014; Swami & Coles, 2011; for a review see Swami et al., 2017). The next section will explore the challenges in measuring conspiracy theories, arguing for generality over specificity, and an evaluation of the existing scales in the literature.

Conspiracy theories: measurement challenges

Over the course of this current programme of research, a number of studies have published novel scales in attempts to measure a hypothesised factor of “conspiracist ideation”. Conspiracist ideation is defined as a generalised tendency towards belief in conspiracy theories, potentially indicating underlying preferences for conspiracy explanations compared to official accounts (Douglas et al., 2019). These scales have taken an individual differences approach to measure the endorsement of conspiracy theories and/or the engagement of conspiracist ideation. At that time, the existing literature had a key limitation, in that it had used scales measuring belief in specific conspiracy theories, but generalised the results to individuals’ tendency towards conspiracist ideation (Brotherton et al., 2013). Scales would typically contain a number of items, each referring to a specific conspiracy theory, often taken from popular conspiracy theories. For example, Goertzel (1994) created a ten-item scale of common conspiracy theories, including a theory that Anita Hill was part of a conspiracy against the confirmation of Judge Clarence Thomas for the United States Supreme Court. Today, that conspiracy theory would likely score very low primarily because it no longer features widely in the current public consciousness – and would also not give us a great deal of information about conspiracist ideation as a result. Similar studies more recently have also taken this “popularity” approach, by using conspiracy theories that have featured during the time of the research (e.g. Abalakina-Paap et al., 1999; Leman & Cinnirella, 2013; Swami & Coles, 2011). The limitations of this approach should be obvious. Conspiracy theories can vary between cultures, and are easily confounded by familiarity (Byford, 2011), and the previous research did not properly consider the tone of the scales in addressing the popular conspiracy theories of their time.

While arguments at this time were being made about the generality of conspiracy beliefs, in that they reflected mistrust in authority, powerlessness or low self-esteem (Abalakina-Paap et al., 1999), or were the products of sub-clinical paranoia or schizotypy (Darwin, Neave, & Holmes, 2011), work had not yet progressed to the point where a generalised scale of conspiracist ideation had been created and validated. Early research was arguing that even mere exposure to conspiracy theories could affect participants' attitudes (Douglas & Sutton, 2008) but were still relying on using specific conspiracy theories as a dependent variable. Despite this, a general pattern of findings was emerging that suggested there were stable individual differences in conspiracist ideation (Brotherton, 2013; Brotherton et al., 2013).

It is therefore conceptually dangerous to attempt to generalise conspiracist ideation from a (sometimes) limited subset of specific conspiracy theories, often arbitrarily chosen based on the cultural and temporal biases of the experimenters at that time. It was this issue with the literature that led several researchers to propose novel scales that shifted away from measuring specific theories, and instead attempted to conceptualise, measure and test more generic conspiracist beliefs.

Brotherton et al. (2013) argued that while a measure referring to popular conspiracy theories would require continuous modification as fashions changed, a generic measure would hold consistency over time and, importantly, would be suitable for any sample population, rather than relying on the culture of the scale's creator. The authors developed the Generic Conspiracist Beliefs Scale (GCB) and validated its use across four initial studies to demonstrate that a generic scale would correlate with existing scales of specific conspiracy theories, but also argue a multi-dimensional construct to conspiracist ideation.

The authors began with an exploratory factor analysis of 75 items, generated from a review of the current literature and with the specific aim of introducing non-specific descriptions of popular conspiracy theories. The analysis revealed five factors, which the authors labelled as "government malfeasance"; "extra-terrestrial cover-up"; "malevolent global conspiracy"; "personal wellbeing"; and "control of information". These five factors were then used to guide the construction of a shorter 15-item scale for experimental use, with 3 items loading for each of the five factors. This reduced scale showed good test-retest reliability over a 5-week interval but suffered from a low base size ($n = 42$). The GCB also showed strong correlations with the "belief in conspiracy theories inventory" (Swami et al., 2010), a scale assessing belief in a range of specific

real-world conspiracy theories, ($r = .82, p = < .001$), as well as smaller scales measuring belief in 9/11 and 7/7 theories ($r = .75, p = < .001$; Swami et al., 2010; $r = .67, p = < .001$; Swami & Coles, 2011). The authors summarised their work by suggesting that the GCB reflected the spectrum of conspiracy belief in Western cultures, staying non-specific in its discussion of any events, but still specifying the objectives of some broader conspiracy theories within the scale. The authors encouraged others to validate and test the scale, particularly in its findings of five factors of conspiracist ideation while preserving the scale's overall aim of balancing specificity vs generality.

A generic conspiracist scale with similar aims in its development was published around the same time as the GCB, called the "Conspiracy Mentality Questionnaire" (CMQ) (Bruder, Haffke, Neave, Nouripanah, & Imhoff, 2013). The authors' key concern in the creation of their scale was to test and validate a scale that could be used across cultures, and in their factor analysis only described one factor that their five-item scale loaded to. In its comparison to the GCB, the authors argued that their CMQ scale may be better for overall scores, whereas the GCB might be better suited to understand the sub-factors it identifies. To date however, no further work has been completed to explore this, and studies published that have used the GCB have not split them into the underlying five factors.

Efforts to produce scales to measure more generalised conspiracy thinking also produced several shorter scales, aimed at being more cost-effective for polling, as well as potentially being sensitive to experimental manipulations to affect conspiracy belief. Lantian, Muller, Nurra, and Douglas (2016) designed a single-item scale to measure belief in conspiracy theories with the goal to capture the breadth of the previous larger scales without the necessary time constraints. Similar work by Uscinski and Parent (2014) developed a three-item scale in an attempt to achieve similar brevity.

As the literature developed ways of standardising the measurement of conspiracy, there was a greater focus on the exploration of the style of belief in conspiracy theories. One such scale, the "Flexible Inventory of Conspiracy Suspicions" (FICS; Wood, 2017) was developed to measure *suspicions* of a conspiracy that could be adapted to fit a current topic of public interest. The author argued that this would allow researchers to better measure conspiracy beliefs that were centred on ambiguous experiences.

The work presented through this thesis uses the GCB to measure conspiracy belief, and the merit and limitations of its use will be discussed throughout.

The next section will explore the prevalence of conspiracy theories and their effect on other psychological processes and outcomes, to summarise the key work in this area.

Conspiracy theories: prevalence

Despite psychology taking a rather late interest in the field of conspiracy theory belief, opinion polling has revealed that a surprising percentage of people from a variety of cultures show some form of conspiratorial belief. In the UK, 24% of the population believe Diana, Princess of Wales, was assassinated (Gardiner & Thompson, 2012); 41% believe that the British government are hiding the true number of immigrants in the country, while 13% believed in a “single group of people who secretly control events” (Moore, 2016). In the US, similar levels of belief in a range of conspiracy theories are shown; 69% of an American sample believed President John F Kennedy was killed by a conspiracy (Goertzel, 1994); 37% agreed that the Food and Drug Administration were conspiring to control natural cures for cancer due to pressure from drug companies; 19% believed that the US government planned the 9/11 terrorist attacks and 24% believed that President Obama was not born in the United States (Oliver & Wood, 2014).

Polling statistics for the UK and US give a good indication of the general levels of belief in a variety of conspiracy theories, while also measuring other key demographics including gender, age, political leaning, education level, and ethnicity. These socio-demographic factors and others are discussed in more detail in subsequent chapters but, broadly, belief appears across the entire spectrum and is relatively unaffected by these factors. Generally, ethnicity and political leaning tend to affect the target of the conspiracy theories most popularly believed, rather than negating their existence completely. For example, in the 2016 US Presidential Election, 25% of Hillary Clinton voters believed that “millions of illegal votes were cast in the election”, compared to 62% of Donald Trump voters – despite him winning the election. African American and Latino communities are more likely to believe that HIV/AIDS is deliberately being spread or manufactured to eliminate those ethnicities (Ross, Essien, & Torres, 2006).

Any impactful or memorable event in modern history is likely to attract some form of conspiratorial theorising and conspiracy theories relating to many major events have been considered in recent polling data or academic work (Hodapp & von Kannon,

2011). Consequently, conspiracy belief is not limited to the UK or US and attempts have been made to study belief across multiple cultures.

In a discussion of conspiracy in Eastern Europe and the Middle East, Zonis and Joseph (1994) argue that because of the historical context of countries like Romania, Ukraine, and Poland, previously stuck in the political empires of either Germany or Russia, they are rife with conspiratorial belief due to their countries' previous lack of autonomy and self-determination. In the Middle East, anti-west sentiment, particularly in relation to US interventions in Afghanistan and Iraq, manifest themselves in high belief in 9/11 conspiracy theories. 73% of Muslims in Turkey, 75% of Muslims in Egypt and 57% of Muslims in Pakistan do not believe in the official story of Arabs being responsible for the 9/11 terror attacks (Kohut, Wike, Menasce Horowitz, Poushter, & Barker, 2011).

To validate a multi-cultural scale of generic conspiracy belief, Martin Bruder and colleagues collected the largest amount of data to date from the US, Ireland, Germany and Turkey. The authors demonstrated a single "conspiratorial" factor underlying the belief scale that was consistent across the four countries (Bruder et al., 2013). Work is still needed to validate and study cross-cultural variation in conspiracy belief in more detail, but this early work furthers the evidence that conspiratorial thinking is not limited to particular cultures.

The appeal of conspiracy theories in popular culture is also a factor in explaining their prevalence, dissemination and popularity. Conspiracy theories, particularly in the US, can be big business. One popular theorist, Alex Jones, who uses a multi-platform business model to spread a wide range of conspiracy theories, has an estimated worth of \$5 million dollars (McFarlane, 2012; Seitz-Wald, 2013). Books, DVDs, and, in particular, YouTube documentaries have all been used to spread accounts of alternative explanations for a wide variety of events (Byford, 2011; Hodapp & von Kannon, 2011). Similarly, popular television shows of the last 30 years such as *The X-Files*, *24*, and *Homeland* and films such as *The Da Vinci Code*, *JFK*, and *Conspiracy Theory* demonstrate the popularity and penetration of conspiracy theory in everyday culture.

The heightened visibility and spread of conspiracy theories in contemporary culture might suggest that this phenomenon is fairly modern, but historical accounts suggest conspiracy thinking is not new (Aaronovitch, 2009; Byford, 2011; Hodapp & von Kannon, 2011). Although the term "conspiracy theory" does not appear in Latin or Greek writings, sociohistorical modelling of a wide array of ancient sources showed that

political conspiracy theories in Ancient Rome were widespread and persistent (Pagán, 2008). Romans occupying the upper ends of society were concerned with conspiracies that threatened their elitism – particularly in reference to women or slaves whom they accused of conspiring to overthrow the establishment. In the Middle Ages, anti-Semitic conspiracy theories were prolific – a conspiracy about Jews desecrating the host used in Catholic communion led to widespread persecution and massacre of Jews across Europe (Rubin, 2004).

Conspiracy theorising started to move away from the anti-Semitic into grander, more sinister, theories about hidden or secretive groups around the end of the 18th century. In particular, one of the earliest discussions of the Illuminati and Freemasons in a conspiratorial context appeared in a book written by John Robison in 1797. An otherwise well-respected physicist and General Secretary to the Royal Society of Edinburgh, Robison described the leaders of the French Revolution as participating in “one great and wicked project fermenting and working all over Europe” and claimed their anti-Christian movement, amongst many other crimes against the French, was secretly creating a special tea that would cause abortion (Robison, 1797, cited in Hofstadter, 2008, p. 11). The anti-masonic movement that followed argued for the existence of a vast and insidious *international* network of malevolent characters, responsible for a wide range of societal ills and concerns of the time (Hofstadter, 1964).

From this, our modern conspiracy theory was born – taking the themes of a small but significant group of people, hidden from public view and working towards their own malign cause. The arguments of conspiracy theory belief as a modern phenomenon are not borne out, but the use of the internet as a communication tool has likely increased both the ease and reach of their dissemination (Barkun, 2003; N. Holm, 2009). Longitudinal data on belief through the information age is unfortunately not yet available.

But are these beliefs harmless? Is there evidence that these theories have had any impact on popular opinion and discourse or the actions of governments to counter them? Evidence of a core minority of people across cultures and socio-economic boundaries demonstrating belief in a variety of theories has been discussed, but what of their effect? The subsequent section will summarise the current evidence surrounding the consequences of belief in conspiracy theories.

Conspiracy theory beliefs and their real-world effects

Conspiracy theories, according to Christopher Hitchens, are the unavoidable result of our modern information age – the “exhaust fumes of democracy” (Hodapp & Kannon, 2011, p. 17). But does this mean they are harmless fun or do they have more serious social and political consequences? Over the last ten years, a growing portion of the conspiracy theory literature has focused on the consequences of such belief, exploring how conspiracy theory belief could affect political engagement, prejudice and extremism, denial of science, and health behaviours.

Early work on the effects of conspiracy theory belief explored how passive exposure to conspiracy theories (via films with conspiracy narratives; Butler, Koopman, & Zimbardo, 1995; Mulligan & Habel, 2013) would later result in an increase in generalised attitudes to the existence of conspiracy theories. These findings were expanded on in work by Douglas and Sutton (2008), who found that participants responded to exposure to conspiracy theories about the death of Princess Diana with an increase in subsequent belief, but importantly underestimated the extent that their own beliefs were influenced compared to others’.

With evidence to suggest that exposure to conspiracy theories can increase subsequent belief, work has also expanded to consider the results of belief on political engagement and political attitudes. Uscinski and Parent (2014) found a correlation between higher beliefs in conspiracy theories and a lower intention to vote or engage in other political activity such as donating to a political party. Similar work by Jolley and Douglas (2014b) demonstrated that participants who read conspiracy theories revealing anti-government sentiment reported being less likely to vote in the next election. Given that the content of conspiracy theories often has a distinct political focus (many an explicitly anti-government focus), it is worrying (but perhaps not surprising) to see that those exposed to such conspiracy theories report a lower likelihood of political engagement. It is also hard to consider the role of conspiracy theories in affecting change when people exposed to them withdraw from the system they wish to challenge. Work by Imhoff and Bruder (2014) proposed conspiracy belief forms part of a generalised political attitude that can be used to challenge the status quo. Their work found a positive correlation between engagement in a specific political goal (no longer using nuclear power after the Fukushima disaster) and conspiracy thinking, suggesting not all belief in conspiracy theories has negative consequences.

With mistrust in government and political systems comes mistrust or rejection of the scientific consensus of a number of politicised concerns including vaccinations, GM food, and – particularly in recent years – climate change. There is a growing body of work that has consistently demonstrated correlations between conspiracy belief and science denialism, with most theories arguing evidence is either being suppressed or doctored by scientists to fulfil a political goal (Lewandowsky, Gignac, & Oberauer, 2013; Lewandowsky, Oberauer, & Gignac, 2013; van der Linden, 2015). Again, work found that exposure to climate change conspiracy theories led participants to report lower intentions of behaviours that would reduce their climate impact (Jolley & Douglas, 2014b). This effect was also seen with vaccination behaviours, an area of science-denying conspiracy belief that has attracted considerable focus in the literature due to the risks involved in people rejecting recommended health-related choices.

Despite vaccines being one of the most important advances in modern medical history, vaccination rates, particularly in the developed world, are decreasing (Health and Social Care Information Centre, 2014). In particular, this decline can be attributed to a now discredited study by Andrew Wakefield, who in 1998 published a study in *The Lancet* that suggested a link between the MMR (Measles, Mumps and Rubella) vaccination and autism (Burgess, Burgess, & Leask, 2006). Despite significant testing, public information campaigns and government interventions, belief in the dangers of MMR, and vaccines more generally, still persists (Jolley & Douglas, 2014a). Underpinning this are conspiracy theories that suggest that pharmaceutical companies either fake or cover-up evidence of the side-effects of vaccines in order to protect their profits. In some cases, theorists argue that vaccines are in fact part of a larger plot to weaken or control the population (Kata, 2010; Salmon et al., 2005).

Another area that has attracted significant research is beliefs about HIV/AIDS and the potential conspiratorial explanations for its existence and spread in certain populations. Belief in conspiracy theories that either argued that HIV does not cause AIDS or that HIV was deliberately created by governments to maintain population control have created significant challenges to health agencies (Nattrass, 2013; Simmons & Parsons, 2005). Over a quarter of African-Americans in one study believed in the origins of HIV as a genocidal conspiracy, compared to lower rates in whites (one fifth showed belief). Conspiracy belief was also shown to be an independent predictor of condom use (Ross et al., 2006). Similar work showed that non-adherence to HIV antiviral treatment programmes could be predicted by belief in a range of HIV

conspiracy beliefs (Bogart, Wagner, Galvan, & Banks, 2009). At the peak of the HIV epidemic in the 1990s, South Africa, one of the countries most affected by HIV, went against scientific opinion to argue that HIV did not cause AIDS and that any drug treatments therefore were harmful and would not be funded. This decision, it was calculated, cost the lives of over 330,000 people whom did not receive the treatment they needed (Chigwedere et al., 2008).

Rejection of vaccinations and belief in HIV conspiracy theories both represent a more generalised attitude of mistrust of science. Previous work has identified an association between belief in conspiracy and a generalised “mistrust of science”, particularly in the area of climate change. Being exposed to climate change conspiracy theories reduced the likelihood of participants wanting to engage in reducing their carbon footprint and also their likelihood to contribute to politics more generally (Jolley & Douglas, 2014b). If you believe in a corrupt government, acting out of selfish, evil, interests, then it may not be surprising that you subsequently disengage from the traditional political system. In fact, Jolley and Douglas found that the effect of conspiracy belief on political engagement occurred because these theories led to feelings of political powerlessness.

Conspiracy theories that lead to political powerlessness can also have another dangerous and deadly consequence – terrorism. Our understanding of the relationship between political extremism and conspiracy belief is in its infancy, but some political commentators have argued that behind every significant terrorist group lies a belief in a conspiracy. In a paper published by the *Demos* think-tank in 2010, Jamie Bartlett and Carl Miller argued that conspiracy theories were prevalent across the entire extremist spectrum, despite differences in the underlying content of such theories. For the far right, belief in a global Jewish conspiracy was central to their ideology, for al-Qaeda and radical Islam, the conspiracy broadens to a Judeo-Christian-Capitalist conspiracy intent on destroying Islam, and for the far left, a New World Order conspiracy of a totalitarian capitalist government drives their grievances (Bartlett & Miller, 2010). This is not to suggest that all conspiracy believers are potential terrorists, rather that extremes of conspiracy belief (like extremes of any behaviour) can have serious consequences.

Most of the literature has focused on negative consequences of conspiracy belief, but some works have argued that conspiracy belief and conspiracist ideation can have positive benefits. Conspiracy theories can be effective at challenging and questioning social hierarchies (especially when it comes to conspiracy theories that target a specific

minority) and can help highlight anomalies or inconsistencies in official accounts of events (Clarke, 2002; Miller, 2002). Fenster (1999) argues that conspiracy theories have the power to create possible political change but only with the ability to create mistrust in the current political systems. Conspiracy theories in this sense start with legitimate political concerns that are later hyper-inflated due in part to the political powerlessness the authors feel. How can you fight against such a powerful system? Presumably only by exposing the conspiracy and ultimately overthrowing those responsible for it.

The current psychological literature

The current literature has developed into three key areas, which either have assessed conspiracy belief from a socio-demographic perspective, an individual differences perspective, or through the perspective of cognitive biases and faulty reasoning. Each of these areas is explored in turn.

Who believes in conspiracy theories? Demographics and the “typical” conspiracy theorist

The results from the existing literature provide a mixed picture when exploring differences in level of belief in conspiracy theories relating to age, gender, income, occupation and/or level of education. Most key studies fail to find any significant correlation between conspiracy belief and age, gender, income or occupation (Abalakina-Paap et al., 1999; Darwin et al., 2011; Gardiner & Thompson, 2012; Moore, 2016; van der Tempel & Alcock, 2015). A few studies (Bruder et al., 2013; Goertzel, 1994; Swami et al., 2010; Swami, Weis, Lay, Barron, & Furnham, 2015) have found a weak relationship with age and conspiracy belief but generally these relationships have not been validated in the wider literature and their effects disappear when incorporated into larger models of conspiracy belief.

Part of the problem with finding consistent results in this area is the lack of a unified, stable measure of “conspiracy belief”. As the research in this area has progressed, several measures of “generic” conspiracy belief, designed for use across cultures, have been developed (Brotherton et al., 2013; Bruder et al., 2013; Lantian et al., 2016), but the use of these measures is still in its infancy. By reducing specific conspiracy theories into their core underlying factors, the scales attempt to increase generalisability of their results across different groups.

Despite this, a few correlations have proved forthcoming. In terms of occupation, one study has highlighted that higher rates of unemployment were related to greater conspiracist ideation (DiGrazia, 2017) and so further work is needed to fully explain this correlation. The literature generally has not found a relationship between income and conspiracy belief, so there may be something distinct in the state of unemployment that may drive conspiracy belief.

One demographic factor that has provided more consistent results is that of ethnicity. Despite a questionable statistical approach of treating “minority” status as a linear variable, Goertzel (1994) in a random US sample, found a positive correlation between conspiracy belief and ethnicity. For his study, Goertzel argued that African-Americans were the most marginalised, with Caucasians being the least. Through that, his correlation showed that belief was highest amongst African-Americans, intermediate amongst Hispanics (whom Goertzel argued faced moderate marginalisation), and lowest amongst Caucasians.

Later studies also found further support for the relationship between ethnicity and conspiracy belief. Abalakina-Paap et al. (1999) found Caucasians had lower scores on beliefs in specific conspiracy theories compared to Hispanics and other minority participants, while exploration of specific ethnic-minority conspiracy theories around HIV/AIDS or contraception found that, despite belief existing across all ethnicities, the percentage of African-Americans believing HIV conspiracy theories was significantly higher than in other ethnicity groups (Ross et al., 2006; Thorburn & Bogart, 2005).

One possible explanation for these patterns of results may well be due to the discrimination or marginalisation that these ethnicities face within their societies. In particular, we find a mistrust of authority, mistrust in science or politics, and general powerlessness all predict conspiracy belief – and these relationships are explored in later sections. It may well be that these factors are driving conspiracy belief, rather than ethnicity per se. Some work found that African-Americans who felt they had little political influence, or felt that institutional racism in American society prevented them from trusting authorities, were more likely to endorse conspiracy theories (Simmons & Parsons, 2005). However, these (small) correlational studies cannot establish causality; do feelings of powerlessness and discrimination cause conspiracy belief, or does conspiracy belief increase feelings of powerlessness and discrimination?

The existing work on ethnicity also is specifically on ethnic minorities within mostly white European or US cultures. It is therefore likely that the increase in

conspiratorial belief amongst ethnic minorities may be driven by other societal factors, particularly in relation to the perception of the specific minority's status within the wider society. It is possible therefore that the pattern of results in the few studies to date investigating ethnicity and conspiracy beliefs may be different in countries with different balances of ethnic populations.

Building on some of these limitations, Freeman and Bentall (2017) devised a comprehensive study assessing correlates of conspiracy thinking with data collected from the National Comorbidity Survey Replication (NCS-R), a US nationally representative face-to-face survey of 5692 people (Kessler et al., 2004). This is, to date, the largest study of its kind to measure any form of conspiracy belief with a large, high quality, representative sample. The authors used the answers to the question "I am convinced there is a conspiracy behind many things in the world" as a "conspiracy belief" item, and established the strength of the associations between the endorsement of this question compared to a range of socio-demographic and physical health factors.

In their study, 26.7% of their sample endorsed the conspiracy question, a figure that broadly matches with similar western samples measuring more specific conspiracy theories (Gardiner & Thompson, 2012; Goertzel, 1994; Moore, 2016; Oliver & Wood, 2014). There was no significant difference in age, also matching the bulk of the literature in that area, but with a much larger sample in this study. Having lower levels of education, being an ethnic minority, having lower household income, and being single were all factors that were associated with a belief in conspiracy. These results provide further evidence for the "marginalisation" hypothesis in predicting the types of people who are more likely to believe in conspiracy theories.

The study also examined physical and psychological well-being, something not previously attempted by earlier work. Unsurprisingly, the conspiracy question was highly associated with measures of sub-clinical paranoia, which led the authors to raise concern that the endorsement of the conspiracy item was instead just reporting a sense of personalised suspicion or mistrust, rather than specific to conspiracy belief. After controlling for the paranoia measures, the relationships between conspiracy belief and education, ethnicity, income and relationship status persisted – further supporting the arguments that conspiracy beliefs are related to, but epistemically distinct from, paranoia. This was also supported with the findings that while conspiracy beliefs were not associated with a particular age, paranoid ideation showed greater prevalence in younger participants.

Of particular concern from this study was the finding that those that had seriously thought about committing suicide were more likely to endorse the conspiracy item, as well as those that have greater trouble sleeping. Similarly, those with low scores of psychological well-being (feeling lonely, feeling worthless, feeling hopeless about the future) all were more likely to believe in conspiracy theories.

The major limitation of these studies is, like other prevalence studies in this area, that they only report correlations. It is also limited in that the data are over 10 years old, and were collected in one country only. Nonetheless, the direction of the literature at present suggests that although conspiracy theory content may differ between cultures, most cultures show some degree of conspiracy theorising, and the authors argue that it is likely that conspiracist ideation serves a common purpose, despite developing from an interaction of factors.

Individual differences

The existing literature includes studies measuring a large number of individual differences variables, providing a correlational approach for a series of personality factors that began to approach a “conspiratorial” type. Very few studies to date, however, have attempted to manipulate these variables to ascertain any causal direction and any suggested causal relationships should therefore be treated with caution.

Paranoia and Schizotypy. Paranoia has long been related to the stereotype of conspiracy belief, in that proponents exhibit unjustified suspicion and mistrust, alongside belief in persecution (Hofstadter, 1964). However, even early authors noted the importance of maintaining a difference between clinical paranoia, more commonly manifesting as part of a wider organised system of delusions, and low-level paranoia that might exist in the wider non-clinical population. In recent years, sub-clinical paranoia has been shown to exist in its own right, with recent large-scale surveys showing paranoia occurring in around one third of the general population (Bebbington et al., 2013; Freeman et al., 2005). As discussed in the previous section, paranoia has also been shown in large-scale population surveys to be related to conspiracy belief (Kessler et al., 2004).

Early work on conspiracy belief and paranoid-like traits by Goertzel (1994) investigated the relationships between conspiracy belief, interpersonal trust and anomie. Interpersonal trust was measured using a small three-item scale of trust that asked whether respondents felt that they could trust the police, their neighbours or their

relatives. Similarly, a small three-item scale measured “anomie”: a belief that the situation of the average person in the world is getting worse and most public officials are not interested in the “average person”. The results showed that higher belief in conspiracy theories was related to lower interpersonal trust and higher anomie. Later studies widened these paranoia-like individual differences and found further correlations between conspiracy belief and cynicism, hostility, negative attitudes to authority, and low agreeableness (Abalakina-Paap et al., 1999; Bruder et al., 2013; Swami et al., 2010, 2011).

As the study of paranoia in non-clinical populations grew, Fenigstein and Venable (1992) developed a scale specifically for use in the general population. They argued that sub-clinical paranoia was a general adaptive strategy in complex social worlds and that low levels of paranoid ideation can help humans more easily detect social threats. Being suspicious of the motivations of others may lead to the avoidance of personal harm (Freeman et al., 2005). Use of this scale in relation to conspiracy belief provided a small body of work showing significant correlations between paranoia and conspiracy belief (Brotherton & Eser, 2015; Darwin et al., 2011; Grzesiak-Feldman & Ejsmont, 2008; van Prooijen, Krouwel, & Pollet, 2015).

The repeated positive correlations between paranoia and paranoia-like antecedents prompted Michael Wood to propose that measuring conspiracy *suspicions* may be a better way to establish process models for conspiracy belief. He argues that conspiracy suspicion can encompass several lower level contradictory beliefs into a generalised attitude (e.g. “The government is lying to me about x”) and it is this new potential individual difference that can be affected by other variables such as schizotypy, delusional ideation and paranoia (Wood, 2016). Given the recency of this work, these arguments have not yet been investigated experimentally.

Paranoia in the clinical sense, however, tends to be driven by a sense of personal persecution, and a personal response to threat, whereas conspiracy theories are concerned with a threat not to the individual, but to wider groups of people or society. This distinction is an important one and the rhetoric shifts so conspiracy believers warn of the threat to us all, rather than the threat to themselves. Some authors have argued for the existence of “political paranoia”, which exists as a separate trait that concerns itself with threats against society. It is argued that this trait, despite being heavily correlated with individual paranoia, exists in its own right (Bale, 2007; Rääkkä, 2009). It is unlikely that conspiracy theorists, given the prevalence of such beliefs, are

pathologically paranoid, and efforts should be made by researchers to make this distinction clear in their work.

This argument was made clearer in a meta-analysis that aimed to provide support for a reliable association between paranoia and conspiracy belief, as well as present two additional studies to explore the divergence and distinctiveness between the two (Imhoff & Lamberty, 2018). The authors' new studies demonstrated that conspiracy belief correlates with political control and trust, but not interpersonal control and trust, unlike paranoia. This led to arguments that the ontological difference between paranoia and conspiracy belief came from the target of the assumed malign intentions of others; paranoia tends to reference the self (the government are after me), rather than in conspiracy beliefs which tend to reference society (the government are after us).

Darwin et al. (2011) test a model of conspiracy belief which included measures of paranoia and schizotypy (a personality characteristic involving cognitive, perceptual and affective abnormalities that include social anxiety, suspicion, paranoia, and magical thinking; Meehl, 1990). Darwin et al. argued that the schizotypal traits could help to form and maintain conspiracy belief through deficits in reasoning and perception – and in particular mentioned that paranoid people tend to struggle attributing significant events to random or accidental causes. Starting with Darwin et al., the focus on schizotypal traits produced a small collection of studies showing significant and positive correlations with conspiracy belief (Bruder et al., 2013; Swami, Voracek, Stieger, Tran, & Furnham, 2014).

The main issue with the small collection of studies exploring schizotypy and conspiracist ideation is that the wider literature debates the exact structure of schizotypy, particularly in reference to its dimensionality. The debate stems from the foundation of schizotypy as a dimension of personality (with a continuous distribution), but formed from the original disease models of schizophrenia which use more categorical diagnostic criteria (Claridge & Beech, 1995; Kwapil & Barrantes-Vidal, 2015). While the literature continues to discuss the exact structure of schizotypy, correlational work examining its relationship with conspiracist ideation should be treated with caution – especially if schizotypy was measured using narrow approaches that do not fully measure or explore the multi-dimensional expressions of schizotypal traits.

More recent work has attempted to expand on the dimensions of schizotypy and its possible relationship with conspiracist ideation, as well as attempting to address the

assumption that schizotypy and conspiracy belief are directly associated. Barron et al. (2018) built a series of models that measured two underlying schizotypal traits (*Odd Beliefs and Magical Thinking* and *Ideas of Reference*), conspiracist ideation, and other related cognitive processes that assessed analytical thinking and the need for cognition. The hypothesised model argued that previously published correlations between schizotypy and conspiracy belief would be mediated by cognitive processes, which the authors' results partially confirmed. The results replicated earlier work demonstrating a direct and positive association between Odd Beliefs and Magical Thinking and Ideas of Reference with belief in conspiracy theories, as well as showing that analytic thinking mediated the relationship between Odd Beliefs and Magical Thinking and conspiracist ideation, but not Ideas of Reference. The study helped expand on possible mediating factors to help explain the relationship between schizotypy and conspiracy belief, but it is important to consider the difficulty in implying any causal direction.

Personal control. The sphere of personal control, or a perceived lack of control over one's life, may explain the attraction of conspiracy theory belief. Personal problems may be rationalised as being caused or affected by external sources, which may also explain the correlation between ethnic minorities and increased likelihood of belief in conspiracy theories. A rationalisation that the world is unfair, cruel and unbalanced due to a conspiracy may help reduce the dissonance experienced when feeling powerlessness.

Early work confirmed some of these hypotheses when exploring the role of authoritarianism in conspiracy belief. People who score highly on measures of authoritarianism tend to blame problems on an "other" group or out-group – reinforcing the need for strict obedience to authority as a solution for society's problems. Some correlations have been found between a high level of authoritarianism and conspiracy belief (Abalakina-Paap et al., 1999; Bruder et al., 2013; de Zavala, Cichocka, Eidelson, & Jayawickreme, 2009). However, the results are mixed when we consider the effect of a specific subset, known as "right-wing authoritarianism" (RWA), which is higher in people who have a willingness to submit to established authorities, and are hostile to those who do not conform to that group's authority (Altemeyer, 1981). This political attitude has provided mixed results; McHoskey (1995) found a negative relationship between authoritarian attitudes and belief in conspiracy theories, but Abalakina-Paap et al. (1999) found a positive relationship between RWA and conspiracy beliefs. It may be that these inconsistent results are due to individuals picking theories that fit existing

belief systems, which explains results (Swami, 2012) that showed a positive relationship between RWA and belief in a specific anti-Semitic conspiracy theories, but a negative relationship with general conspiracy theories (Leman & Cinnirella, 2013).

Belief in conspiracy theories has also been argued to contribute to self-esteem maintenance (Robins & Post, 1997; Young, 1990), which allows conspiracy believers to reassert control over their image in relation to the perceived disadvantages suffered by their in-group. Studies have shown that satisfaction with life and self-esteem were negatively correlated with conspiracy belief (Swami et al., 2010, 2011), further providing evidence that conspiracy theories may offer a voice to the dispossessed (Hofstadter, 1964).

Hofstadter (1964) also suggested that feelings of powerlessness (the perception of being unable to affect an outcome by action; Jolley & Douglas, 2014a) influence belief in conspiracy – the idea that a cruel confusing world can be made simpler with the implication that the evil forces responsible are beyond their control. Abalakina-Paap et al. (1999) tested if powerlessness correlated with belief in conspiracy, using a “Mastery scale” that asked participants if they “often felt helpless in dealing with life problems” and “felt there was little they could do to change the future”, as well as a measure of external locus of control. There was a small but significant positive relationship between powerlessness and belief in specific conspiracy theories and the authors argued that conspiracy theories may well provide an explanation of why people lack perceived power over their own lives. It also provides an explanation as to why minority groups, whom often lack power because of the discriminatory behaviour of the majority group, show higher levels of conspiracy belief. Interestingly, people who scored highly on external locus of control exhibited belief in general conspiracy theories rather than specific ones. If an identified “other” group is in control, then influencing, exposing, or counteracting them is not impossible – but a large unseen force controlling events makes a shift in control impossible.

Whitson and Galinsky (2008) presented six studies that showed participants who lacked control were more likely to perceive a variety of illusory patterns, forming illusory correlations in stock market information, perceiving conspiracies, and developing superstitions. They also demonstrated that increased pattern perceptions had a motivational basis by measuring the need for structure directly, and showed that the link between a lack of control and pattern perception was reduced by boosting self-esteem. Other experimental work has provided similar results (van Prooijen & Acker,

2015), including experimentally manipulating cognitively similar antecedents such as uncertainty (van Prooijen & Jostmann, 2013) and anxiety (Grzesiak-Feldman, 2013; Radnitz & Underwood, 2015).

This previous work suggested that conspiracy theories could be a response to an unpredictable world by fulfilling a desire to restore order to random chaos. Work by van der Wal, Sutton, Lange, and Braga (2018) expanded on these arguments to determine whether conspiracy belief is predicated on a tendency to infer “implausible causal inferences”. The authors argued that a tendency for illusory pattern detections as seen in Whitson and Galinsky (2008) are an attempt at causality inference, and tested this hypothesis with a series of studies exploring its relation with conspiracy belief. The research found that conspiracy thinking was driven by a tendency to perceive causal connections where none are likely.

The current literature does suggest that a relationship between control and conspiracy belief is well founded and that people who perceive a lack of control may compensate by seeking explanations through conspiracy belief. The literature however has not fully explained the theoretical basis for this. Early work by Hofstadter (1964) supposed that conspiracy belief was, in part, an explanation for feelings of powerlessness, and that the conspiracy theory provided an explanation for this. This “compensation” argument, however, has not gained empirical validation, where experimental studies thus far have not found feelings of personal control that are lower in those who believe conspiracy theories. The compensatory control perspective put forward by Kay, Whitson, Gaucher, and Galinsky (2009) argued that humans can make efforts to protect a belief in a controlled, non-random world by compensating for threats to control in several ways, including adhering to superstitions and conspiracies, increasing their endorsement of existing institutions of control (such as governments), or believing in an interventionist God. Specifically, the authors argue that it was not a generalised threat itself that explained these mechanisms, but a specific lack of personal control. The empirical evidence provided in the research to support the arguments around conspiracy theories drew from the earlier Whitson and Galinsky study (2008). The conspiracy condition in Whitson and Galinsky (2008) contained very personal, specific hypothetical scenarios that were not related to what the modern literature generally defines as a “conspiracy theory”. They presented the possibility of agents conspiring against an individual in a series of everyday situations, not presenting

explanations of significant world events where a hidden group is revealed as the true culprit, which is chiefly the characteristic of the modern “conspiracy theory”.

Cognitive biases and other adaptive psychological mechanisms and their role in conspiracist ideation

In recent years, conspiracy belief research has focused on a number of cognitive biases in attempting to explain the thought processes involved in processing conspiracy evidence and the judgements reached from them.

Generally speaking, a cognitive bias refers to a deviation from rationality in judgement or action which can result in perceptual distortion, inaccurate judgements or illogical interpretation (Haselton, Nettle, & Andrews, 2005).

Without entering into a significant debate about the realities of cognitive biases as systems that may lead to more effective decisions where time is more valuable than accuracy, Haselton et al.’s study in relation to key areas related to conspiracy belief are worthwhile and have attracted some moderate attention from researchers.

Consequence size and the proportionality bias. The idea of a “proportionality” bias, that humans wish to explain big or significant events with proportionately big or significant causes, has been well validated in the existing literature, from a range of events covering natural disasters, pathogen outbreaks and manufactured disasters (Ebel-Lam, Fabrigar, MacDonald, & Jones, 2010; Gilovich & Savitsky, 2002; McClure, Lalljee, & Jaspars, 1991; Spina et al., 2010).

In response to persistent and growing conspiracy theories surrounding the assassination of President John F Kennedy, researchers in the US tested this bias using a series of vignettes that changed minor aspects of the story. McCauley and Jacques (1979) found that when a President of an unidentified country escaped an assassination attempt because the bullet missed rather than being fatally wounded, participants were more likely to attribute the successful assassination attempt to a conspiracy, compared to the near-miss assassination that was more likely to be seen as the work of a lone shooter.

More recently, Leman and Cinnirella (2007) repeated the experiment which found similar results when using the original vignettes, but also added two new scenarios to test whether breaking the causal relationship between the assassin’s skill or motives and the outcome had any effect. In these two new scenarios, the President was wounded by the assassin’s bullet but survived, and the other said that the assassin’s bullet missed but

the President later died of an unrelated cause. The proportionality bias persisted in creating conspiratorial explanations; when the President died, the assassin was judged to have been part of a conspiracy, even when the President died of an unrelated cause. When the President survived, again, the assassin was likely to be viewed as working alone even if the bullet did hit the President.

This proportionality effect, also termed “consequence-cause matching”, was further explored with the use of Presidential assassination vignettes but again further separating the consequences from the actions. LeBoeuf and Norton (2012) showed participants vignettes about a small country’s President being assassinated. In the large consequence condition, Britain’s prime minister responded by triggering war, whereas in the small consequence condition, Britain’s prime minister responds more peacefully. When war ensued, participants were more likely to conclude that the assassin’s actions were part of a conspiracy, compared to the peaceful resolution. This was clear evidence of the bias in action – the final outcome (peace or war) was determined by the prime minister, and not by anyone from the assassinated leader’s country.

LeBoeuf and Norton’s study also unintentionally revealed that participants would endorse conspiracy beliefs about large events that did not directly target their own group. Why do a significant number of people in the UK believe in conspiracy theories about 9/11, when those attacks only targeted the US directly? Van Prooijen and Van Dijk (2014) argued that people can take the perspective of the group under threat with the result being an increase in conspiratorial explanations. In a series of experiments they found that the consequence-cause matching in conspiracy beliefs was moderated by perspective taking. In one study, participants again showed that an event with a big consequence (a political opposition leader in an African country died in a car crash, and elections were postponed) attracted more conspiratorial explanations, but only among participants who took the perspective of the group impacted (natives of the country).

The role of perspective taking from this initial group of studies is still unclear, but it seems that it is possible to elicit the same processes aimed at understanding the causes of significant events which may lead to conspiratorial explanations.

“Nothing happens by accident” – Intentionality, conjunction and randomness biases. The tendency to attribute intentionality and agency where it either does not, or is unlikely to, exist has also been shown to have a role in conspiracy belief. A small collection of work has found evidence to suggest that agency detection has a role to play in the belief of conspiracy theories. Agency detection is the evolved tendency for

humans to infer the intent from the actions of others, and while useful in social interactions, it possibly has also generalised to include reading actions and intent from non-human sources (Gray & Wegner, 2010), leading to evolutionary arguments that religious beliefs could have evolved from an overstated agency detection, as well as explaining the human tendency to anthropomorphise.

This “hypersensitive agency detection” (Douglas, Sutton, Callan, Dawtry, & Harvey, 2016) accounted for the link between education level and belief in conspiracy theories; people were more likely to endorse conspiracy beliefs if they attributed intentionality and agency to inanimate objects. Participants with higher levels of education were less likely to see intentionality and less likely to believe in conspiracy theories. The authors argued that education might equip people with better analytical skills and the ability to understand non-intentional causality. Similar relationships were also reported by Imhoff and Bruder (2014), leading to the possibility that conspiracy beliefs could be a by-product of a natural human tendency to seek causes of events that may not be accurate. These errors in logical and probabilistic reasoning were also argued by Brotherton and French (2014) as having a contribution to conspiracy belief, in particular, with the tendency to infer causal relationships between unconnected or unrelated events. This “conjunction” fallacy was first explored by Tversky and Kahneman (1983), who used a short vignette describing a woman called “Linda”. The description aimed to be stereotypically fulfilling the representation of an active feminist and to not fulfil the stereotype of a bank teller. Participants are then asked the likelihood of two propositions: 1) Linda is a bank teller; 2) Linda is a bank teller and an active feminist. The conjunction fallacy occurs when people rate the conjoined proposition (that Linda is both a bank teller and a feminist) as more likely than Linda being a bank teller. Brotherton and French found that individuals who were prone to making these types of conjunction errors were also more prone to belief in conspiracy theories. The authors argued that conspiracy theories rely on bringing evidence from multiple sources and events together into one singular narrative and so appear to be representative of the world-view. Causal relationships are inferred which therefore make conjunction fallacies more likely and the authors also argued that this effect on conspiracy belief may be due to conspiracy believers having a biased understanding of randomness.

Plausibly, a biased perception of randomness could explain belief in conspiracy theories; both the tendency to believe deception lies behind many unlikely events and the tendency to pick out information in random data. At present however, the evidence

is not forthcoming. Dieguez, Wagner-Egger, and Gauvrit (2015) failed to find a direct link between the tendency to dismiss randomness as a possible cause for an event (known as “prior for randomness”) and conspiracist ideation. Conspiracy believers and nonbelievers did not differ in their perceptions of randomness, but the authors noted that a “nothing-happens-by-accident bias” could be a consequence rather than a cause of conspiracist ideation.

Illusory pattern perception and general perceptual biases. As previously discussed in the personal control section, Whitson and Galinsky (2008) argued that a pattern-seeking perceptual bias may also affect conspiracy theory belief. In their work, they demonstrated that increased pattern perception was related to a lack of control, which was reduced by affirming the self. Despite a broad range of pattern perception biases existing, they argued that their results show a common motive underlying them, a need to restore structure and control. The authors showed that after decreasing participants’ sense of control, they were more likely to attribute ambiguous events to conspiracy.

Other work on perceptual biases and conspiracy belief has been limited, but one study found that believers in conspiracy theories showed a “local-to-global interference effect” (van Elk, 2015). Participants were shown a series of shapes (local) that had been arranged into a single larger shape (global) and were instructed beforehand to either report the local or global shape seen. Typically, participants will respond quicker when attending to global shapes and the global stimulus will interfere with attention when trying to attend to the local stimuli. This confirms the typical dominance of global over local visual processing. Conspiracy believers compared to skeptics (calculated using a median split) showed a stronger local-to-global interference effect, suggesting that these participants had greater difficulty in ignoring irrelevant local visual information. Given the exploratory nature of the study, it is unclear how this may affect conspiracy belief, but it was argued by the author that a “tunnel vision” effect of conspiracy believers may be related to a developed strategy of selectively focusing on information that confirms the particular conspiracy belief.

Confirmation bias. Despite being one of the better-known cognitive biases, work examining confirmation bias (the strategy of selectively seeking evidence that confirms your belief rather than attempting to disconfirm it) and conspiracy belief has been generally lacking.

McHoskey (1995) attempted to examine the role of confirmation bias on belief in JFK assassination theories and found evidence of a biased assimilation of evidence based on pre-existing beliefs. Participants had their initial belief in the common conspiracy theories around JFK measured and were then presented with nine arguments or counterarguments to the main conspiracy theories surrounding the assassination. The participants rated the persuasiveness of each argument and subsequently re-rated their belief in the conspiracy theory and the official story. Participants who already began the study believing in a conspiracy found the conspiracy arguments more persuasive, compared to the skeptics, who rated the non-conspiratorial arguments as more persuasive. As a result of the argument presentation to both sides of the event, participants polarised their beliefs and endorsed their pre-existing position more strongly than at the start of the experiment.

Although the evidence is limited here to one study, and to one particular conspiracy theory, it does suggest that the assimilation and judgement of evidence may have an effect on subsequent belief and may reveal key mechanisms for belief formation and maintenance with further study.

Overall summary of the current literature

The literature has presented a case for conspiracy theory belief or “conspiracist ideation” being a distinct individual differences variable that can be measured by several scales, including a generic measure developed by Brotherton et al. (2013). Before the development of scales to measure conspiracy belief more broadly most research assessed belief in a few key conspiracy theories relevant to the sample being tested.

Demographic studies - that are slowly expanding their reach by examining conspiracy belief across some cultures – reveal conspiracy theory belief is not reliably predicted by age, gender, income, occupation, or education. Some results have suggested that those who consider themselves to be a “minority” may show higher belief, which some work has argued links into perceptions of unfairness and a lack of political or personal control.

With demographic factors unable to provide reliable indications of an individual’s potential for conspiracist ideation, the research continues to assess conspiracy theory belief alongside correlates of related psychopathological concepts, including paranoia, delusional ideation and schizotypy. A large number of these studies are assessing

correlates of conspiracy belief, but few have taken steps to test these relationships experimentally to infer causality. Individual differences investigations have revealed moderate correlations with paranoia, schizotypy, and anomia with conspiracy belief, suggesting possible shared or overlapping processes in the formation of odd beliefs, and the formation of belief in conspiracy theories.

A particular strand of this work has assessed the role of feelings of personal control using task-based manipulations, and found that conspiracy belief could be related to feelings of a lack of control. The literature, however, has not yet provided a conceptual reason why conspiracy theories may be attractive to those who exhibit lower levels of personal control. What do conspiracy theories offer to those who feel a lack of control over their everyday lives?

A small collection of studies looking at cognitive biases has also revealed that conspiracy belief is related to faulty cognitive processes, particularly in reference to a proportionality bias, an intentionality bias, and a confirmation bias when it comes to seeking evidence. Some work has gone further to suggest that similar processes that can lead to delusional ideation could also be at work for conspiracy belief, but little empirical work has followed to assess this hypothesis.

Limitations of the literature and objectives for this thesis

The psychopathological approach

As explored in the introduction, the early work on conspiracy theory belief using a sociological perspective was content in labelling such theories as products of distorted judgement (Hofstadter, 1964; Popper, 1952) and later guided the focus on explaining conspiracy theories as products of psychopathology (Groh, 1987; Maher, 1988). The dismissal of conspiracy theories as a consequence of delusion, however, does not hold up to scrutiny when later work revealed belief was more widespread than anticipated (Gardiner & Thompson, 2012; Moore, 2016; Oliver & Wood, 2014; Sunstein & Vermeule, 2009).

A significant proportion of the work that followed focused on the psychopathological antecedents of conspiracy theory belief, assessing the roles of paranoia (Brotherton & Eser, 2015), schizotypy (Darwin et al., 2011) or maladaptive personality traits (Swami et al., 2015). These correlational links have been made between conspiracy theory belief and psychopathology but have sometimes been limited in their theoretical discussion. As the psychopathological work moves away

from binary diagnostic measurements to a more continuum based investigative framework, work has also grown to consider whether the correlations between paranoia, schizotypy and conspiracy belief have potential shared antecedents. This is also borne out by conceptual investigations of common parallels between pathology and conspiracy belief, including a belief system resistant to change, a need for closure, and a tendency to jump to conclusions (Kumareswaran, 2014). So, rather than labelling conspiracy theory believers as products of psychopathology, the approach for this thesis is to consider the empirical implications of these relationships. What shared processes could be involved in both a tendency for paranoid thinking and conspiracy belief?

There are drawbacks, however, in assuming all conspiracy belief is abnormal, even if researchers today do not go as far as pathologising believers outright. A focus on explaining conspiracy belief solely as a product of individual differences in psychopathology (clinical or non-clinical) or as an aberration of “normal” thought processes does not necessarily hold up to scrutiny considering the large number of people reporting belief in popular conspiracy theories. Similarly, it may be difficult to assess conspiracy belief as a by-product of cognitive bias when both believers and non-believers share such biases (Leman & Cinnirella, 2007). This has led some researchers to challenge the psychopathological approach, arguing that the future of conspiracy theory research should consider conspiracy theories as social constructs that communicate personal values, regardless of potential psychopathological underpinnings or cognitive peculiarities (Butter & Knight, 2016; Raab, Ortlieb, Auer, Guthmann, & Carbon, 2013).

For this work, the psychopathological approach is taken in an attempt to consider whether possible casual directions of previously investigated relationships may help determine whether shared antecedents are at work. The thesis aims to contribute to the understanding of the potential roles of psychopathological antecedents in conspiracy theory belief, without the assertion that pathology is the root cause of all such belief.

The purpose of this thesis

Although there has been a significant increase in psychological literature studying conspiracy belief in the last decade, many studies have used correlational approaches in the past to tease out possible causal mechanisms. In particular, there has been some success in assessing correlations between conspiracy belief and paranoia and delusional ideation, but no work to date has attempted to understand the direction of this

relationship. Are paranoid people more prone to belief in conspiracy, or do conspiracy theories make believers more paranoid? The current thesis attempts to address this by providing a mixture of correlational and causal studies.

Firstly, experimental work by Whitson and Galinsky (2008) has provided some evidence that manipulating feelings of personal control results in participants compensating by seeking ways to restore structure or order. An aim of this thesis is to examine this finding in more detail, by establishing whether manipulating feelings of personal control will affect conspiracy belief as measured using a generic scale, and also to further investigate the nature of this effect to provide some conceptual context.

Secondly, the current work continues to find moderate correlations between conspiracy belief and paranoia, and it is likely (from rhetorical analysis of common conspiracy theories) that suspicion and paranoia are a driving factor in their formation. An aim of this thesis is to assess a possible causal role of paranoia on conspiracy belief, as well as further exploring the role of delusional ideation in this relationship.

Finally, despite research that has assessed links between schizotypy, delusional ideation, and conspiracy belief, no work at present has assessed a well-known and extensively tested bias that is most commonly seen in patients with schizophrenia; the “jumping-to-conclusions” bias. The research surrounding this bias is discussed in more detail in Chapter 4, but the final aim of this thesis is to assess whether this data-gathering cognitive bias could have a role to play in conspiracy belief, whereby participants who exhibit the jumping-to-conclusions bias may require less evidence than controls before reaching decisions.

Overall, the purpose of this thesis is not to pathologise belief in conspiracy theories, nor to argue that belief is limited to those who exhibit psychopathological tendencies. It aims to evolve the current psychological understanding of the phenomena by helping to establish if particular psychological processes are involved in belief in conspiracy theories. Conspiracy theory belief appears across cultures, emerging across a variety of social settings, underpinned with emotional and intuitive thought processes – but only by understanding the processes behind such belief can we determine appropriate action to address them. Existing work has determined conspiracy belief can be harmful; if it is found that conspiracy theory belief causes paranoia, it would therefore be incumbent on the science to propose ways of reducing such harm. That the focus of this thesis is on certain proposed psychopathological antecedents is not an

argument that other mechanisms of conspiracy theory belief are less valid, nor will it attempt to explain the totality of belief.

Research programme

Chapter 2 provides two studies that aim to assess whether a manipulation of personal control will affect belief in conspiracy theories using a generic scale. Study 1 presents these findings as part of a conceptual replication, to determine whether a wider conceptualisation of conspiracy theories will demonstrate a similar effect. Study 2 assesses the mechanisms of the manipulation of personal control in more detail to determine whether the experimental paradigm is creating results in the expected direction. A discussion of the validity of the “compensatory control” hypothesis and its potential role in conspiracy belief follows.

Chapter 3 assesses the role of paranoia in belief in conspiracy theories, with three attempts at manipulation of paranoia in an experimental setting to infer possible casual direction with respect to belief in conspiracy. Studies 3, 4 and 5 attempt a variety of paranoia manipulations gleaned from existing published work alongside measures of generic conspiracy belief, and the success of these manipulations is discussed. The role of self-esteem in the success of paranoia manipulations is also discussed and evaluated, and Study 6 attempts to expand on this investigation by using a self-esteem manipulation on conspiracy belief.

Chapter 4 presents two studies that attempt to explore whether the jumping-to-conclusions bias is related to conspiracy belief, and to also assess whether conspiracy belief is related to sub-clinical measures of delusional ideation. Study 7 presents a correlational study to assess whether participants who jump to conclusions are also more prone to conspiracy belief. Study 8 expands on this design by also measuring delusional ideation, schizotypy, and other cognitive biases. A confirmatory factor analysis model is also presented in Study 8, which tests a model where the relationships between delusional ideation, cognitive biases, and schizotypy can predict belief in conspiracy theories.

Chapter 5 summarises the findings of these eight studies, assessing the implications of the work presented, as well as addressing the limitations of the research and providing direction for future work.

Chapter 2

Conspiracy Theories and Personal Control

Introduction

In his early work into what the author saw as a pervasive presence of paranoid conspiracy theories in American politics, Hofstadter (1964) suggested that feeling a lack of control could influence belief in conspiracy theories; the idea that significant events are being controlled by a group of malevolent conspirators and only by exposing this group can control be restored.

The attribution of behaviour and the biases in the formation of those attributions have attracted significant research since the 1960s and have been used to demonstrate a general finding that people actively try to maintain a belief in a “just-world” (Lerner, 1980; Lerner, Miller, & Homes, 1976). This perception of the world as a coherent place where one has control over one’s life and destiny has important psychological benefits, including reducing stress (Tomaka & Blascovich, 1994), reducing uncertainty (Fiske, 2004), and allowing people to perceive their world as more stable and controllable (Major et al., 2002; van Prooijen & van Dijk, 2014).

However, significant events that conflict with this belief may provide a threat to an individual’s belief in a controllable world. It is understandably important to believe that one has control over one’s own outcomes and this belief could be threatened if evidence of injustice appears (Lerner & Miller, 1978), especially if the injustice is targeted at a group you strongly identify with, such as an ethnic group (O’Brien & Major, 2005). Research has also suggested that responses to threats to control, such as uncertainty (Newheiser, Farias, & Tausch, 2011; van Prooijen & Jostmann, 2013) and paranoia (Mirowsky & Ross, 1983), can elicit a need to restore order to chaos as part of a wider “meaning-seeking” mechanism (van Prooijen & Acker, 2015).

Conspiracy theories, therefore, could be narratives that help explain threats as not necessarily acts of randomness (e.g. Princess Diana died in an accident), but instead the consequences of hidden agents who manipulated the situation for their benefit (e.g. Princess Diana was murdered). Abalakina-Paap, Stephan, Craig, and Gregory (1999)

argued this in their work exploring the correlations between conspiracy belief, locus of control, and powerlessness. Powerlessness (the perception of being unable to affect an outcome by action; Jolley & Douglas, 2014a) was measured on a seven-item scale originally devised by Pearlin, Menaghan, Lieberman, and Mullan (1981) called the “Mastery Scale”. It included items such as “I have little control over the things that happen to me” and “Sometimes I feel that I’m being pushed around in life”. The results demonstrated a small ($r = .16$) but significant positive correlation between powerlessness and belief in specific conspiracy theories. The authors also provided an explanation of why, in their data, they discovered that minority groups showed higher belief in conspiracy theories, arguing that minority groups often lack control because of the discriminatory behaviour of the majority group. They also argued that people who scored highly on a measure of external locus of control believe that events are out of their control, but tend to only exhibit a *generalised* belief in conspiracy theories. This represents belief in conspiracy theories at a world-view level, i.e., the belief that a large unseen force is controlling major events, rather than specific theories that have identified individuals or groups responsible.

Examining the role of a lack of control experimentally, Whitson and Galinsky (2008) presented six experiments that showed that participants who lacked control were more likely to perceive a variety of illusory patterns, form illusory correlations in stock market information, develop superstitions, and perceive conspiracy (although at a very individual level not necessarily related to conspiracy theories covering large events). They also demonstrated that affirming the role of the self could reduce the effect a lack of control had on pattern perception.

In their first two of six experiments, Whitson and Galinsky (2008) modified a “concept identification” task originally developed by Pittman and Pittman (1979) that had demonstrated success in creating feelings of a lack of control over the task. A series of stimulus patterns originally used in helplessness studies (Hiroto & Seligman, 1975; Klein, Fencil-Morse, & Seligman, 1976) were taken and modified for a computerised version. By manipulating the feedback given to participants (either random incongruous feedback or a no-feedback control condition), it successfully made participants feel that they had no control over the task and that their inputs did not match the expected outputs. According to the authors, this conflict then generated a generalised feeling of a lack of control and showed (using a “Personal Need for Structure Scale”; Neuberg &

Newsom, 1993) that experiencing a lack of control led participants to desire more structure as well as perceiving patterns where none existed.

The authors next tested the lack of control effect specifically on “conspiratorial thinking”, by asking participants to recall a situation over which they either had full control or no control. Participants were then asked about a series of short vignettes describing situations that linked two events together with possible conspiratorial explanations. One such example asked participants to imagine they were one of the top administrators in an organisation and due for a promotion. However, the day before the meeting with their boss, they notice a large number of emails between their boss and a co-worker and they later find that they will not get the promotion after all. Participants were asked how the actions of the other people in the vignettes connected to the outcome. Participants who recalled an experience where they felt a lack of control perceived a greater likelihood of conspiracy than did the control group.

As explored in the literature review at the beginning of this thesis, these conspiracy scenarios tested in Whitson and Galinsky (2008) contained very specific individually targeted explanations of possible conspiracy in everyday situations, rather than presenting explanations of significant world events whereby a group acting in secret are revealed as the perpetrators. Although the results are interesting and warrant further investigation, it cannot be easily argued that a lack of control increases belief in conspiracy *theories*; rather in this work it could be argued that a lack of control raises the adoption of possibly paranoid explanations to personal threats to control. In this sense, it is not clear from the current work whether a lack of control would have an effect on generic conspiracist ideation, using a more traditional definition of conspiracy theory that more adequately reflects the current work in this area. The work in this chapter aims to address this limitation.

Overview of studies in this chapter

The existing research suggests that feelings of control may have a relationship with conspiracy belief, and that potentially manipulating those feelings experimentally could lead to a change in subsequent belief in conspiracy theories. The existing work has provided some groundwork regarding a possible causal link between a lack of control and conspiracy belief, which the following two studies attempt to expand further.

Study 1 attempted a conceptual replication of earlier work on an experimental manipulation of control (Whitson & Galinsky, 2008) and used a generic conspiracy belief measure (Brotherton et al., 2013) to overcome the narrow conceptualisation of conspiracy theories in the original study. Study 2 explored the mechanisms of this experimental manipulation of control to determine its effectiveness and validity at manipulating feelings of personal control, as well as considering the consequences of the popularity of this experimental paradigm on the current body of work.

Study 1: Manipulating a lack of control and its role on generic conspiracist ideation

Introduction

As discussed in the introduction of this chapter, there is some existing evidence that personal control could play a role in the endorsement of conspiracy theories. However, the existing work considers the effect of a lack of control on very specific personally focused theories related to workplace promotion chances, which would not be considered a “conspiracy theory” using the definitions outlined in the literature review.

A conspiracy theory can be defined as a proposed alternative explanation of an event that reveals the presence of a hidden group with malevolent intent (Brotherton, 2013). Conspiracy theories describe significant world events with political and social ramifications through the lens of a monological belief system (Swami et al., 2011; Swami & Furnham, 2012; Wood et al., 2012) that sees conspiracy as the overwhelming explanation for humanity’s struggles. At the time of this experiment being run, no work had been published that assessed belief in conspiracy theories as defined above, with their relationship to experimental threats to personal control.

The current experiment aimed to extend and expand on the earlier findings of Whitson and Galinsky (2008) in several ways. Firstly, to establish whether the “concept identification task” manipulation of a lack of control would have an effect on conspiracy belief, in the same way the recall task did in the original Whitson and Galinsky study. Recall tasks are well used in psychology, but can increase the risk of demand effects due to participants’ awareness of the experimental target (Bargh & Chartrand, 2014). Using the modified “concept identification task” might therefore present a more direct way of inducing feelings of a lack of control. Participants’

“personal need for structure” was also measured as per the original study to further validate the link between the lack of control manipulation and subsequent structure-seeking behaviour.

Secondly, conspiracy belief was assessed using a generic conspiracy theory measure to address the limitations of Whitson and Galinsky’s conceptualisation of conspiracy.

Finally, participants’ perceptions of their “personal sense of power” was explored, in relation to their reaction to the control manipulation, as well as their susceptibility to belief in conspiracy theories. Anderson, John, and Keltner (2012) argue that power is not just simply the control of resources or elevated social position, but a distinct psychological state, formed from the perception of one’s capacity to influence others. This “personal sense of power” can be elevated not only by socio-structural factors, but also by personality factors such as dominance and assertiveness. Bugental and Lewis (1999) use a good example of “powerless parents” to explain this. Despite parents controlling the resources and most of the decisions for their children, some perceive themselves as lacking power over their children, instead attributing their children’s behaviour to other factors like mood or personality. Consequently, parents who felt less power over their children were more likely to label them as “difficult” (Bugental, Blue, & Cruzcosa, 1989).

There were therefore two main aims of this current experiment:

1. To determine whether participants who felt a lack of control using the “concept identification task” would increase their belief in generic conspiracy belief; and
2. To test two moderators of this effect - specifically personal need for structure and personal sense of power.

Method

Participants and design. 177 participants (72 males, 102 females, 3 undisclosed; mean age = 39, SD = 12.27, range = 19-71) were recruited online using Amazon’s MTurk online panel and completed the experiment in exchange for \$1.00 US.

Effect sizes from the Whitson and Galinsky (2008) study for the various manipulations of lack of control were between 0.5 and 0.75, supporting the expectation of medium effect sizes (Cohen, 1988). A power analysis indicated that a total sample of 126 would be needed to detect medium effects ($d = .5$) with 80% power using a t-test

between means with alpha at .05. The recruited sample therefore meets the minimum requirements needed for statistical power.

The experiment was set up to recruit participants from Australia, United Kingdom, New Zealand and the US to help improve the representativeness of the experiment and improve ecological validity. Out of the 177 participants, 5 were Australian, 53 were British, 4 were from New Zealand, and the remaining 115 were from the US. 147 participants recorded their ethnicity as White, 15 as Asian, 4 as Hispanic, 4 as Mixed, 4 as Black, 1 as “Other”, and 2 refused. 14 participants recorded their political orientation as “Extremely Liberal”, 21 as “Liberal”, 26 as “Slightly Liberal”, 47 as “Moderate”, 26 as “Slightly Conservative”, 20 as “Conservative”, 9 as “Extremely Conservative”, and 14 “Refused”.

Materials and procedure. Participants were randomly assigned to either a manipulation or control condition. In the manipulation condition, participants completed a concept identification task that gave feedback unrelated to the participants’ performance. In fact, the feedback given was totally randomised, to manipulate a feeling of a lack of control over the task. Those in the control condition completed the same task, but were told that their responses were part of a baseline condition and instead received no feedback as to their performance.

Participants were then measured on their belief in conspiracy, their personal need for structure, and personal sense of power. The conspiracy belief measurement was given directly after the concept identification task to maximise any effect of the manipulation. The personal need for structure and personal sense of power scales followed, presented in a random order to minimise order or fatigue effects. Finally, a manipulation check followed alongside the collection of key demographics including age, gender, ethnicity and political orientation.

Part of the experiment’s platform allowed for feedback to be given by participants as to the nature of the experiment. This can be particularly useful in gauging whether incentives were fair and whether the instructions of the experiment were clear. In our sample, 93% of the participants thought the payment of \$1USD for the 10-15 minute survey was fair and 90% agreed that the instructions were clear and easy to follow. This provided reassurance that this type of methodology can produce meaningful results with actively engaged participants.

Full ethical approval from the Goldsmiths Department of Psychology Ethics Committee was received before data collection began. Participants were briefed before

the experiment began that their anonymity would remain and that they could withdraw at any time without penalty. Participants confirmed their consent to participate by means of a check box and were debriefed fully regarding the manipulation. The contact details of the experimenters as well as places to obtain support or ask further questions were also given.

Measures.

Lack of control manipulation – Concept Identification Task. (Pittman & Pittman, 1979; Whitson & Galinsky, 2008). The original paradigm designed by Pittman and Pittman (1979) was created to provoke feelings of helplessness on an identification task. The task has five different identification “dimensions”, each of which has two values.

- The letter can be either A or T
- The letter colour can be black or red
- The letter can be upper- or lowercase
- The border surrounding the letter can be a circle or a square
- The underline can be dotted or solid.

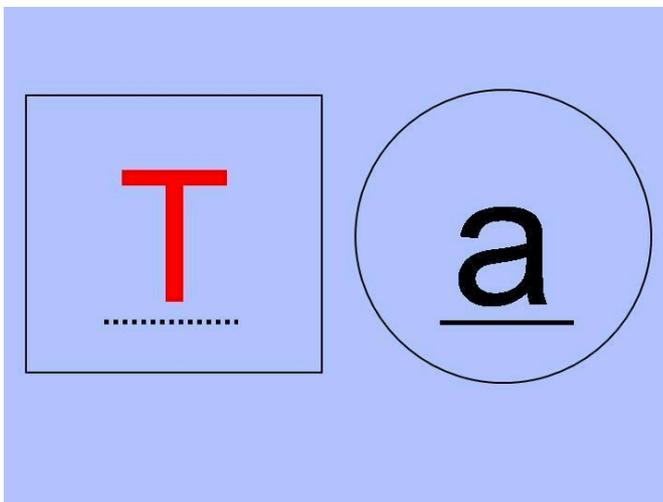


Figure 2.1 Example presentation of concept identification task

Two patterns are shown to the participants side-by-side, one pattern with values from each of the five dimensions, and the other pattern showing complementary values. In the lack of control condition, participants are told that their task was to choose which pattern was the correct one, which they had been told was selected by the computer.

They would then immediately be provided with feedback saying that they were correct or incorrect and were asked to learn from the computer's feedback and choose correctly as often as possible.

Participants were told that the idea of the task was to use the feedback given by the computer to work out which of the values the computer had picked for each of the five dimensions. However, in the manipulation condition, the feedback generated was completely random and not related to their responses. For the control condition, participants completed exactly the same task but received no feedback throughout. They were informed that they had been selected for a "baseline" condition and would receive no feedback. Instead they were told to select the pattern in each pair that they preferred.

All participants completed one practice trial of 10 patterns and then completed two further live trials of 10 patterns each.

Generic Conspiracy Belief Scale (GCB). (Brotherton, French, & Pickering, 2013). Conspiracy belief was measured using a generic scale, to better allow for comparisons between different nationalities, as well as attempting to measure the underlying factors that relate to conspiracy belief. One benefit of this scale is that it measures conspiracist ideation without the possible confound of any specific real-world event or theory. Conspiracy belief was measured on this 15-item scale (e.g. "The government permits or perpetrates acts of terrorism on its own soil, disguising its involvement"), with answers given on a five-point scale from "definitely not true (1)" to "definitely true (5)". The scores were averaged to provide a reliable conspiracy score, where a higher score showed greater conspiracist ideation ($\alpha = .94$).

Personal Need for Structure Scale (PNSSr). (Neuberg & Newsom, 1993). Individual differences in the desire for simple structure in everyday life led to the creation of the "Personal Need for Structure" (PNS) scale. The 11-item scale, with answers given on a six-point scale from "strongly disagree (1)" to "strongly agree (6)", attempted to measure how much structure participants prefer in their everyday lives and included questions such as "I hate to change my plans at the last minute". The scores were averaged to provide a "PNS" score, where higher scores showed a greater need for structure ($\alpha = .85$).

Personal Sense of Power Scale (PSoP) (Anderson et al., 2012). Personal sense of power changes considerably depending on the relationships being measured – a participant's personal sense of power over their friend can be distinct from a participant's personal sense of power over their parent. To reduce this context

specificity, the scale was modified to ask participants to consider all of their relationships with others when answering the scale. This allowed the measure to remain generic enough not to be influenced too greatly by different relationships and instead present a more “world-view” approach.

The Personal Sense of Power scale contains 8 items which participants rate on a 7-point scale (ranging from disagree strongly (1) to agree strongly (7)). Items ask if participants agree that they can “get people to listen to what I say” and “my ideas and opinions are often ignored” (reversed item). The scores were averaged to provide a sense of power score, where higher scores indicated a greater personal sense of power ($\alpha = .83$).

Manipulation check. A simple manipulation check was created that asked participants how much they felt certain emotions during the experiment, on a 10-point scale (ranging from 1-Not at all to 10-extremely). Participants were asked if they felt frustrated, angry, powerless, sad, happy, excited, calm, suspicious, and alert. The experiment, however, was primarily concerned with the degree to which participants felt that their actions had no consequence on the task (i.e., how powerless they were) to test that the manipulation was successful. The inclusion of a range of other emotions served to disguise the aims of the experiment.

Demographics. Gender, age, ethnicity and political orientation were all captured. Political orientation was measured on a 7-point scale from extremely liberal (1) to extremely conservative (7). The political orientation scale also included a “don’t know” option as previous experiments had shown that not all participants are familiar with the “left vs. right” model of political belief.

Results

Overall relationships. Randomly assigned, 81 participants completed the manipulation condition, with the remaining 96 participants in the control condition. The difference in distribution between the two conditions was not significant ($z = -1.59, p = 0.11$) and there were no dropouts recorded in either condition. Table 2.1 below shows the means and standard deviations of the scales used.

Table 2.1. Mean ratings for scales used in Study 1 (standard deviations in parentheses).

Scales	Control condition	Manipulation (lack of control) condition
Generic Conspiracy Belief Scale (higher score = greater belief)	2.73 (0.81)	2.98 (0.84)
Personal Sense of Power Scale (higher score = more power)	4.41 (0.83)	4.35 (0.86)
Personal Need for Structure R Scale (higher score = more structure)	3.98 (0.77)	4.01 (0.63)
Powerless (higher score = more powerless)	3.21 (2.54)	4.56 (2.83)
Frustrated (higher score = more frustrated)	3.24 (2.66)	4.75 (2.69)
Angry (higher score = more angry)	2.24 (1.82)	2.69 (2.17)
Sad (higher score = more sad)	2.24 (1.85)	2.33 (1.78)
Happy (higher score = more happy)	5.16 (2.34)	5.88 (2.28)
Excited (higher score = more excited)	3.55 (2.30)	4.45 (2.52)
Calm (higher score = more calm)	7.64 (2.01)	6.94 (2.38)
Suspicious (higher score = more suspicious)	3.46 (2.53)	4.17 (2.82)
Alert (higher score = more alert)	6.82 (2.69)	7.30 (2.26)

Lack of control manipulation. To assess if the lack of control task was successful in creating a feeling of powerlessness, a manipulation check was carried out on the powerlessness scores between the two conditions. A t-test revealed that there was a significant difference between the powerlessness scores of those who received the manipulation ($M = 4.56$, $SD = 2.83$) compared to the control condition ($M = 3.21$, $SD = 2.54$) ($t(175) = 3.34$, $p = .001$). It was determined from this that the manipulation was successful in increasing feelings of powerlessness. An effect size calculation was also run which demonstrated a Cohen's value $d = 0.50$, which translates to a "medium" effect (Cohen, 1988).

There were also further differences reported between groups for several other emotions. To reduce the risk of inflating the family-wise error rate from multiple

comparisons, the following p values have been adjusted using the Holm-Bonferroni method (Holm, 1979). Participants who received the lack of control manipulation felt significantly more frustration ($t(174) = 3.73, p = <.01$), as well as significantly more excited ($t(174) = 2.47, p = .05$). However, there was no difference between the manipulation ($M = 4.01, SD = .63$) and the control ($M = 3.98, SD = .77$) ($t(175) = .28, p = .78$) conditions on participants' personal need for structure scores. There was also no difference between the manipulation ($M = 4.25, SD = .86$) and the control ($M = 4.41, SD = .83$) ($t(175) = .47, p = .64$) conditions on participants' sense of power scores.

The effect of lack of control on conspiracy belief. An independent-samples t -test was run to determine if the lack of control manipulation had a significant effect on conspiracy belief. The test revealed a significant difference between the conspiracy scores of those who received the manipulation ($M = 2.98, SD = .84$) compared to the control condition ($M = 2.73, SD = .81$) ($t(175) = 2.07, p = .02$). This showed that a lack of control caused a small but significant increase in generic conspiracy belief. An effect size calculation was also run which demonstrated a Cohen's effect size value ($d = 0.31$) that suggested that although the effect was significant, it had only a small practical significance (Cohen, 1988).

The relationships between sense of power, personal need for structure and generic conspiracy belief. In order to investigate possible relationships between the different variables, two-tailed partial correlations were conducted between sense of power, personal need for structure, ethnicity, gender, age, political orientation, powerlessness, and conspiracy belief, with the experimental condition variable being controlled. The correlations are reported in Table 2.2.

Conspiracy belief was significantly negatively correlated with sense of power ($r = -.16, p = .03$) and significantly positively correlated with personal need for structure ($r = .16, p = .04$). This demonstrated that conspiracy belief increased when participants felt a lower sense of power and a greater need for structure. The correlation between sense of power and personal need for structure just failed to reach statistical significance ($r = -.15, p = .06$). There was also a small significant correlation ($r = -.17, p = .02$) between feelings of powerlessness and gender, where females showed higher powerlessness scores than males after controlling for the manipulation.

Table 2.2. Correlation matrix for scales used in Study 1. * $p < .05$; ** $p < .01$, two-tailed. $n =$ ranged from 161 to 177.

Scales	1.	2.	3.	4.	5.	6.	7.	8.
1. GCB	—							
2. PSoP	-.15*	—						
3. PNSSr	.16*	-.14	—					
4. Ethnicity	-.10	.08	-.10	—				
5. Gender	-.03	.09	.05	-.09	—			
6. Age	-.06	.06	-.09	-.15	.04	—		
7. Politics	-.07	.10	.01	.00	-.02	.00	—	
8. Powerlessness	.19**	-.13	.02	-.06	-.17*	.06	-.07	—

The effect of personal need for structure and sense of power on the lack of control manipulation’s ability to increase conspiracy belief. The significant correlations between conspiracy belief, personal sense of power and personal need for structure, as well as between gender and powerlessness, indicated the possibility that these variables may be having a small effect on the power of the lack of control manipulation and its effect on conspiracy belief.

To test whether personal need for structure, personal sense of power or gender moderated the relationship between lack of control and conspiracy belief, hierarchical multiple regression analyses were conducted. When centred interaction terms were added to the model predicting conspiracy belief with experimental condition, the change was not significant for personal need for structure ($\Delta R^2 = .001$, $\Delta F(1, 173) = .24$, $p =$

.63), personal sense of power ($\Delta R^2 = .002$, $\Delta F(1, 173) = .24$, $p = .54$), or gender ($\Delta R^2 = .005$, $\Delta F(1, 173) = .88$, $p = .35$). This suggests that these variables are not interacting with the manipulation's effect on conspiracy belief.

Discussion

The lack of control manipulation showed a direct effect on conspiracy belief. Manipulation of a feeling of a lack of control caused a small increase in generic conspiracy belief, which was not moderated by personal sense of power or personal need for structure. This supports similar work that argues conspiracy theorising can be a reaction to a lack of control, possibly creating a narrative that restores the world to meaning and order (van Prooijen & van Dijk, 2014). Similar work published after this experiment had run has also shown that affirming control will reduce belief in a range of popular specific conspiracy theories, which is further validation of the role of uncertainty and control as part of a “power-restoring” action (van Prooijen & Acker, 2015).

However, the wider evidence that conspiracy theories could act as a control restoring mechanism in an uncertain or uncontrollable world is still mixed. For example, Jolley and Douglas (2014b) found that mere exposure to conspiracy theories can actually increase feelings of powerlessness against government – perhaps showing that any feelings of control that are restored from an uncontrollable random act to a planned one are merely then deferred to the proposed agents responsible. In this sense, control is not restored, but instead a control threat is successfully identified and targeted, feeding into the monological belief system that assumes malevolent intent for all significant acts. Sullivan, Landau, and Rothschild (2010), for example, argue that when participants perceive an “ambiguously powerful” enemy when there is a threat to control, it acts to restore feelings of personal control. They argue that this tendency can lead to conspiratorial thinking in cases where environments are perceived as threatening or uncertain, which may help to explain the present study's results in a wider context - showing that a control threat can have a wider generalised effect on conspiratorial thinking.

We measured conspiracy belief using a generic scale, which helps expand on the previous work in this area that only looked at a range of specific conspiracy theories (van Prooijen & Acker, 2015). By using a generic scale, we hoped to investigate the underlying belief system at work, as well as attempting to ensure that our measure of

conspiracy belief was not affected by cultural variations or previous awareness of politically “toxic” conspiracy theories within certain interested groups. Asking a participant if they think vaccines cause autism is likely to give different results than asking about the generic underlying belief, that scientists fabricate and/or conceal evidence from the public. We believe the results from this study are the first to demonstrate that a lack of control affects the generic underlying antecedents of conspiracy belief as measured by the GCB, adding to the small but increasing body of work that has examined control’s effects on a range of specific conspiracy theories.

The relationships between conspiracy belief, personal sense of power, and personal need for structure however, are still unclear. Personal sense of power and personal need for structure were both weakly correlated with conspiracy belief, but these variables did not moderate the effect of the concept identification task and did not differ significantly between conditions. In part, the use of a generic “top-level” sense of power scale should be considered a limitation of the current work. Given the target of this scale can be modified to suit the nature of the experiment, it was decided to keep this broad to cover a wider sense of power in everyday life – termed by the original researchers (Anderson et al., 2012) as targeting “relationships with others”. Future work perhaps should consider targeting the sense of power scale towards common targets for conspiracy beliefs, such as governments, large companies and other sources of political focus. This could be coupled with an assessment of specific conspiracy theories with targets to these common sources of power, as well as comparing to generalised conspiracy belief.

The significant difference also seen in the manipulation and baseline scores for the effect of a lack of control was consistent with previous work in this area, supporting the effect of this particular methodology (Stea & Hodgins, 2012; van Prooijen & Acker, 2015; Whitson & Galinsky, 2008). Prior work (Pittman & Pittman, 1979; Whitson & Galinsky, 2008; Zhou, He, Yang, Lao, & Baumeister, 2012) that used this lack of control task has demonstrated that it is successful in producing changes relating to control concepts and the current work extended this to measure whether the task would also act as a proxy for powerlessness. The non-significant differences between participants’ personal sense of power suggests that our manipulation check only measured feelings of influence over the specific concept identification task and that this manipulation did not have a wider effect on manipulating participants’ feeling of power in social contexts in their relationships with others. This may introduce a limitation of

the concept identification paradigm; it is unclear from these results whether the task also generalises feelings of a lack of control or rather it is task-based control threats that are subsequently affecting conspiracy belief. A wider examination of the exact nature of this paradigm and its effects would be sensible and seems to be lacking in the current literature.

Similarly, participants who were in the control condition also reported feeling less frustrated, less powerless, and less excited, compared to the manipulation condition. This further suggests that the lack of control manipulation was successful in creating frustration and feelings of powerlessness, but did not extend to a wider negative affective state. Participants, importantly, did not feel more angry, suspicious, or sad. In the control condition, participants received no feedback during their task at all which, after three total trials, is likely to be rather repetitive and non-engaging. This could explain why participants in that condition reported feeling less excited and less happy. The introduction of a condition with accurate feedback on participants' task performance might further refine this particular manipulation. Further work could also assess the exact nature of the lack of control manipulation by directly measuring participants' feelings of control, both task-specific and more generalised control. The examination of the exact mechanism of the concept identification task has not been fully addressed by previous work and we hope that this top-level evaluation will prompt further investigation in future research.

Previous work (Whitson & Galinsky, 2008) using the "Concept Identification Task" to manipulate control had shown a small increase in participants' personal need for structure when they felt a lack of control. We failed to replicate this effect in our study and re-examining the original Whitson and Galinsky (2008) study showed that this change was only just significant. Other work has also failed to replicate this effect (Stea & Hodgins, 2012), perhaps indicating that the "personal need for structure" dimension is more resistant to change than anticipated. The current manipulation may also not be strong enough to provide any significant effect on a participant's personal need for structure. The method used to manipulate control was an artificial one, but other work in this area that used a version of "real-life" control manipulations (such as assessing participants' attitudes to the Y2K bug, a genuine control threat) found similar results (van Prooijen & Acker, 2015). Continued work on extending the ecological validity of these findings would be sensible, alongside considering and controlling for the possible confounding variables that affect a person's sense of control.

Overall, the results have conceptually replicated earlier work, both in manipulating a lack of control, as well as providing further evidence of a causal link between a lack of control and conspiracy belief. However, conspiracy belief is complicated, relying on a series of cognitive biases, pre-existing belief systems and similar mechanisms to maintain belief. Research has only just begun to explore causal mechanisms, previously focusing mainly on correlational research. It is hoped that these results can help further the work in this area.

Study 2: Assessing the effect of a concept identification task on feelings of personal control

Introduction

As discussed in the introduction to this chapter, people who experience feelings of losing control may be motivated to compensate for those feelings through a variety of psychological mechanisms, whether it is an attempt to restore lost control with attributional biases (Pittman & Pittman, 1980) or shifting perceptions of control onto external societal structures to compensate (Kay et al., 2009; Landau, Kay, & Whitson, 2015).

The majority of this experimental work in the last 10 years has focused on experimental manipulations that authors argue artificially alter feelings of personal control. Predominantly, these have taken the form of an autobiographical recall task (Kay, Gaucher, Napier, Callan, & Laurin, 2008; Whitson & Galinsky, 2008), an impossible anagram task (Muraven, Tice, & Baumeister, 1998), or a learned helplessness paradigm (derived from Pittman & Pittman, 1979) where participants complete a concept identification task with incongruent feedback (as per Study 1 in this chapter). Using these designs, the compensatory control framework has been provided with substantial evidence that control threats can lead to an increased tendency to detect patterns in noise (Whitson & Galinsky, 2008); increased belief in the possibility of psychic predictions (Greenaway, Louis, & Hornsey, 2013); increased belief in a controlling God (Kay et al., 2008; Rutjens, van der Pligt, & van Harreveld, 2010); increased preference for government control (Kay et al., 2008); increased collective narcissism (Cichocka et al., 2018); and increased belief in conspiracy theories (van Prooijen & Acker, 2015; Whitson & Galinsky, 2008).

There is however, a considerable limitation of the current body of work, in that the majority of published manipulations have not attempted or only minimally

discussed the validity of the mechanisms employed and their ability to influence personal control directly. In particular, the seminal paper that linked control threats to illusory pattern perception did not mention the validity of either the concept identification task or autobiographical recall task employed. This is of particular concern given the depth of empirical evidence suggesting control threats can be used to assess a variety of compensatory mechanisms; without a properly validated and reliable manipulation of control, these results may not stand up to scrutiny. In the original Pittman and Pittman (1979) experiment, and the subsequent Whitson and Galinsky (2008) paper, there was no attempt to independently measure the effect of the task on any measure of generalised personal control, or even task-specific control. Subsequently, there are very few genuine attempts in the current literature to address this.

In a recent meta-analysis of the threat to control effects (Landau et al., 2015), the authors assessed the main manipulations in the literature to determine if one was more effective than another, and did not find such a difference. Despite this, no further attempt was made in this analysis to assess whether a recall task may be eliciting control threats in a different way to a more active manipulation involved in an “impossible” task-based manipulation.

In Study 1, particular attention was focused on the concept identification task, used in the previous experiment in this chapter. An attempt was made to introduce a small manipulation check in the previous experiment by measuring participants’ feelings of task-based “powerlessness”, which was significantly different between the conditions. Although this partially validated the effect of the manipulation, it was limited for two reasons. Firstly, it is important to make sure language regarding control is accurate; asking participants about powerlessness may make linguistic sense, but in psychology, power and control are related but distinct concepts. Power could be considered to be the capacity to control others (known as influence), and a capacity to remain uncontrolled by others (known as autonomy) (Lammers, Stoker, Rink, & Galinsky, 2016). Personal control relates to the ability to influence the course of one’s own life (Kay et al., 2009) and has been hypothesised by some researchers to mediate some effects of power (Fast, Gruenfeld, Sivanathan, & Galinsky, 2009). (For a review of the interplay between these concepts, see Cislak, Cichocka, Wojcik, & Frankowska, (2018).)

Secondly, the previous experiment did not attempt to measure any generalised control measures. The existing literature is quite clear in its arguments that these manipulations are affecting feelings of personal control to the extent that compensatory mechanisms are activated. It has not been made clear, however, whether these mechanisms are triggered because of a task-based threat, or instead whether the task-based threat then subsequently affects wider feelings of generalised personal control.

To address this, the current experiment attempted to measure both task-specific and generalised feelings of personal control between low control and high control manipulation conditions, to determine what effect it may have. To serve as a conceptual replication of existing work, the current experiment had two hypotheses:

1) Task-based control scores would differ between the high control and low control conditions.

2) Generalised personal control scores would differ between the high control and low control conditions.

Method

Participants and design. 140 participants (70 males, 68 females, 1 undisclosed, 1 transgender; mean age = 40, SD = 11.73, range = 21-74) were recruited online using Amazon's MTurk online panel and completed the experiment in exchange for \$1.00 US.

The experiment was set up to recruit participants from the United Kingdom. 112 participants recorded their ethnicity as White, 7 as Asian, 6 as Hispanic, 7 as Mixed, and 8 as Black. 18 participants recorded their political orientation as "Extremely Liberal", 44 as "Liberal", 14 as "Slightly Liberal", 26 as "Moderate", 6 as "Slightly Conservative", 25 as "Conservative", and 7 as "Extremely Conservative".

Participants who failed one or more instructional manipulation checks (Oppenheimer, Meyvis, & Davidenko, 2009) were excluded from future analyses ($n = 8$).

Materials and procedure. Participants were randomly assigned to either a "high personal control" or a "low personal control" condition. In the "high personal control" condition, participants completed a concept identification task that was manipulated to give positive feedback to the participants' performance regardless of actual performance. The feedback given was randomised to manipulate a feeling of a high degree of control over the task. Those in the "low personal control" condition,

completed a similar concept identification task, but where the feedback given to participants' performance was negative regardless of actual performance. This was intended to manipulate a feeling of a low degree of control over the task.

It has been argued that the effects from threats to personal control and related concepts may not immediately manifest after a manipulation (Cichocka et al., 2018; Jonas et al., 2014). Consequently, after the control manipulation, all participants completed a short distraction task (Greenberg, Pyszczynski, Solomon, Simon, & Breus, 1994; Study 4) which involved reading a short neutral extract from a novel and answering five questions regarding the content of the story.

Participants were then measured on their personal need for structure, and a novel scale that measured both task-specific control and personal control. Demographics including age, gender, ethnicity and political orientation were collected at the end of the experiment.

Full ethical approval from the Goldsmiths Department of Psychology Ethics Committee was received before data collection began. Participants were briefed before the experiment began that their anonymity would remain and that they could withdraw at any time without penalty. Participants confirmed their consent to participate by means of a check box and were debriefed fully regarding the manipulation. The details of the experimenters as well as places to obtain support or ask further questions were also given.

Measures.

Lack of control manipulation – Concept Identification Task. (Pittman & Pittman, 1979; Whitson & Galinsky, 2008). As in Study 1, the manipulation of personal control was taken from Whitson and Galinsky (2008), with the feedback given to participants in both conditions modified for this current experiment.

In the “high personal control” condition, feedback during the task was manipulated to present 80% positive responses and 20% negative responses, with the negative feedback randomly appearing within the first five answers, so the subsequent five answers would always be positive. The final answer given by the participants on which concept they thought the computer had chosen, would always be labelled as correct. This modification of the original task was designed to boost feelings of personal control and the experiment aimed to test this assumption.

In the “low personal control” condition, feedback remained as presented in the previous experiment, where 50% of the feedback is positive, 50% is negative and the

presentation of feedback is randomised. The final answer given by the participants on which concept they thought the computer had chosen would always be labelled as incorrect. The previous experiment found this successful in creating lower feelings of control compared to a neutral feedback absent task condition.

All participants completed one practice trial of 10 patterns and then completed one further live trial of 10 patterns each.

Revised Personal Need for Structure Scale (PNSSr). (Neuberg & Newsom, 1993). This 11-item scale has answers given on a six-point scale from “strongly disagree (1)” to “strongly agree (6)” to measure participants’ need for structure in everyday life. The scores were averaged to provide an overall score, where a higher score showed a greater need for structure ($\alpha = .92$).

Generalised and task-based personal control manipulation checks. A simple manipulation check was used to ask participants how much control they felt they had over the task. Participants were also asked if they felt frustrated, angry, in control, sad, happy, excited, calm, suspicious, and alert, on a 10-point scale (ranging from 1-Not at all to 10-extremely). The experiment, however, was concerned with how much control participants felt as a further test that the manipulation was successful.

To assess whether the task also affects more generalised personal control, a novel measure was created using items from a range of existing personal control and mastery scales used in previous research (Cichocka et al., 2018; Goode, Keefer, Branscombe, & Molina, 2017; Pearlin et al., 1981). This resulted in a 7-item scale that contained items such as “I feel I have little control over my life” vs “I feel I have great control over my life” and “I have little influence on my fate” vs “I have great influence on my fate”. Participants responded on a 7-point scale, ranging from -3, which indicated greater agreement with a low-control item, to +3, which indicated greater agreement with a high-control item. Responses were coded into a 1-7 scale, averaged to show higher scores indicating higher feelings of generalised personal control ($\alpha = .92$).

An additional measure of perceived personal control was also used (Michinov, 2005). This was a 12-item scale referring to personal mastery and perceived constraints in everyday goal attainment, including items such as “I can do just about anything I really set my mind to” and “I often feel helpless in dealing with life’s problems”. Participants responded on a 5-point scale, ranging from 1 = strongly disagree to 5 = strongly agree. The responses for all items were averaged to provide a single score, with higher scores reflecting higher feelings of perceived personal control ($\alpha = .95$).

Demographics. Gender, age, ethnicity and political orientation were all captured. Political orientation was measured on a 7-point scale from extremely liberal (1) to extremely conservative (7). The political orientation scale also included a “don’t know” option as previous experiments had shown that not all participants are familiar with the “left vs. right” model of political belief.

Results

Overall relationships. Randomly assigned, 72 participants completed the high control condition, with the remaining 60 participants in the low control condition. The difference in distribution between the two conditions was not significant ($z = 1.48, p = 0.14$) and there were no dropouts recorded in either condition. Table 2.3 below shows the means and standard deviations of the scales used.

Table 2.3. Mean ratings for scales used in Study 2 (standard deviations in parentheses).

Scales	Low control condition	High control condition
Generalised personal control (higher score = more personal control)	4.71 (1.63)	4.87 (1.41)
Task-based control (higher score = more task-based control)	2.63 (1.23)	3.64 (1.12)
PNSSr (higher score = more structure)	4.27 (1.13)	4.13 (1.17)
Mastery Scale (higher score = more mastery)	3.53 (0.90)	3.67 (0.86)
Frustrated (higher score = more frustrated)	5.97 (3.18)	2.28 (1.72)
Angry (higher score = more angry)	3.07 (2.72)	1.42 (1.28)
Sad (higher score = more sad)	2.25 (2.02)	1.53 (1.22)
Happy (higher score = more happy)	3.75 (2.95)	6.26 (2.76)
Excited (higher score = more excited)	2.88 (2.25)	4.96 (2.73)
Calm (higher score = more calm)	5.57 (3.16)	7.69 (2.31)
Suspicious (higher score = more suspicious)	4.23 (3.23)	1.99 (1.82)

Table 2.3 continued.

Mean ratings for scales used in Study 2 (standard deviations in parentheses).

Scales	Low control condition	High control condition
Alert <i>(higher score = more alert)</i>	7.87 (2.48)	8.26 (2.08)

The effect of the control task on generalised and task-based control. To test the effects of the condition (low control task vs. high control task) on the measures of task-based control, generalised personal control, mastery, personal need for structure, and emotions, a series of independent-samples *t*-tests were run. The results from these are reported in the sections below.

The *t*-test revealed that there was a significant difference between the task-based control score of those who were in the low control condition ($M = 2.63$, $SD = 1.23$) compared to the high control condition ($M = 3.64$, $SD = 1.12$) ($t(130) = 4.91$, $p < .001$).

The *t*-test also revealed that the effect of the condition was not successful in changing generalised personal control scores, where the low control condition ($M = 4.71$, $SD = 1.63$) and high control condition ($M = 4.87$, $SD = 1.41$) did not significantly differ ($t(130) = 0.60$, $p = .548$).

The effect of the control task on personal need for structure. The effect of the condition was not successful in changing personal need for structure, where the low control condition ($M = 4.27$, $SD = 1.13$) and high control condition ($M = 4.13$, $SD = 1.17$) did not significantly differ ($t(130) = 0.70$, $p = .486$).

The effect of the control task on mastery. The effect of the condition was also not successful in changing feelings of mastery and general personal control in day to day life, where the low control condition ($M = 3.53$, $SD = .90$) did not significantly differ from the high control condition ($M = 3.67$, $SD = .86$) ($t(130) = 0.90$, $p = .371$).

The effect of the control task on self-reported emotions. Scores for the frustration, anger, sadness, happiness, excitement, calmness, suspiciousness and alertness measures were also assessed between conditions. The assumptions of the homogeneity of variances were violated for frustration, anger, sadness, excitement, calmness, and suspiciousness. Therefore, adjusted *t* statistics and degrees of freedom

using Welch's *t*-test are reported below for those measures. To reduce the risk of inflating the family-wise error rate from multiple comparisons, the following *p* values have been adjusted using the Holm-Bonferroni method (Holm, 1979).

There were significant differences between the two conditions for participants' feelings of frustration (*Welch's t*(87) = 8.06, *p* = .008), anger (*Welch's t*(80) = 4.32, *p* = .008), sadness (*Welch's t*(93) = 2.42, *p* = .036), happiness (*t*(130) = 5.04, *p* = .008), excitement (*Welch's t*(129) = 4.80, *p* = .008), calmness (*Welch's t*(105) = 4.32, *p* = .008), and suspiciousness (*Welch's t*(89) = 4.78, *p* = .008).

Reporting feelings of alertness were not significantly different between conditions (*t*(130) = 0.98, *p* = .328).

Possible effects of covariates on the task's effect on personal control. Given that a number of emotions recorded were significantly different between the two conditions, these variables were added into a linear model to see if they were having an effect on a model that could predict feelings of personal control based on the condition. Given that in the previous *t*-tests the Levene's test revealed the variance between conditions for these potential covariates was not equal, condition interaction terms for frustration, anger, sadness, excitement, calmness and suspiciousness were entered into the model.

Bootstrapped planned contrasts revealed that being in the low control condition or high control condition did not have a significant effect on predicted feelings of personal control (*p* = .100, 95% CI [0.00, 1.32]).

Feelings of frustration (*F*(2, 118) = 2.70, *p* = .071), anger (*F*(2, 118) = 1.06, *p* = .351), sadness (*F*(2, 118) = 0.03, *p* = .966), happiness (*F*(1, 118) = 2.60, *p* = .109), excitement (*F*(2, 118) = 1.22, *p* = .299), calmness, (*F*(2, 118) = 1.83, *p* = .166) and suspiciousness (*F*(2, 118) = 0.85, *p* = .429) were not significantly related to the model's ability to predict feelings of personal control from the condition.

Relationship between task-based control and generalised control. After controlling for the effect of the condition, there was a small but significant positive correlation between task-based control and generalised personal control scores (*r* = .29, *p* = .001) as well as mastery scores (*r* = .28 *p* = .001), where the higher the amount of control a person felt on the task, the higher amount of generalised personal control and mastery they also felt.

Discussion

The results showed that the concept identification task was successful in changing scores for task-based control, but these changes did not affect either measure of generalised personal control. This small experiment was intended to be a pilot to assess whether the task would successfully modify generalised personal control, and so that this could later be relied upon as a dependent variable. The lack of a true control condition here is noted and so the discussion on the exact nature of the task's effect on task-based control is limited – we cannot adequately assess whether the low control condition lowered scores, the high control condition raised scores, or whether both conditions changed scores together. Past work, however, has used this experimental design of a control threat vs. control affirmation, which again highlights some of the issues with the current literature. Without an adequate neutral control, it cannot be easily ascertained which condition is having an effect - although a truly “neutral” control may not be experimentally possible.

Despite this, the fact that neither condition changed generalised personal control scores is still relevant and deserves further discussion. Much of the previous work in this area has not adequately measured generalised personal control as part of the experimental conditions, and the results from this experiment demonstrate that continued use of this paradigm without adequate measurement of its direct effect is unwise.

Although several emotions, including frustration, were significantly different between conditions, their effects as covariates within a predictive model were not significant. The low control task was successful in making people more frustrated, angrier, less happy, less excited, less calm, and more suspicious than those in the high control condition, which gives some validity to the two tasks having different effects. Paired with the significant differences in task-based control, it is clear these two conditions are successful in creating different affective states.

Personal need for structure, as in Study 1, did not differ between conditions, an effect originally argued by Whitson and Galinsky (2008) as evidence of the task's ability to elicit compensatory mechanisms to a control threat. This argument makes sense as part of the wider compensatory control framework; personal need for structure may act as a mediator between control threats and their subsequent measure on a generalised scale. This argument, however, cannot be easily tested when personal need

for structure seems to be a more robust trait than anticipated, and more resistant to changes from control threats using this model.

There was, however, a significant correlation between task-based control and both measures of generalised personal control (personal control and mastery scales). This is an interesting result – and adds further to the argument that although the concepts are related, the task may not be having its desired effect on generalised personal control, or the effect size is much smaller than originally reported. It may also be that the effect size for the task on generalised personal control is low and requires a larger sample size to appropriately test.

The non-significant results of the condition's effect on generalised personal control may also be explained by a limitation of the measurement of personal control. In a recent review of the existing control literature (Landau et al., 2015), it was argued that the compensation from control threat manipulations could be context specific – whereby only belief in an active controlling god (compared to a passive creator God) would restore control. It may be that the concept identification task is not powerful enough to threaten personal control, which may be more robust and less prone to short term influences or changes. It may also be possible that asking participants how much control they experience in their lives may restore the feelings of control threatened by the task. If this is the case, it still questions the validity of earlier results using this paradigm and subsequently arguing for its effect on conspiracy belief, including the previous experiment in this chapter where a small but significant difference was found.

This failed conceptual replication also supports other recent work published after this experiment was run, which found in over six experiments a failure to replicate the autobiographical recall manipulation of control threat (Van Elk & Lodder, 2018). Using a similar methodological measurement of both task-specific control and generalised control, the authors failed to find evidence that an autobiographical recall task of a control threat had a significant effect on generalised personal control, which they argue severely limits the subsequent arguments many authors make on the role of control compensation mechanisms. Another recent study (Nyhan & Zeitzoff, 2018) also failed to find an effect of a low vs. high autobiographical recall task and subsequent belief in conspiracy theories in a Middle East and North Africa (MENA) sample, possibly arguing for a cultural bias in existing positive results previously published.

The measurement and discussion of control in the current literature also needs to be considered, especially when authors conflate control and power in their arguments,

without establishing they are two separate concepts (Nyhan & Zeitzoff, 2018). In a mini-meta analysis of the relationship between paranoia, conspiracy belief and control (Imhoff & Lamberty, 2018), authors found that general feelings of control were predicted by paranoia, but not conspiracy beliefs, but socio-political control (control over political and social systems) did predict conspiracy belief. It may be sensible to measure spheres of control using subsets that split out personal, interpersonal and socio-political control. It also allows us to further challenge the previous results by Whitson and Galinsky (2008) that argued personal control and conspiracy theories were conceptually linked.

Further work in this area is needed to better establish the validity of this paradigm and of the assumption that task-based control threats will also have an effect on generalised personal control. It should attempt to measure different types of control and to place these conceptually within the compensatory control framework using experimental work. In particular, it makes sense to test the nature of the compensation with a pre-post 2x2 style experimental design, using longitudinal data where appropriate. Perhaps the reason why generalised personal control does not change with these tasks is because the compensation mechanism hypothesised is actually working correctly. A more sophisticated experimental design may be able to measure the change in control scores before a threat occurs, and after a threat has been compensated with a hypothesised mechanism. This may also be useful in placing correlational work in context; if the argument is that conspiracy theories can compensate for control threats, why is there a negative correlation between belief in conspiracy theories and feelings of personal control?

To summarise, authors should be wary about relying on this type of control threat manipulation with adequately summarising its hypothesised effects on an unmeasured dependent variable, especially when subsequent arguments are made about the theoretical effect of control threats and compensational mechanisms on system justification, belief in conspiracy theories, or illusory pattern perception.

General discussion

The two studies in the chapter contribute to the small but growing body of work examining the role of personal control threats and their subsequent effects on belief in conspiracy theories. It was argued that conspiracy theories could act as a possible compensatory mechanism to threats to personal control in everyday life, but the current

body of work lacked significant evidence to support this. The two studies aimed to measure whether a control threat would successfully affect belief in generic conspiracy belief, as well as attempting to examine how the chosen control manipulation paradigm affected feelings of task-based and generalised personal control.

Study 1 focused on expanding the results of earlier work by Whitson and Galinsky (2008) with a conceptual replication of the “concept identification task” method of personal control manipulation, together with a measure of generic conspiracy belief, something that had not been completed in the current literature. The results showed that the manipulation of feelings of low personal control successfully raised belief in generic conspiracy belief, albeit with a small effect size. This helped add to the evidence of a form of compensatory mechanism by which conspiracy theories (even when belief is measured at a generic level) can help explain why people feel they have little control over significant events that happen in our society – because they are secretly being manipulated by other forces that cannot be easily identified.

However, Study 1 failed to replicate Whitson and Galinsky’s finding of the control manipulation’s effect on personal need for structure, which the authors used to validate their task as activating compensations to a genuine control threat. Personal Need for Structure did not differ between the two conditions in Study 1, nor did it, or Personal Need for Power, moderate the manipulation’s effect on belief in conspiracy theories. These results led to a wider discussion of the validity of the manipulation’s effects and an examination of the literature found little effort to fully test and measure exactly what the concept identification task was attempting to manipulate. Given that the literature has often used the results of these experimental manipulations to generalise arguments around personal control outside of task-based threats, it was felt necessary to further explore the manipulation and whether it was affecting measures of *generalised* personal control.

Study 2 therefore attempted to measure the manipulation’s effect on a range of personal control measures, both at a task-based and a general overall level. Using a low control vs. high control design, the study found that the concept identification task was successful in changing feelings of task-based control in the expected direction, but the manipulation was not successful in changing feelings of mastery or generalised personal control.

Other recent examinations of autobiographic recall tasks aimed at manipulating feelings of personal control also failed to show effects on generalised personal control

scales (Van Elk & Lodder, 2018), leading to a wider discussion of the exact nature of these control manipulations and their validity. It seems that the literature fails here in two areas. One, it has not always successfully established the conceptual differences and relationships between control and power, in some cases using the terms interchangeably in both manipulation checks and subsequent arguments. Two, specific to conspiracy theories, it has not fully explored or proposed a mechanism by which conspiracy theories satisfy threats to personal control. If threats to control can increase support for existing governmental or societal structures (Kay et al., 2009; Landau et al., 2015), then why would a conspiracy theory, often challenging those structures, provide a better compensation to a control threat? The key here may well lie in the interplay of paranoia and trust with existing systems, and the role of a monological belief system already built on the necessity to mistrust existing systems. This may also lead into situations where conspiracy theories' actions intending to reveal hidden agents instead end up bolstering the status quo (Jolley, Douglas, & Sutton, 2017). Instead of challenging the systems themselves that can lead to corruption and abuses of power in our society, conspiracy theories may divert attention instead by blaming a "malign few" within that same system as responsible. Threats to control in themselves do not lead to indiscriminate conspiracy belief, rather they lead to people blaming the existing structures that they have already challenged as untrustworthy. Experimentally speaking, political control and paranoia would likely mediate the existing experimental relationships seen between conspiracy belief and a lack of control and should be a focus for future work.

Does belief in conspiracy theories compensate for threats to personal control? Previous correlational work struggles to support the idea of a compensatory mechanism, where the literature shows that belief in conspiracy theories goes up when feelings of personal control go down. If conspiracy theories were compensating, you might expect inflated feelings of personal control to be linked with higher belief in conspiracy theories. Other work has provided a mixed picture in that rather than challenging the status quo, conspiracy theories may well end up supporting it, instead diverting attention away from the system to a specific malevolent target within it. The two studies in this chapter suggest that threats to personal control may affect generalised conspiracy belief to a small degree, but also suggest that the existing methods we use to manipulate personal control may not be acting in the way we have assumed. Further work must address both the lack of clarity with respect to the definitions and mechanisms of power

vs. control, and also attempt to improve the validity of personal control manipulations by assessing their effects on other related concepts. Recent failed replications also highlight the need for a higher standard of evidence when it comes to the use of these paradigms, echoing a current and timely concern with wider psychological findings under what has been termed the “replication crisis” (Saraiva, 2015).

Chapter 3

Paranoia, The Self, and Conspiracy Theories

Introduction

As discussed in Chapter 1, the archetype of the paranoid “tin-foil hat” wearing conspiracy theorist, driven by an intense mistrust of government, science, and big business has been well established in our public discourse. Despite this pejorative illustration of the relationship between paranoia and conspiracy belief, most of the literature to date has been limited to correlational work, and has not been able to determine a causal direction. This introduction explores the recent shift in paranoia research that seeks to establish a continuum hypothesis for sub-clinical “everyday” paranoia, and explains how this has influenced work exploring conspiracy belief and paranoia.

Sub-clinical paranoia and the continuum hypothesis

Traditional psychopathological models of psychosis tended to establish paranoia (and other psychotic symptoms like hallucinations and mania) as a categorical state using models of psychiatric diagnosis (Van Os, Hanssen, Bijl, & Ravelli, 2000). However, there is a growing body of evidence that suggests that psychosis exists in the population as a continuum, with large cross-sectional studies demonstrating significant percentages of self-reported psychotic experiences in the general population (Bebbington et al., 2013; Freeman et al., 2005; Johns et al., 2004).

Paranoia in a sub-clinical sense can be referred to as the presence of suspicious, self-centred thought, assumptions of persecution and conspiratorial intent, that can lead to implausible or distorted interpretation of events (Fenigstein & Venable, 1992). In the creation of a sub-clinical measure of paranoid ideation, Fenigstein and Venable (1992) showed that approximately 62% of their college student sample endorsed at least one paranoia scale item and showed paranoia negatively correlated with interpersonal trust and positively correlated with anger, a need for personal control, and belief in the control of powerful others.

Later research investigating a range of psychotic symptoms including paranoia found similar patterns of paranoid ideation in a non-clinical sample (Johns et al., 2004). Around 21% of the sample of 8580 (demographically proportional) British participants

claimed there had been times when they felt that people “were against them”. This study also showed relationships between paranoid ideation and alcohol dependence, stressful life events and male gender.

Expanding on the limited investigations of sub-clinical paranoia, Freeman et al. (2005) measured ideation using a more clinical basis, but also introducing measures of conviction, frequency and distress to help better predict the effect of these types of thoughts on behaviour. In a sample of 1202 British university students, around one third reported regular paranoid thoughts and the research demonstrated that higher levels of paranoia were associated with emotional and avoidant coping, less use of rational thinking, and detached coping and submissive behaviours.

Paranoia can no longer be considered solely a characteristic of psychosis, but instead appears to form a continuum with normal behaviours and beliefs, with paranoid thoughts occurring regularly in approximately one third of a non-clinical sample (Freeman et al., 2005). In the validation of a sub-clinical measure of paranoia on a general population, Bebbington et al. (2013) demonstrated that persecutory ideas manifested from underlying factors of mistrust, social anxiety and worry about the intentions of others. They argued that paranoia manifests itself from the normal anticipation of threat and responses to such can then go on to form more serious forms of clinical delusion in some people, of which the mechanisms are still not fully understood.

Paranoia and conspiracy theories

The recent work in the paranoia literature has argued that rather than being solely limited to a clinically diagnosable disorder, paranoia can present widely in milder forms across non-clinical populations. Exploring the links between paranoia and conspiracy belief, however, requires discussion of the earlier non-psychological literature that sought to explore these relationships from a sociological perspective.

As discussed in Chapter 1, Hofstadter was among the first commentators to explore the relationship between paranoia and belief in conspiracy theories, exposing what he felt was a dangerous “paranoid style” in American politics (Hofstadter, 1964). The author saw unjustified suspicion and mistrust in the then-current US government, together with beliefs in persecution within the politics of the day. Conspiracy theories, Hofstadter argued, were a by-product of a personality type permeated by mistrust and an abnormally sensitive threat response.

Although Hofstadter was referring to a sub-clinical “political” form of paranoia, he was successful in identifying that conspiracy theories often contain narratives that are driven by underlying themes of threat and suspicion, with the targets either unseen or made of homogenous groups of people with malevolent intent (Grzesiak-Feldman, 2013; Swami, 2012; Wood & Finlay, 2008). His work successfully shaped much of the sociological work that followed, that primarily used the lens of psychopathology to explain conspiracy theories as products of paranoia or delusional ideation.

Groh (1987) wrote from a historical perspective to explore the structural similarities between paranoid delusional models of behaviour and what he termed the “collective delusion” of conspiracy theory belief. Using the clinical definitions of paranoia as a template, he argued that conspiracy beliefs were structured in similar ways to delusions to allow people to create solutions from an unconscious search for order when uncertain or unexpected situations happen. He argued that conspiracy belief was an attempt at sense-making in an unjust or evil world, but did not fully explore why some people choose to find an answer from a paranoid or conspiratorial solution, compared to others who put their faith in other explanations.

Discussed in more detail in Chapter 1, these early non-psychological works exploring the nature of paranoia and conspiracy belief inspired and led later psychological work that explored the relationships between the two. The first empirical work on conspiracy belief and paranoia explored “paranoid-like” traits that included interpersonal trust and anomie (a lack or rejection of social norms). Goertzel (1994) found that higher belief in conspiracy theories was related to lower interpersonal trust and higher anomie. Further studies showed correlations between conspiracy belief and cynicism, hostility, negative attitudes to authority and low agreeableness (Abalakina-Paap et al., 1999; Bruder et al., 2013; Swami et al., 2010, 2011).

More recent work has demonstrated that paranoid ideation is related to conspiracy belief, with participants who score higher on sub-clinical measures of paranoia also scoring higher on measures of conspiracy theory belief (Darwin et al., 2011). The authors presented a correlational model that incorporated paranoia, schizotypy and conspiracy belief, which argued that schizotypal traits help to form and maintain conspiracy belief, with paranoia the result as maladaptive traits expand through the belief in conspiracy theories. The inference of the direction of paranoia here is challenging – although presenting a correlational model, the authors hypothesised that paranoia was the *result* of underlying traits that were amplified by conspiracy theory

belief. The model also did not consider the possibility that the relationship between paranoia and conspiracy belief could be reciprocal.

This small but growing body of work examining individual difference correlates with conspiracy belief consistently shows relationships with paranoia that possibly help feed into the common lay-person stereotype of conspiracy believers being paranoid or delusional. Viewing conspiracy theories solely through a lens of psychopathology, however, does not help explain why their acceptance is so widespread, and it is implausible to assume that large sections of society are generating delusional responses to every significant event that happens.

Although the paranoia literature has adjusted its approach to start explaining sub-clinical paranoia as a dimension of everyday behaviour, the conspiracy theory literature has not followed, with the existing work mainly exploring correlations with sub-clinical models without attempting to explore or understand the underlying processes that may drive the relationship between paranoia and conspiracy. For example, high levels of paranoia have been shown to be associated with an increase in the recruitment of rarer and odder ideas, alongside a more emotional, less rational thinking style (Freeman et al., 2005). Without experimental manipulations of paranoia, the literature has not yet succeeded in providing causal explanations of paranoia's effect on conspiracy belief (or vice versa). Do high levels of paranoia lead to the endorsement of conspiracy belief, or does conspiracy belief create higher feelings of paranoia? Is there a third underlying variable driving both?

No experimental work so far has tried to establish a causal relationship between sub-clinical paranoia and conspiracy belief. Given the reciprocal nature of delusional belief formation (in which processing and cognitive biases play a key part in filtering the evidence people may acquire when reinforcing a belief; Freeman & Garety, 2014; Freeman, Garety, Kuipers, Fowler, & Bebbington, 2002), it is hard to determine whether belief in conspiracy theories causes a heightened paranoid state or one needs to be paranoid before belief in conspiracy theories develops. The work in this chapter attempts to address this limitation by attempting manipulations of sub-clinical paranoia.

The role of the self in paranoia, persecutory delusions, and conspiracy belief

The current paranoia and persecutory delusion literature also presents a lack of clarity about the precise role of self-esteem. As argued above in the discussion of paranoia, although it would be unwise and inaccurate to suggest conspiracy theories are

some form of persecutory delusion, they do share some similar characteristics, with conspiracy believers typically scoring higher on sub-clinical measures of paranoia (Darwin et al., 2011), and showing susceptibility to certain cognitive biases that have also been found to play a part in delusion formation (Brotherton & French, 2014; Douglas & Sutton, 2011).

Earlier work on delusions tended to show that once a delusion had been accepted and incorporated by the subject, a short-term self-esteem boost followed (Maher, 1988). The argument was that the anomalous event that the subject had perceived as perplexing up until this point now had an explanation (e.g. “I am not going mad, it is the CIA bugging my phone instead”). Building upon these theories, Bentall, Kinderman, and Kaney (1994) suggested that delusions served to prevent negative self-concepts from becoming conscious, by attributing failures to others in order to maintain self-esteem.

Alternatively, Freeman, Garety, Kuipers, Fowler and Bebbington (2002) proposed a different model of delusion formation. These authors argued that delusions were not a defence against low self-esteem as Bentall et al. suggested, particularly as the research typically showed a negative correlation between persecutory thoughts and self-esteem. Freeman et al. argued that self-esteem’s effects on paranoia might well be circular, with low self-esteem being a possible “vulnerability factor” for delusional ideation, which once maintained decreases self-esteem further. They suggest that self-esteem measures may not be specific enough to fully explore the negative beliefs about the self, which act as better predictors of paranoia than global self-esteem (Garety & Freeman, 1999).

The argument that negative self-concepts, rather than global self-esteem, serve as a model for persecutory delusion formation remains a topic of debate within the literature. In a comprehensive review in 2013, Kesting and Lincoln examined the hypotheses that persecutory delusions could function to enhance self-esteem or that temporal instability of self-esteem is relevant to delusion formation. The review did not find satisfactory evidence that delusions could serve to enhance self-esteem, but expanded on the theory that they directly reflect specific negative self-schemas.

Given that the nature of self-esteem and its effects on belief formation within the wider literature are still debated, its role in conspiracy belief should be treated with equal caution. The majority of the conspiracy literature has taken a correlational approach, as discussed earlier, with mixed results. One study, however, has shown results to support the argument that paranoid conspiracy theories could lead to short-term stabilisation of self-esteem.

Lincoln, Stahnke, and Moritz (2014) devised a paradigm where a sample ($n = 60$) from the general population was “socially excluded” from a virtual ball game and given either a conspiratorial paranoid explanation (“The other players probably met before you joined and planned to exclude you”), a self-blaming explanation (“The other players had to wait too long for you and got annoyed”), or a neutral situational explanation (“This has happened before and is probably a technical defect with the game”). Self-esteem was assessed at four time points (before exclusion, after exclusion, straight after the explanation and 15 minutes after the explanation) and showed that the conspiracy condition increased self-esteem significantly more than the self-blame condition. However, after measuring self-esteem 15 minutes after the explanation, self-esteem recovered more in the neutral condition, compared to the conspiracy condition. From this, the authors argued that paranoid interpretations have a short-term rewarding effect in a non-clinical population. The positive effect, however, was not long lasting, and decreased after 15 minutes, especially when compared to the neutral situation explanation condition.

These findings do not actively contradict the theories of Freeman et al. (2002) or Bentall et al. (1994), but instead demonstrate that previous attempts at studying the role of self-esteem may not have adequately addressed the temporal aspects of any relationships. Similarly, this may also explain why the existing literature exploring self-esteem and conspiracy theory belief has been mixed. Early work by Abalakina-Paap et al. (1999) demonstrated that self-esteem was a significant predictor for beliefs in a range of specific conspiracy theories but, together with anomie, authoritarianism and powerlessness, could only account for 28% of the variance of the authors’ model. They argued that conspiracy theories might be attractive to people with low self-esteem, as they can be used to avoid self-blame for their perceptions of low self-worth. Given the correlational nature of the study, that argument could not be properly validated.

Indeed, the exact direction of any possible causal effect of self-esteem on conspiracy theory belief has not been properly investigated. In some studies, low self-esteem significantly predicted belief in specific theories about the July 7th London bombings (Swami et al., 2011) and the disappearance of Amelia Earhart (Swami & Furnham, 2012) as well as more generalised conspiracy theories (Swami & Furnham, 2012). In others, no significant correlation was found between self-esteem and specific theories about the kidnap of Natascha Kampusch or with generalized conspiracist ideation (Stieger, Gumhalter, Tran, Voracek, & Swami, 2013).

Again, no published work has tried to investigate a possible causal link between self-esteem and conspiracy belief, which this current chapter attempts to address.

Overview of studies in this chapter

The current chapter presents four studies that examine the role of paranoia, self-esteem and belief in conspiracy theories. This chapter aims to explore possible causal relationships between the frequently reported correlations between paranoia and conspiracy belief in the current literature (Brotherton & Eser, 2015; Bruder, Haffke, Neave, Nouripanah, & Imhoff, 2013; Darwin, Neave, & Holmes, 2011; for a review see Imhoff & Lamberty, 2018), and to also explore the possible effects of self-esteem (Abalakina-Paap et al., 1999; Stieger et al., 2013; Swami et al., 2011; Swami & Furnham, 2012) on these relationships.

Study 3: The effect of a scrambled sentences task manipulation of sub-clinical paranoia on conspiracy theory belief

Introduction

As discussed in the chapter introduction, the bulk of the work exploring paranoia, self-esteem and conspiracy belief has been correlational in nature, presenting modest correlations between conspiracy belief and paranoia, but weaker inconsistent correlations with self-esteem. To build on these earlier correlational works, the current study attempts to test a causal link by using a sub-clinical paranoia manipulation and measuring changes in paranoia and conspiracy belief. Given that most of the existing literature shows positive correlations between conspiracy belief and paranoia, it is hypothesised that an increase in feelings of sub-clinical paranoia (in this case, response to threatening words or ideas primed through a scrambled sentences task) will result in an increase in generic conspiracy belief. Self-esteem will also be measured to help determine its role in influencing conspiracy belief.

In addition, the present study also attempts to explore the possible role of social submissiveness. Existing work exploring persecutory ideation has demonstrated that individuals responding to attributions of threatening intent can either express anger and resentment, or instead retreat inwards with submissiveness (Allan & Gilbert, 1997; Freeman et al., 2005). Freeman et al. (2005) also discovered that respondents who felt inferior or less competent compared to others also displayed higher levels of suspiciousness, demonstrating possible relationships between paranoia, self-esteem and

social submissiveness. It is possible therefore that belief in conspiracy theories, given the already established links with paranoia, could also manifest from feelings of inferiority or submissiveness. Given the links to perceptions of personal control discussed in previous chapters, conspiracy believers who feel that their current situation is beyond control may respond with an increase in social submissiveness. Conspiracy theory content tends to be negative in its focus, seeking to raise awareness of the corrupt and malevolent practices of hidden conspirators – could this negative world view coupled with feelings of low personal control prompt some conspiracy believers to respond with an increase in submissiveness or could it prompt some believers into action to resolve the threat they see to society?

Finally, a measure of political leaning using the traditional left vs. right split was included, to determine whether political attitude can also serve as a predictor of conspiracy belief. Prior work has suggested that conspiracy belief is related to political extremism (Swami & Furnham, 2014; van Prooijen, Krouwel, & Pollet, 2015), but there is limited work that has assessed conspiracy theory belief (and the content of such theories) across the full political spectrum. Van Prooijen et al. (2015) found greater intolerance at the political extremes while assessing the quadratic effect of political ideology.

Hypotheses. It was hypothesised that paranoia scores would be higher in the manipulation group compared to the control group and subsequently conspiracy belief would also be higher in the manipulation group. It was also expected that self-esteem would be lower in the manipulation group condition in a response to higher levels of paranoia. It was predicted that political leaning would not differ between conditions but might show a positive correlation between right wing political beliefs and conspiracy belief.

Method

Participants and design. Based on previous work (Darwin et al., 2011), the expected positive correlation between paranoia and conspiracy belief for this study was between 0.35 to 0.45. To detect a correlation of this size with 80% power, and an alpha of 0.05, a minimum sample size of 82 was required.

101 participants (37 males, 60 females, 4 undisclosed; mean age = 37, SD = 13.36, range = 18-67) were recruited online using social networks, psychology participation boards and postgraduate psychology email networks. Participants were

entered into a prize draw to win £50 worth of amazon.co.uk vouchers in exchange for their participation. One participant was selected randomly to receive the prize.

Participants were randomly assigned to one of two conditions, which were the presence or absence of a paranoia manipulation. Participants were then measured on their conspiracy belief, self-esteem, paranoia and submissive behaviour.

Procedure. Participants were randomly assigned to either a manipulation or control condition. Those in the manipulation condition first completed a scrambled sentences task that was designed to induce feelings of threat and suspicion. Those in the control condition completed the same task but with neutral words. All participants then completed the Generic Conspiracy Belief scale (GCB), the Paranoia Checklist, Rosenberg's Self-Esteem Scale (RSES), and the Social Submissiveness scale. The GCB scale was given immediately after the scrambled sentences task to maximize the effect of paranoia on the subsequent belief in conspiracy theories. The remaining scales were randomized. Finally, participants completed a short demographics section that asked for age, gender, occupation, and political orientation.

The experiment was run online using survey software called Limesurvey. Participants were briefed before the experiment began that their anonymity would be preserved and they were free to withdraw at any time by closing the web browser. Participants confirmed their consent by means of a check box and participants were not able to proceed unless this was confirmed. Participants were debriefed electronically and were given further details about the study alongside the contact details of the experimenters. This was particularly important due to the nature of the manipulation. Full ethical approval from the Goldsmiths Department of Psychology Ethics Committee was received before data collection began.

Materials

Paranoia Manipulation – The Scrambled Sentences Task (Derived from Srull & Wyer (1979) and Shariff & Norenzayan (2007).) The scrambled sentences task introduced by Srull and Wyer (1979) was designed to subtly and implicitly activate certain motivations, behaviours or thoughts that would keep the participant unaware of the nature of the test.

The current experiment attempted a novel manipulation of sub-clinical paranoia using threatening or suspicion-related sentences. Participants were given 10 sets of five words, for example: “watched”, “coffee”, “am”, “I”, and “being”. Participants must form a grammatical four-word sentence from these five words, which for this example

would be “I am being watched”. For the manipulation condition, five sets contained sentences that were related to suspicion, threat and paranoia, and five sets were neutral (e.g., “He finished it yesterday”). For the control condition, all 10 sets were neutral sentences. The full sets of sentences used can be found in Appendix 3.1.

Generic Conspiracy Belief Scale (GCB) (Brotherton et al., 2013). As discussed in previous chapters of this thesis, the use of the GCB for this experiment attempts to overcome the limitations of previous research measuring conspiracy belief using single or a narrow range of specific conspiracy theories. The GCB instead measures conspiracy belief at a generic level using a 15-item scale, which covers key factors of conspiracy belief including malevolent global conspiracies, government malfeasance and the control of information. Responses to statements such as “The government is involved in the murder of innocent citizens and/or well-known public figures, and keeps this a secret” are given on a five-point scale, from “definitely not true (1)” to “definitely true (5)”. For the current study the internal consistency of this scale was $\alpha = .91$.

Paranoia Checklist (Freeman et al., 2005). The paranoia checklist was designed to assess a wide range of paranoid thoughts in a non-clinical population. The checklist was validated by Freeman et al. (2005) and represents a good measure of paranoid ideation as a dimensional trait measure. Participants are asked to rate the frequency, conviction and distress caused by thoughts assessed from 18 questions on a five-point scale (1-5), such as “People deliberately try to irritate me”. Scores are calculated for the presence or frequency of each paranoid idea, as well as separate scores for conviction and distress. The internal consistency of this scale was $\alpha = .94$.

Rosenberg Self-Esteem Scale (RSES) (Rosenberg, 1965). The Rosenberg Self-Esteem Scale (RSES) is a ten-item scale that assesses current levels of self-esteem on a 4-point (Strongly agree to strongly disagree) answer scale. A total score is used; scores between 15 and 25 are considered average, with a score below 15 suggesting low self-esteem. The internal consistency of this scale was $\alpha = .83$.

The Submissive Behaviour Scale (Allan & Gilbert, 1997). The Submissive Behaviour Scale is a 16-item scale that measures levels of social submissiveness. Participants rate the frequency of each behaviour such as “I do what is expected of me even when I don’t want to” on a 5-point scale (0 – Never, 4 – Always). A total score is used, with internal consistency of $\alpha = .89$.

Political orientation. Political orientation was measured on a simple 7-point scale that asked participants where their political views best fit, from 1 (Extremely

conservative) to 7 (Extremely liberal). A mid-point of 4 was given for centrist political viewpoints.

Results

Overall relationships. In total, 43 participants received the paranoia manipulation, with 58 participants in the control condition. The survey software used was set for true randomisation of participants between the two conditions rather than a quasi-random allocation that would allow the same number of participants in each condition. Table 3.1 shows the means and standard deviations of the scales used.

Table 3.1. Mean/total ratings for scales used in Study 3 (standard deviations in parentheses).

Scales	Control condition	Manipulation condition
Generic Conspiracy Belief Scale mean (higher score = greater belief)	2.21 (0.77)	2.43 (0.97)
Paranoia Checklist – Frequency total score (max = 90) (higher score = greater frequency of paranoid thoughts)	26.45 (8.37)	26.35 (8.90)
Paranoia Checklist – Conviction total score (max = 90) (higher score = greater conviction in paranoid thoughts)	30.10 (8.83)	29.60 (9.89)
Paranoia Checklist – Distress total score (max = 90) (higher score = greater distress from paranoid thoughts)	28.78 (10.03)	28.91 (10.88)
Rosenberg Self Esteem Scale total score (max = 40) (higher score = higher self-esteem)	17.95 (6.35)	18.37 (7.02)
Submissive Behaviour Scale total score (max = 64) (higher score = more socially submissive)	26.12 (8.69)	24.56 (12.01)
Political orientation mean (lower score = more right wing)	5.26 (1.41)	5.28 (1.52)

Paranoia manipulation. To assess the validity of the scrambled-sentences task to elicit sub-clinical levels of paranoid ideation a manipulation check was carried out on the paranoia checklist scores between the two conditions. Using a *t*-test, it was shown that there was no significant difference between the paranoia scores of those who received the manipulation ($M = 26.35$, $SD = 8.90$) compared to the control condition ($M = 26.45$, $SD = 8.37$) ($t(99) = .057$, $p = .95$).

Correlations. Treating the data set as a whole, a series of correlations was calculated to determine possible relationships between conspiracy belief, paranoia, self-

esteem, submissive behaviour, and political orientation. These correlations are reported in Table 3.2 below.

Conspiracy belief was significantly correlated with both paranoia frequency ($r = .31, p = <.001$) and conviction ($r = .31, p = <.001$), where conspiracy belief increased when participants reported higher levels of paranoia thought frequency, and the conviction of those thoughts. Self-esteem was significantly negatively correlated with all three paranoia measures whereby participants recording lower scores of self-esteem also reported higher paranoia scores for frequency ($r = -.64 p = <.001$), conviction ($r = -.59, p = <.001$) and distress ($r = -.61 p = <.001$). Social submissiveness also showed significant correlations with paranoia, where higher social submissiveness scores were associated with higher scores for paranoia frequency ($r = .50 p = <.001$), paranoia conviction, ($r = .47 p = <.001$) and distress, ($r = .58 p = <.001$). Social submissiveness also significantly negatively correlated with self-esteem, whereby higher levels of social submissiveness were related to lower scores for self-esteem ($r = -.56 p = <.001$).

Table 3.2. Correlation matrix for scales used in Study 3.

Scales	1.	2.	3.	4.	5.	6.	7.
1. GCB	–						
2. Paranoia - Frequency	.31*	–					
3. Paranoia - Conviction	.39*	.86*	–				
4. Paranoia - Distress	.19	.76*	.82*	–			
5. Self-esteem	-.17	-.64*	-.59*	-.61*	–		
6. Social submissiveness	-.03	.50*	.47*	.58*	-.56*	–	
7. Political orientation	-.17	.00	-.02	.04	-.05	-.03	–

* $p < .001$, two-tailed. $n = 101$.

Predicting conspiracy belief. To determine the predictive power of paranoia, self-esteem, social submissiveness, and political orientation on conspiracy belief, a linear regression model was run on the combined data.

Paranoia frequency, conviction and distress significantly predicted conspiracy belief ($b = 1.28, t(97) = 4.72, p < .001$). Paranoid ideation explained a significant

proportion of variance in conspiracy belief ($R^2 = .2$, $F(3,97) = 7.81$, $p < .001$). However, adding social submissiveness, self-esteem and political orientation as additional variables in the regression model did not significantly improve the model's ability to predict conspiracy belief ($\Delta R^2 = .052$, $F(3,94) = 2.18$, $p = .096$)

Discussion

The data could not demonstrate a causal link between paranoia and conspiracy theory belief as the scrambled sentences task was not effective in increasing participants' level of paranoia, as measured on the Paranoia Checklist. Although the scrambled sentences task has demonstrable efficacy for eliciting a variety of emotions and motivations (including: cooperation (Bargh, Gollwitzer, Lee-Chai, Barndollar, & Trötschel, 2001); motivation (Levesque & Pelletier, 2003); spirituality (Shariff & Norenzayan, 2007); and aggression (DeWall & Bushman, 2009)), its use to increase paranoia has not been tested before in the literature.

The sentences used in the current study were aimed at increasing feelings of threat and anxiety, which in turn, it was hypothesised, would result in an increase in paranoia, but this was not seen. It has also been argued that these types of task tend to be the most effective when applied to conscious strategies rather than unconscious ones, given that the key words used in the task are presented visibly (Ferguson, 2008).

Another possibility for the manipulation failure is that the measure used for paranoia did not properly take into account short-term changes. The Paranoia Checklist is a measure of trait paranoia, asking participants about general thoughts and feelings in their everyday experiences, rather than a more immediate measure of paranoid feelings at that point. A state measure of paranoia, that measured task-related feelings of being observed, hostility, suspicions, and bad intentions, would perhaps better measure the short-term effect of any manipulation.

Despite the methodological issues with attempting to demonstrate a causal link between paranoia and conspiracy belief, they do still appear to be related. The merged data showed a small but significant correlation between conspiracy belief and paranoia, which supports the relationship seen in previous work (Abalakina-Paap et al., 1999; Darwin et al., 2011). Given the low levels of paranoia seen in the data, it could be argued that these behaviours remain sub-clinical and conspiracy theory belief could be

one way in which sub-clinical paranoid ideation manifests. The strongest correlation was seen between conspiracy belief and paranoia conviction.

Despite the relationship between conspiracy theory and paranoia, there was no significant association between conspiracy belief and submissive behaviours. The significant relationship between paranoia and submissive behaviours has been demonstrated in previous work (Allan & Gilbert, 1997) and again in our current data. People who feel they have a low social rank tend to be more susceptible to developing paranoid thoughts and attributions of negative intent, but this relationship does not seem to carry across to conspiracy belief. This provides further support for the argument that conspiracy theories are not sub-clinical forms of paranoid or persecutory delusions and, although sharing some processes of suspicion and agency misattribution, appear to be a distinct phenomenon.

Despite the negative correlation between self-esteem and paranoia, the role of self-esteem and conspiracy belief remains unclear. In this study, the correlation between self-esteem and conspiracy belief was not significant, showing only a small negative relationship. Although previous results have demonstrated larger negative correlations, there are possible temporal factors that are not adequately accounted for in experiments of this design. According to the psychosis research, the adoption of a delusion tends to result in a short-term boost in self-esteem (Lincoln et al., 2014), with people relieved in the knowledge that they are not “going mad” (Maher, 1988) but instead have an explanation for their unusual experiences. It could also be suggested that belief in conspiracy theories may also have that effect, especially when you consider the rhetoric of conspiracy that promotes the ideals of free, independent thought, above those of the masses that are derisively attacked for not challenging the status quo. A longitudinal experimental design at various stages of conspiracy theory exposure may help unpick some of the mixed self-esteem results currently seen in the research.

A refinement to the way conspiracy theory belief is measured more generally may also be useful to help explore the subsequent effects belief may have on other related self-concepts. The GCB (and other existing measures of conspiracy belief) may not effectively discriminate between people who are interested in conspiracy theories for entertainment, compared to those who demonstrate a more conspiratorial world-view. Taking guidance from existing measures of paranoia and delusions, it might be sensible to include assessments of conviction and distress in a conspiracy scale, to further break down the exact nature of these beliefs.

Overall, these results further validate similar results between paranoia and conspiracy belief seen in previous research (Brotherton & Eser, 2015; Cichocka, Marchlewska, & Golec de Zavala, 2015; Grzesiak-Feldman & Ejsmont, 2008; Holm, 2009), but also present a challenging picture of conspiracy belief – one that regularly shows relationships with paranoia, but also remaining distinct from other forms of more serious clinical delusions. This is perhaps justified, given the widespread belief in conspiracy theories, but is it possible to predict which people, if any, will progress from conspiracy belief into more serious forms of delusion, where such behaviours would become clinical and have a more serious impact on their wellbeing? To date, no work has been completed to assess the impact of belief in conspiracy theories on patients with clinical delusions or paranoia, so it is unclear whether this pathway is even likely or possible.

In conclusion, these data demonstrate that paranoia is related to conspiracy belief, and appears unrelated to social submissiveness or political orientation. The mechanisms underlying these correlations, particularly for self-esteem, however, remain unclear and further work is needed to break down the underlying traits seen in these factors that predict conspiracy belief.

The GCB has not yet demonstrated longitudinal reliability, so work to provide a clearer picture of how these beliefs develop over time would be sensible. With the methodological issues of manipulating paranoia addressed, we may also see that by creating a valid measure of state paranoia, alongside a robust manipulation, the role of paranoia may become clearer as attempts are made to explore a causal mechanism.

Study 4: The effect of a 2-way mirror manipulation of paranoia on conspiracy theory belief

Introduction

The previous study was unsuccessful in manipulating feelings of paranoia, but found a correlation between conspiracy belief and paranoia, supporting earlier work in this area. Study 4 aims to improve on the previous experiment in several ways; firstly, by considering a paranoia manipulation that has shown prior success in the literature; and, secondly, using a state paranoia measure rather than a trait measure so the manipulation's effect can be measured more appropriately.

Evidence of successful attempts at manipulating paranoia are limited in the current literature, and have mostly explored the relationship between paranoia and self-

consciousness as a possible avenue of success. As the literature focus on paranoia expanded into the continuum hypothesis, attempts were made to measure and manipulate paranoid thought in non-clinical samples.

Early work by Fenigstein (1984) suggested that self-consciousness had a close relationship with paranoid inferences, showing that participants who scored high on measures of public self-consciousness (a measure of a person's awareness of their outward self as viewed by others) were more likely to infer the incidental behaviour of others as intentional. The author argued that these results supported the possibility of a "self-as-target bias", which was earlier argued as one of the key components of paranoid thought by Greenwald (1980).

In Greenwald's 1980 paper, he argued that an over-perception of the self as a target shifted focus onto other people who would instead be responsible for any unfortunate or undesired outcomes the individual experiences. He argued this was closely related to an illusion of control whereby individuals feel that they could influence the outcomes of random events, suggesting the reliance on egocentric processes could manifest in ways to explain unexpected outcomes as the unwelcome influence of others.

To investigate this "self-as-target" bias further, and to try and better understand its relationship to paranoid ideation in a non-clinical setting, Fenigstein and Vanable (1992) developed a series of experiments to both measure paranoia and to assess the effect self-consciousness may have on eliciting feelings of paranoia. The authors argued that self-consciousness acts as a primer so the self becomes more involved as a target when individuals assess the intentions and behaviour of others. Through that, it is likely that more paranoid schemas of self-reference are activated and lead to more biased perceptions of the self as a target. To test this, the authors developed a behavioural manipulation to enhance feelings of "being watched", using a two-way mirror, and measures of both public self-consciousness and paranoia. Although no reference was made to the presence of a two-way mirror, the authors hypothesised that the mere possibility of someone being on the other side would generate an increase in self-consciousness. The experiment found that those who scored highly in public self-consciousness reported a greater feeling of being watched in the presence of the two-way mirror, compared to a control condition with the mirror absent. Participants who scored high in pre-tested paranoia expressed feeling watched regardless of whether the

mirror was present or not, and the authors argued that although the two concepts were related, paranoia and self-consciousness can still operate independently.

For the current study, the risk of participants determining that a paranoia manipulation was being attempted was possible, so no pre-testing of paranoia was conducted. Participants were randomly assigned to the two experimental conditions and paranoia was measured only after the induction was completed. This procedure should have made the participants less aware of the manipulation's intentions but understandably limits the conclusions that can be drawn on the effectiveness of the manipulation.

As per the previous study, it was predicted that a small increase in feelings of paranoia through a self-consciousness manipulation would result in an increase in conspiracy belief. This effect might be moderated by self-esteem, which was also measured and included as a moderator in the analysis. Previous work has shown a possible confounding effect of self-esteem on manipulations of paranoia, as people with low self-esteem are more prone to paranoid thoughts (Lincoln et al., 2014). Social submissiveness again was measured to determine its possible relationships with self-esteem, paranoia and conspiracy belief.

Method

Participants and design. 48 1st year psychology students (10 males, 38 females; mean age = 21.2, SD = 4.13, range = 18-37) were recruited from the department's research participation scheme, and completed the experiment in exchange for course credit. This was the largest available sample due to the limited numbers of students who volunteered for the study.

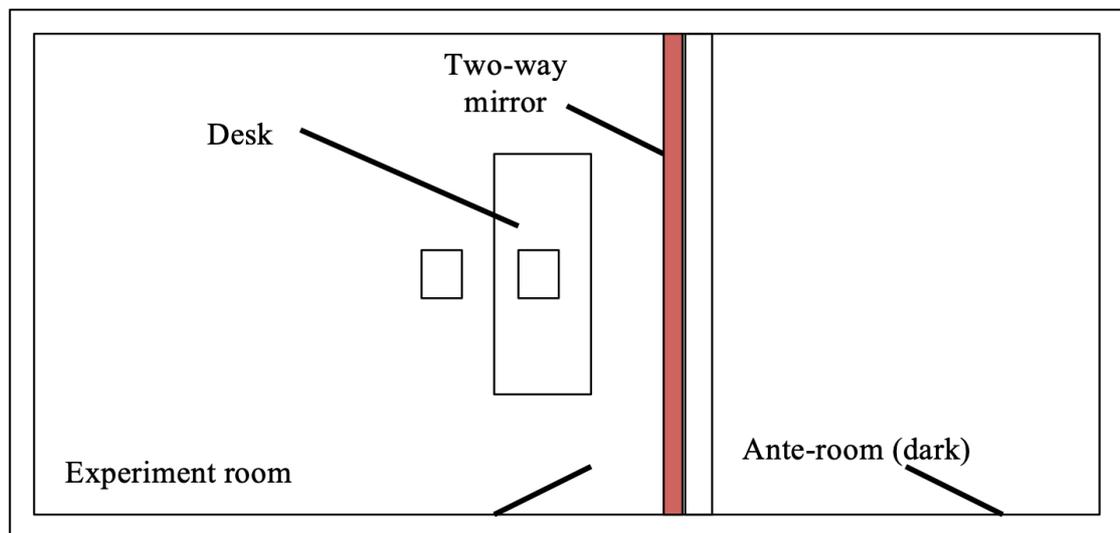
Procedure. Participants were randomly assigned to either a manipulation or control condition. In the manipulation condition, participants completed the questionnaires in a room containing a two-way mirror, which measured approximately 2 metres x 3 metres and took up the entire width of the wall. Participants completed the survey on a computer at a desk, with the mirror directly behind the machine. Participants could see their head and upper body reflected in the mirror while they completed the experiment. The anteroom on the other side was dark and locked, so the mirror appeared normally to any participants in the experiment room (see Figure 3.1).

Participants in the control condition completed the same questionnaires (detailed below), in the same experimental room, but with the mirror covered completely by a

blind. No part of the mirror was visible to the participants and they were not made aware that the room was in any way unusual.

Once situated in the room, all participants were then measured on their belief in conspiracy, self-esteem, paranoia, and submissive behaviour. The conspiracy belief measurement was given first to maximise the effect of the presence or absence of the mirror. The remaining scales were randomised to prevent order or fatigue effects. Finally, a manipulation check followed alongside a collection of key demographics including age, gender, ethnicity and political orientation.

Figure 3.1. Illustration of experimental room layout.



Full ethical approval from the Goldsmiths Department of Psychology Ethics Committee was received before data collection began. Participants were briefed before the experiment began that their anonymity would remain and that they could withdraw at any time without penalty. Participants confirmed their consent to participate by means of a check box and were debriefed fully regarding the manipulation. The details of the experimenters as well as places to obtain support or ask further questions were also given. This was particularly important given the nature of the manipulation.

Materials.

Generic Conspiracy Belief Scale (GCB) (Brotherton et al., 2013). Conspiracy belief was measured as in previous experiments, using the GCB. Conspiracy belief is measured on this 15-item scale, with answers given on a five-point scale from

“definitely not true (1)” to “definitely true (5)”. A mean score is calculated for analysis, with internal consistency of $\alpha = .91$.

Paranoia Checklist - Modified (Freeman et al., 2005; Lincoln, Lange, Burau, Exner, & Moritz, 2010a). A modified version of the 18-item Paranoia Checklist was used to measure the change in paranoia between conditions. The original scale was specifically designed to capture a wide range of paranoid thoughts from a non-clinical population. The 18-item scale built on work by Fenigstein and Venable (1992) to explore the frequency, distress and conviction of paranoid ideation. Exploratory work by Lincoln et al. (2010) successfully modified the scale so it would be more successful in assessing state paranoia. Rather than asking about experiences in everyday life, the modified version asks participants to rate their responses based on how they feel “at the moment”.

Items such as “At the moment, I believe I need to be on my guard against others” were responded to on a 5-point scale with respect to the extent to which participants agreed with them (ranging from not at all (1), to very strongly (5)), conviction (ranging from do not believe it (1), to absolutely believe it (5)), and distress (ranging from not distressing (1), to very distressing (5)). Items were randomised to avoid order and fatigue effects, and a total score for presence, conviction, and distress can be further totalled to give an overall paranoia score. The modified Checklist for this study showed internal consistency of $\alpha = .96$.

Rosenberg Self-Esteem Scale (RSES) (Rosenberg, 1965). Self-esteem was measured using the Rosenberg ten-item scale. It assesses current levels of self-esteem on a 4-point answer scale (strongly agree to strongly disagree) using such items as “On the whole, I am satisfied with myself” and “I wish I could have more respect for myself”.

A total score is calculated, where a score below 15 suggests low self-esteem, an average score being between 15 and 25. For this study, the scale showed internal consistency of $\alpha = .85$.

The Submissive Behaviour Scale (Allan & Gilbert, 1997). The Submissive Behaviour Scale is a 16-item scale that measures levels of social submissiveness. Participants rated the frequency of submissive behaviours, using items that include “I agree that I am wrong even though I know I’m not”) on a 5-point scale (from 0 = Never to 4 = Always). A total score is used and in this study showed internal consistency of $\alpha = .65$.

Manipulation check. A simple manipulation check was created that asked participants how much they felt certain emotions during the experiment on a 10-point scale ranging from (1-Not at all to 10-extremely). Participants were asked if they felt frustrated, angry, self-conscious, sad, happy, excited, calm, suspicious, and if they felt they were being watched. The experiment, however, is mainly concerned with how suspicious and self-conscious they felt, and if they felt like they were being watched, to test that the manipulation was successful.

Demographics. Gender, age, ethnicity and political orientation were all captured. Political orientation was measured on a 7-point scale from extremely liberal (1) to extremely conservative (7). The political orientation scale also included a “don’t know” option as the previous experiment had shown that not all participants are familiar with the “left vs. right” model of political belief.

Results

Overall relationships. 24 participants were randomly assigned to the mirror manipulation condition, with the other 24 participants assigned to the control condition. Table 3.3 below shows the means and standard deviations of the key scales.

Table 3.3. Mean/total ratings for scales used in Study 4 (standard deviations in parentheses).

Scales	Control condition	Manipulation condition
Generic Conspiracy Belief Scale <i>mean</i> (<i>higher score = greater belief</i>)	2.95 (0.87)	2.94 (0.66)
Paranoia Checklist – Frequency <i>total score</i> (<i>max = 90</i>) (<i>higher score = greater frequency of paranoid thoughts</i>)	25.50 (9.53)	28.63 (10.59)
Paranoia Checklist – Conviction <i>total score</i> (<i>max = 90</i>) (<i>higher score = greater conviction in paranoid thoughts</i>)	32.00 (10.31)	31.79 (11.79)
Paranoia Checklist – Distress <i>total score</i> (<i>max = 90</i>) (<i>higher score = greater distress from paranoid thoughts</i>)	28.92 (10.58)	30.71 (11.63)
Paranoia Checklist – Total (<i>max = 270</i>) (<i>higher score = greater paranoia</i>)	86.42 (23.78)	91.13 (30.83)
Rosenberg Self Esteem Scale <i>total score</i> (<i>max = 40</i>) (<i>higher score = higher self-esteem</i>)	21.63 (6.57)	25.63 (7.01)
Submissive Behaviour Scale <i>total score</i> (<i>max = 64</i>) (<i>higher score = more socially submissive</i>)	32.75 (10.96)	31.33 (8.26)

Table 3.3 continued. Mean/total ratings for scales used in Study 4 (standard deviations in parentheses).

Scales	Control condition	Manipulation condition
Political orientation mean (exc. "don't know") (lower score = more right wing)	3.24 (1.44)	3.31 (1.49)
Frustrated mean (higher score = more frustrated)	2.42 (1.74)	2.92 (2.13)
Angry mean (higher score = more angry)	2.25 (1.57)	2.50 (1.96)
Self-conscious mean (higher score = more self-consciousness)	3.17 (2.50)	4.21 (2.60)
Sad mean (higher score = more sad)	2.13 (1.42)	2.63 (1.86)
Happy mean (higher score = more happy)	5.25 (2.11)	5.63 (2.46)
Excited mean (higher score = more excited)	2.75 (1.75)	3.46 (1.88)
Calm mean (higher score = more calm)	6.96 (2.37)	7.29 (2.01)
Suspicious mean (higher score = more suspicious)	2.50 (2.17)	3.71 (2.74)
Feeling of being watched mean (higher score = more feelings of being watched)	2.13 (1.57)	3.33 (2.93)

Between group analysis: Paranoia/mirror manipulation check. To assess if the mirror manipulation was successful in increasing feelings of self-consciousness, suspicion, and ultimately an increase in paranoia, a manipulation check was carried out between the two conditions. A series of *t*-tests revealed that there was no significant difference between the two groups and their feelings of self-consciousness, ($t(46) = 1.41, p = .164$), total paranoia, ($t(46) = .592, p = .556$), suspicion ($t(46) = 1.70, p = .097$), or feeling watched, ($t(46) = 1.77, p = .084$). From this analysis, it was concluded that the mirror manipulation failed to have an effect on participants' feelings of self-consciousness, paranoia, suspicion or feelings of being watched.

The only significant difference between the two groups was self-esteem, which was higher in the mirror condition, compared to the control ($t(46) = 2.04, p = .047$). It is important to note that this difference with a *p* value of .047 is only borderline significant.

Validation of the link between paranoia and self-consciousness. Work by Medlin and Warman (2014), who attempted a similar self-consciousness manipulation as a proxy for paranoia, showed evidence of construct validity on the modified Paranoia Checklist, with the mirror condition showing a correlation between paranoia and self-consciousness of $r = .27, p < .05$. This study found similar results. There was a significant positive correlation between self-consciousness ($r = .36, p = .015$) and the total score on the modified Paranoia Checklist.

The relationships between paranoia, self-esteem, submissive behaviour, political orientation and generic conspiracy belief. In order to investigate possible relationships between the different variables, two-tailed partial correlations were conducted between paranoia, self-esteem, submissive behaviour, political orientation, and generic conspiracy belief with the experimental condition variable being controlled. These correlations are reported in Table 3.4 below. Due to a large number ($n = 15$) of participants answering “don’t know” to the political orientation question, this variable was recalculated to replace any “don’t know” answers with zeroes.

Self-esteem was significantly negatively correlated with feelings of paranoia during the experiment ($r = -.36, p = .042$), demonstrating that as self-esteem increased, feelings of paranoia decreased after the experimental condition was controlled for. The p value of this correlation, however, was only just significant. Given that this result has not been corrected for multiple testing, this result should be treated with caution.

No significant relationship was found between self-esteem and the conviction or distress paranoia scores, or for the total paranoia scores. The modified Paranoia Checklist sub-categories were highly correlated with each other, suggesting good internal consistency for this scale overall.

No other significant correlations were found between the variables.

Table 3.4. *Partial correlation matrix for scales used in Study 4.*

Scales	1.	2.	3.	4.	5.	6.	7.	8.
1. GGB	–							
2. Paranoia-Presence	.09	–						
3. Paranoia-Conviction	.16	.69**	–					
4. Paranoia-Distress	.00	.55**	.51**	–				
5. Paranoia-Total	.10	.88**	.86**	.81**	–			
6. Self-esteem	-.15	-.36*	-.08	-.27	-.28	–		
7. SBS	.23	-.22	-.08	.06	-.08	-.03	–	
8. Political orientation	.17	-.04	.09	-.15	-.04	-.01	-.04	–

* $p < .05$, ** $p < .001$ two-tailed. $n = 48$.

Gender effects on paranoia, self-esteem, submissive behaviour and generic conspiracy belief. To explore possible gender effects on the key scales used, a series of *t*-tests were conducted, which revealed there was no significant difference between males and females on their belief in conspiracy ($t(46) = .58$, $p = .564$) or submissive behaviour ($t(46) = .60$, $p = .550$). However, there was a significant difference between the paranoia scores of females ($M = 84.63$, $SD = 26.56$) and males ($M = 104.50$, $SD = 25.62$) ($t(46) = 2.12$, $p = .040$) as well as a significant difference between the self-esteem scores of females ($M = 24.87$, $SD = 7.16$) and males ($M = 18.90$, $SD = 3.90$) ($t(46) = 2.53$, $p = .015$). No other gender effects were identified.

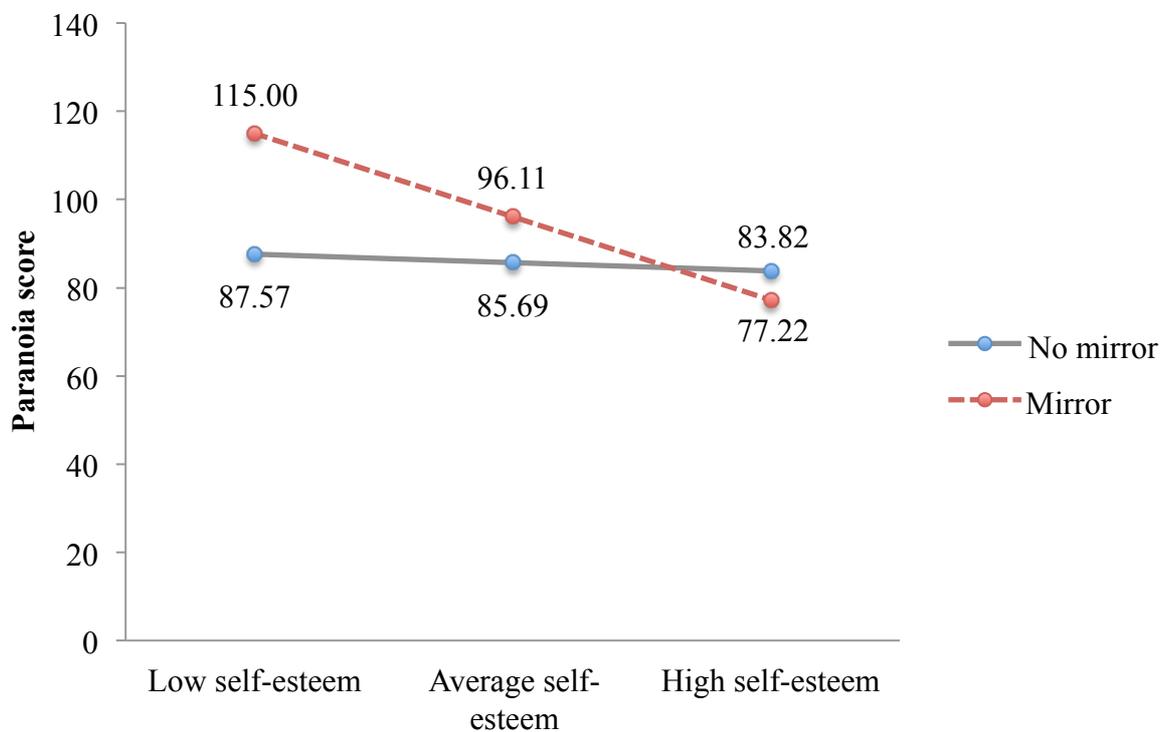
Possible moderation effect of self-esteem on the mirror manipulation's effects on paranoia. After testing the stated hypotheses for this study, further exploratory work was undertaken to determine whether self-esteem had a possible moderating effect on the manipulation's effect on total paranoia scores. It is important to note that these results should be treated with caution, given the nature of the sample size as well as that this analysis was not intended to be part of the main study's aims.

A hierarchical multiple regression was conducted. In the first step, two variables were included: a dichotomous dummy variable for condition and self-esteem. These

variables accounted for a significant amount of variance in predicting total paranoia scores ($R^2 = .198$, $F(2,45) = 5.55$, $p = .007$). To avoid possible multicollinearity with the interaction term, the variables were centred and an interaction term between condition and self-esteem was created (Aiken & West, 1991).

Next, the interaction term between condition and self-esteem was added to the regression model, which accounted for a greater proportion of variance in predicting total paranoia scores, $\Delta R^2 = .115$, $\Delta F(1,44) = 7.34$, $p = .01$, $b = -2.76$, $t(44) = -2.71$, $p = .01$. The analysis revealed a buffering effect whereby a participant with higher self-esteem would show lower paranoia scores in the mirror condition, compared to a participant with low self-esteem. To present the moderation effect visually in Figure 3.2 below, the regression equation was used to calculate predicted paranoia scores when self-esteem scores are the mean, or 1 SD above or below the mean.

Figure 3.2. Interaction of self-esteem and mirror condition on paranoia scores. Self-esteem split using 1 S.D. above or below the mean.



Discussion

The manipulation of paranoia through a self-consciousness proxy was not fully successful for this experiment. The effect of a two-way mirror on self-consciousness seen in the original Fenigstein and Venable (1992) study was not replicated, despite using similar methodology and sample size. Despite this, the results did appear to show a small but significant positive correlation between feelings of self-consciousness and paranoia, adding to the evidence suggesting these two concepts are related. The use of a two-way mirror to heighten self-consciousness and paranoia has not attracted many replications beyond the original Fenigstein and Venable (1992) study, apart from a small follow-up study exploring the manipulation with a clinical sample by Smári, Stefánsson, and Thorgilsson (1994). A more recent replication by Medlin and Warman (2014), published after this study was completed, also failed to induce a change in paranoia scores using a two-way mirror manipulation. The low power from the small sample size in the original Fenigstein and Venable (1992) study means that there is a potential that the authors found an unrepresentatively large effect size aided by the risk of publication bias that overstates significant results.

The results, however, did show a moderating effect of self-esteem on the manipulation's ability to influence paranoia scores, where participants with low self-esteem showed higher levels of paranoia in the presence of a mirror than participants with high self-esteem. This adds to a growing (but still debated) body of evidence that suggests self-esteem is involved in the formation and maintenance of paranoia. As explored in the introduction to this chapter, there are two competing arguments in the literature regarding the relationship between self-esteem and paranoia; the "defence" hypothesis (Bentall et al., 1994), where paranoid explanations arise to defend against experiences that may cause low self-esteem, and the "emotion-consistent" hypothesis (Freeman, Garety, & Kuipers, 2001), whereby cognitive components of negative emotional states instead explain the relationship between self-esteem and paranoia.

The defence hypothesis would therefore suggest that those who score higher in paranoia measures would also score higher in self-esteem measures, given that paranoid self-references would be generated to protect the individual from a self-esteem threat. These results found a significant negative correlation between self-esteem and the presence of paranoid thoughts, which would not support the defence hypothesis. However, the moderation analysis is unable to contribute evidence to either hypothesis, because the self-esteem measures were collected after the mirror manipulation. Without

a successful pre and post measure, causality cannot be inferred; the mirror could be causing low self-esteem that raises paranoia, or it could be raising paranoia, which causes a decrease in self-esteem.

Given the prior success of the original Fenigstein and Venable (1992) study demonstrating the mirror's success in raising self-consciousness, and its relationship with paranoia, it was not felt necessary to pre-measure participants before commencing the experiment, especially given that the Paranoia Checklist would risk revealing the intention of the manipulation. It could be argued that the use of random assignment to the experimental conditions would minimise the risk of pre-manipulation differences between the two groups, but without an adequate pre and post measurement, we cannot entirely rule out the manipulation's failure at changing levels of self-consciousness or paranoia. A small sample size may have also contributed to this risk. The original Fenigstein and Venable (1992) study had pre-measured dispositions on feelings of being watched in the presence and absence of the mirror *within* participants, boosting statistical power and providing the maximum opportunity for an effect to present itself. It also was possible, therefore, to control for the variation of people who had high or low public self-consciousness, whose effects from the mirror would differ. Publicly self-conscious people are predisposed to feel a heightened sense of being watched, which the presence of a mirror inflates further. Without any pre-measurement or pre-selection of participants before this manipulation, it was not possible to measure this directly for this experiment. This means that this current study had low power and should be considered a limitation.

Turning to the correlational analysis, the experiment did not show a positive correlation between conspiracy belief and paranoia, unlike the previous experiment (Study 3), which found a small ($r = .31$) correlation. This also does not match other work in the field, which has reported moderate positive correlations ($r = .3$ to $r = .5$) between conspiracy belief and paranoia (Brotherton & Eser, 2015; Bruder et al., 2013; Darwin et al., 2011; Grzesiak-Feldman & Ejsmont, 2008). It also did not find a significant correlation between social submissiveness, self-esteem or political orientation and conspiracy theories, suggesting these concepts are unrelated. In this study, social submissiveness did not show significant correlations with paranoia or self-esteem, again contradicting results seen in the previous experiment (Study 3), which saw significant positive correlations between social submissiveness and paranoia, and significant negative correlations with self-esteem.

Again, it is hard to fully explain these results without committing to a pre-measurement phase, which might adequately control for the effects of pre-existing self-esteem and self-consciousness. It may be possible to pre-select participants based on their susceptibility to the paranoia manipulation (those with lower self-esteem and higher public self-consciousness) to maximise the possibility of an effect.

Overall, there are still some promising patterns in these data. Self-consciousness and suspiciousness were successfully correlated with paranoia, validating overall the approach used. Paranoia also correlated with self-esteem, whereby lower self-esteem predicts higher paranoia. Both of these results match previous research in the area. The relationships between these concepts and conspiracy theories, however, remain unclear.

Study 5: The effect of a simulated CCTV manipulation of paranoia on conspiracy theory belief

Introduction

The previous study did not successfully manipulate feelings of self-consciousness or paranoia using the two-way mirror manipulation, and provided mixed correlational results with conspiracy theories, paranoia, self-esteem, and social submissiveness. While the two-way mirror manipulation may activate feelings of being watched in already self-conscious participants, it may not necessarily serve as a successful manipulation of paranoid thoughts for those who report low self-esteem, self-consciousness or trait paranoia.

Building on Fenigstein and Venable's (1992) findings, Bodner and Mikulincer (1998) developed a series of experiments to systematically manipulate self-awareness with a new dimension – that of helplessness. The authors hypothesised that in conditions where people attribute a personal failure to internal causes, they would exhibit depressive responses, including a reduction in self-esteem. However, if attention were focused on an external stimulus, people would be more likely to attribute their failure to that external cause, with a possible result of paranoid-like responses.

To build on this hypothesis, Bodner and Mikulincer (1998) created a unique paradigm where attentional focus was manipulated either on the self, or to an external threat, together with a helplessness induction. They argued that tasks that participants would fail, *together with an attentional focus on an external source*, would be successful in heightening paranoid-like responses to contextualise that failure to protect self-esteem. Using this hypothesis, participants completed an impossible computer task

that reminded participants of their failure, under conditions of high or low self-awareness. Self-awareness was manipulated with the presence (high self-awareness) or absence (low self-awareness) of a video camera and monitor showing the participant as they completed the experiment. The results showed that this particular paradigm was successful in triggering state paranoia in a student sample, by manipulating personal failure and directing attention to an external cause. More recently, work by Ellett and Chadwick (2007) further investigated this relationship, by attempting to manipulate high or low self-awareness using a within-participants design. They found that high self-awareness triggers paranoia even with no explicit failure task, matching the work by Fenigstein and Venable (1992), but they also found that paranoia scores did not reduce when participants moved from a high to low self-awareness condition, suggesting paranoia is more easily activated than deactivated.

For the current study, the experimental methods used by Bodner and Mikulincer (1998) and Ellett and Chadwick (2007) were adapted to create two between-participants conditions in an attempt to maximise the chances of finding an effect with a limited sample size. The first condition merged a high self-awareness environment (the presence of a CCTV camera with live feedback visible to the participant) with an “impossible” task aimed to manipulate feelings of personal failure. The second condition merged a low self-awareness environment (with no CCTV camera) with a neutral task designed to act as a contrast to the personal failure task in the other condition. The hypothesis was that the high self-awareness and impossible task condition would show higher paranoia scores compared to the low self-awareness and neutral task condition. In an effort to replicate the previous manipulation successes, paranoia was measured using the same state (Paranoia and Depression Scale; Bodner & Mikulincer, 1998) and trait (Paranoia Scale; Fenigstein & Venable, 1992) scales as used in the original studies.

If the manipulation was successful, it was further hypothesised that those in the high self-awareness and impossible task condition would also show higher scores in conspiracy belief, compared to the low self-awareness and neutral task condition.

Method

Participants and design. 28 1st year psychology students (2 males, 26 females; mean age = 20.3, SD = 3.56, range = 18-31) were recruited from the department’s research participation scheme, and completed the experiment in exchange for course

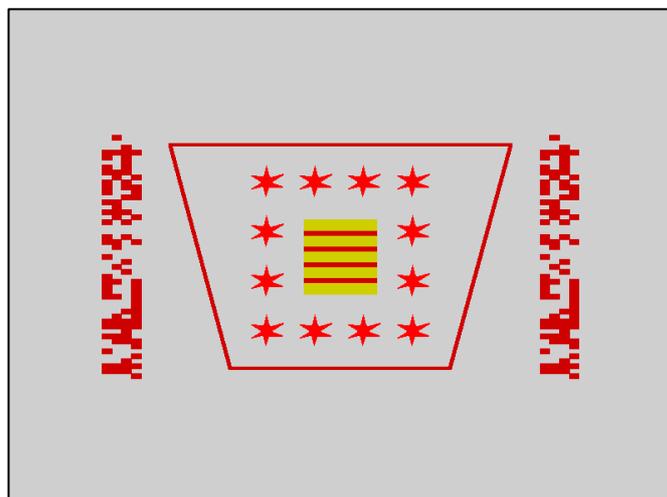
credit. Full ethical approval from the department's Ethics Committee was received before data collection began. As in Study 4, the sample size was limited to the number of students who volunteered for the study.

Procedure. Participants were randomly assigned to either a manipulation (camera) or control (no camera) condition. In the manipulation condition, participants completed the questionnaires in a room containing a PC, a webcam, and two monitors side-by-side. The left-hand screen showed a live feed from the webcam, showing the participant as they sat in front of the PC. The right-hand screen was used by the participant to complete a concept-identification task, originally devised by Hiroto and Seligman (1975) and further revised by Ellet and Chadwick (2007).

Participants were instructed that they would be solving one practice and one live concept-identification problem (see Figure 3.3 below for an example), and then would be answering a series of questions. Each learning problem contained 10 trials, whereby each trial presented two different geometric figures presented side-by-side. These figures consisted of five dimensions with two opposing values:

1. Flankers (fine or coarse)
2. Trapezium (upright or inverted)
3. Field shape (stars or flowers)
4. Coloured square (yellow or blue)
5. Stripe orientation (horizontal or vertical)

Figure 3.3. Example concept with coarse flankers, inverted trapezium, star-shaped field, yellow square, and horizontal stripes.



Participants were instructed that the computer would randomly choose one of the 10 possible dimensions as the “correct dimension”, and that the task was to guess which dimension the computer had picked. For each of the 10 trials per problem, the participants had to indicate which of the two images presented included the “correct dimension”. At the end of each trial, participants were asked which dimension they thought was the “correct” one.

Participants in the manipulation (camera) condition, received feedback that was randomly generated, with 5 random correct responses and 5 random incorrect responses. Additionally, at the end of each trial, regardless of which dimension the participant picked as the “correct” one, they were told “That is the wrong answer”. Participants in the no camera (control) condition, received no feedback on the task, and were instead told that the object of the task was to gain a “baseline of guesses” and they should randomly guess which dimension had been picked.

After the concept-identification task was completed, participants then completed measures (in the following order) of state paranoia, trait paranoia, and generic conspiracy belief.

Materials.

Paranoia and Depression Scale (PDS) (Bodner & Mikulincer, 1998). Originally created to measure depressive and paranoid-like responses during experiments, this scale attempts to measure state paranoia for use in experimental manipulations. Only the paranoia items (7 in total) were used, which asked participants to consider their feelings during the experiment, and included questions such as “I feel that my behaviour is being analysed” on a 1 (not at all) to 6 (very often) scale. The current study showed acceptable internal consistency ($\alpha = .76$).

Paranoia Scale (PS) (Fenigstein & Vanable, 1992). This scale was designed to measure paranoia in a non-clinical population, with 20 items designed to exclude the more obscure or psychotic symptoms of paranoia from the existing clinical measurements. Participants rated questions that included “Someone has it in for me” on a 1 (not at all applicable) to 5 (extremely applicable) scale. The current study showed excellent internal consistency ($\alpha = .91$).

Generic Conspiracy Belief Scale (GCB) (Brotherton et al., 2013). Conspiracy belief was measured as in previous experiments, using the GCB. Conspiracy belief is measured on this 15-item scale, with answers given on a five-point scale from

“definitely not true (1)” to “definitely true (5)”. A mean score is calculated for analysis, which the current study showed excellent internal consistency ($\alpha = .90$).

Demographics. Gender, age, ethnicity and political orientation were all captured. Political orientation was measured on a 7-point scale from extremely liberal (1) to extremely conservative (7), with an additional “don’t know” option.

Results

Overall relationships. 14 participants were randomly assigned to the mirror manipulation condition, with the other 14 participants assigned to the control condition. Table 3.5 below shows the means and standard deviations of the key scales.

Table 3.5. Means for scales used in Study 5 (standard deviations in parentheses).

Scales	Control condition	Manipulation (camera) condition
Generic Conspiracy Belief Scale (higher score = greater belief)	3.21 (0.85)	2.81 (0.65)
Paranoia and Depression Scale – State paranoia items (higher score = higher state paranoia)	22.93 (5.92)	21.64 (5.61)
Paranoia Scale – Trait paranoia (higher score = higher trait paranoia)	51.43 (16.07)	46.21 (14.90)

Between group analysis: Paranoia manipulation check. To assess whether the presence of a camera and randomised task feedback was successful in increasing feelings of paranoia, a manipulation check was carried out between the two conditions. An independent samples *t*-test demonstrated that there was no significant difference between the two groups with respect to state paranoia, ($t(26) = .59, p = .56$) or trait paranoia, ($t(26) = .89, p = .38$). The differences in conspiracy belief scores were also non-significant ($t(26) = 1.40, p = .17$). The analysis shows that the presence of a camera and randomised task feedback was not successful in significantly increasing feelings of trait or state paranoia, demonstrating the manipulation failed.

The relationships between paranoia, conspiracy belief, and political orientation. With the previous analysis demonstrating that no significant differences existed between the two conditions, further analysis was completed treating the sample as a whole.

In order to investigate possible relationships between the different variables, two-tailed Pearson correlations were conducted between state paranoia, trait paranoia, conspiracy belief, age, gender, and political orientation.

State paranoia was significantly positively correlated with trait paranoia ($r = .69, p = < .01$) and conspiracy belief ($r = .49, p = < .01$). Similarly, trait paranoia was also significantly positively correlated with conspiracy belief ($r = .70, p = < .01$). No other significant correlations were found and the full correlation matrix is reported in Table 3.6 below.

Table 3.6. *Correlation matrix for scales used in Study 5.*

Scales	1.	2.	3.	4.
1. Paranoia - state	—			
2. Paranoia - trait	.69**	—		
3. Generic conspiracy belief	.49*	.70**	—	
4. Political orientation	.24	.07	.02	—

* $p < .01$, ** $p < .001$ two-tailed. $n = 28$

Discussion

The manipulation failed to significantly affect paranoia or belief in conspiracy theories for this experiment. It was unable to replicate the findings of Ellett and Chadwick (2007) despite a similar sample size and methodology. When considering the sample as whole, however, a clear correlation was seen between both measures of paranoia and conspiracy belief, which supports the findings from Study 3. Paranoia continues to be associated with belief in conspiracy theories, which suggests that conspiracy theory belief could be a suspicious state similar to paranoia, driven by a fear of external factors and an over-perception of hostile motives (N. Holm, 2009). The correlations in these current data further contribute to the possibility of a relationship between paranoia and conspiracy belief, but without an effective manipulation, directionality cannot be inferred.

The failure of the manipulation to produce significant changes in state or trait paranoia is uncharacteristic. The experimental design was deliberately chosen to provide the most threatening experimental conditions (a failure task coupled with high

self-awareness) to maximise the chances of an effect being seen compared to a neutral control condition. In Experiment 1 of the original Ellett and Chadwick (2007) study, participants in the neutral control condition had a mean score of 34.9 on the Paranoia Scale, and a mean score of 46.1 for the failure and high self-awareness condition. In our experiment, the mean score for participants in the neutral control condition on the Paranoia Scale was 51.4, and the failure and self-awareness condition had a mean score of 46.2. The difference between the control condition in the original study by Ellett and Chadwick (2007) and the results for this experiment is statistically significant ($p = <.001$). When we consider the original Fenigstein and Venable (1992) study that validated the Paranoia Scale as a measurement, the mean score reported was 42.7 (an identical mean was also found by Freeman et al., 2005), suggesting perhaps that Ellett and Chadwick's (2007) study may have benefited from unusually low paranoia scores in their control conditions (34.9). Despite this, the paranoia score for this current experiment was still higher than published means in other studies, regardless of condition.

From this, it appears that our sample may have already been presenting higher than normal paranoia on this scale, meaning further manipulation may not have been particularly effective. It may also be that the nature of the experiment itself induced increases in state paranoia regardless of condition. Similarly, when we assess the other paranoia measure a similar pattern emerges. The Paranoia and Depression Scale mean scores in the Ellett and Chadwick (2007) study for Experiment 1 were between 13.1 and 15.8. Kingston and Ellett (2014) in a follow-up study also found means for control conditions ranging from 13.7 to 15.4. In our experiment, our control condition showed higher means compared to both these studies, with a mean score of 22.9 for the neutral control condition. This mean score is significantly higher ($p = <.01$) than the original Ellett and Chadwick (2007) study, further suggesting our sample had higher than expected paranoia.

In the original Ellett and Chadwick (2007) study, the most threatening experimental conditions that created paranoid cognitions were moderated by the availability of positive or negative self-cognitions. The authors argued this could form part of an individual differences factor related to self-esteem, that means participants less prone to paranoia are more likely to access positive self-cognitions to buffer against the self-as-target bias. This element was not measured or tested in this study, but related work exploring the relationship between self-esteem and paranoia is explored in Study 4

and 6 in this chapter. It is important to explore the possible role self-esteem has in facilitating the manipulation's ability to produce paranoid thoughts, as well as a possible moderation effect it might have on subsequent belief in conspiracy theories. Kingston and Ellett (2014) also found that self-affirmation exercises reduced the effect of a similar paranoia manipulation, but could not ascertain with their experimental design whether this was a buffering or intervention effect.

Our sample was also heavily skewed towards females, with only two males completing our experiment (one in each condition). This was one of the limitations of opportunity sampling based at a British university using 1st year psychology students. Although one of the largest measurements of paranoia in a non-clinical British sample (Freeman et al., 2005) found no difference between males and females on the frequency or conviction of paranoid thoughts, females were found to report significantly more distress associated with paranoid thoughts. The literature, however, does not provide a clear picture of the gender differences with sub-clinical paranoia measurement; similar work to Freeman et al. (2005) conducted using the Psychosis Screening Questionnaire on a non-clinical British population found the male gender was more associated with paranoid thoughts (Johns et al., 2004). In the two studies discussed above whose methodology we attempted to replicate (Ellett & Chadwick, 2007; Fenigstein & Vanable, 1992), neither found any significant difference between males and females on a range of paranoia measures.

To summarise, our sample showed higher than expected scores for paranoia that cannot be satisfactorily explained by gender or experimental methods. It is likely therefore that a sampling bias delivered the higher than expected scores in paranoia. Pre-screening is the natural solution to this particular problem, which was not performed for this current experiment. The decision to exclude pre-measurement for the current experiment was taken as an attempt to prevent measurement reactivity and fatigue effects, especially given that the manipulation paradigm appeared to create effects across a random sample. Pre-screening and pre-measurement of paranoia would allow for a high/low split of participants to maximise the chances of eliciting a change in paranoia, and subsequently understanding its relationship with conspiracy belief. This is also relevant given the reciprocal nature of paranoid thoughts, where we see a combination of cognitive biases and other factors both reinforcing existing paranoid thoughts, and contributing to their maintenance. It would also allow exploration of the manipulation to determine if it would be successful in heightening paranoia in already

paranoid participants. The pre-measurement of paranoia scores, however, would have to be offset against the risk of priming or warning participants to the nature of the experiment, which might be avoided by having a gap between pre-screening and the manipulation experiment.

In terms of alternative experimental methods, there are few documented manipulations of paranoia available in the current literature. One other method has presented moderate success in creating paranoia in a non-clinical sample. Green et al. (2011) showed in an exploratory study that ambiguous experimental events (a confederate calling the experimenter from the room, and shortly after their exit, a tape of recorded male laughter being played outside the room) could create paranoid explanations. 15.5% of their sample gave a paranoid explanation and these participants scored significantly higher on the Paranoia Scale. The authors argued that their results showed that paranoid explanations could be elicited for rather neutral events, but typically only for those already predisposed to higher paranoid tendencies. Papers replicating and validating manipulations of sub-clinical paranoia are lacking in the current literature, which is a troubling observation. Given the nature of work published in the wider field of psychology in the last decade referring to the possibility of a replication crisis (for a review see Shrout & Rodgers, 2018), results like these that proclaim strong effect sizes on a complex and difficult to measure concept perhaps should be treated with more caution. Effect sizes in published studies tend to be overestimates of true effect sizes due to the publication bias inherent with a literature reluctant to publish non-significant results.

For this current work, further work is needed, with a larger, more representative sample that ideally would not be drawn from a student population, coupled with pre- and post-measurement of paranoia scores (with a suitable technique for minimising participants being aware of the study's intentions). This would allow a) a further validation of the original Ellett and Chadwick (2007) manipulation and b) a more successful exploration of the direction of the relationship between paranoia and conspiracy belief.

Study 6: The effect of a self-esteem manipulation on conspiracy theory belief

Introduction

Study 4 found a moderation effect of self-esteem on a self-consciousness manipulation of paranoia scores, where participants who had higher self-esteem scores were more resistant to changes in their paranoia when a mirror was present. Although this manipulation and the subsequent manipulation attempt in Study 5 using a CCTV camera both failed to significantly change paranoia scores, the relationship between self-esteem and paranoia warrants further investigation.

The current literature that investigated clinical paranoia has argued that self-esteem can be a key component in the formation of delusions, whereby studies have found that patients who suffer from persecutory delusions tend to have lower self-esteem than control participants (Freeman & Garety, 2003). Negative self-schemas can also successfully predict an increase in delusions (Oliver, O'Connor, Jose, McLachlan, & Peters, 2012) and paranoia (Thewissen, Bentall, Lecomte, van Os, & Myin-Germeys, 2008). As explored in the introduction to this chapter, there is still a debate within the psychopathological research about the exact nature of self-esteem and its role in delusion formation and paranoid tendencies. The original hypothesis was that accepted delusions would create an improvement in self-esteem as a consequence of anomalous experiences being directed to an external source (Bentall et al., 1994; Maher, 1974, 1988), but as research progressed, a competing argument emerged that suggested delusions were not an attempt at self-esteem defence, but rather a direct reflection of the emotions of the individual, given that persecutory delusions are consistent with existing ideas of the self (Freeman et al., 2002).

For self-esteem's effect on conspiracy belief, a similar mixed picture presents itself. Existing published work has demonstrated small negative correlations between conspiracy belief and self-esteem, ($r = -.16$, Abalakina-Paap et al., 1999; $r = -.20$, Swami & Coles, 2011; $r = -.12$, Stieger et al., 2013) but some experiments have also failed to find a significant effect (Cichocka et al., 2015; Swami, 2012). As established in the introduction to this chapter, no work has yet been published that explores a possible causal exploration of self-esteem and conspiracy belief, which the current study attempted to address.

The previous work in conspiracy theories and self-esteem has shown the relationship is likely to be negative, that higher belief in conspiracy belief corresponds to lower self-esteem. With this in mind, the hypothesis for this current experiment was that a short-term boost in self-esteem should consequently reduce belief in conspiracy theories.

Method

Participants and design. Based on previous work, the expected negative correlation between self-esteem and conspiracy belief for this study was $-.2$. To detect a correlation of this size with 90% power, and an alpha of 0.05, a minimum sample size of 194 was required. 229 participants (107 males, 115 females, 7 undisclosed; mean age = 39, SD = 12.54, range = 19-76) were recruited using Amazon's MTurk online panel and completed the experiment in exchange for \$0.75 US.

Dummy questions were inserted into all of the scales used, which asked participants to respond in a specific way (e.g. "Answer "Moderately Disagree" for this item"). These were used to assess that all participants had been paying conscious attention during the survey and are also known as "instructional manipulation checks" (Oppenheimer et al., 2009). After reviewing the data, 15 participants were removed for failing to answer these specific questions as directed, leaving a final total of 214 participants (100 males, 107 females, 7 undisclosed; mean age = 39, SD = 12.38, range = 19-76).

Procedure. Participants were randomly assigned to a positive or neutral self-esteem manipulation condition. All participants completed what was ostensibly a short personality test, and were then given either positive feedback on their personality (e.g. "You pride yourself on being an independent thinker and are open to new opinions and viewpoints") or neutral feedback on their personality (e.g. "At times you are extraverted, affable, sociable, while at other times you are introverted, wary and reserved."). Participants were then asked to rate how good the feedback made them feel, as well as how accurate and interesting they found it.

Participants were then immediately measured on their belief in conspiracy theories to gain the maximum exposure from any self-esteem change. The remaining scales were randomised to prevent order or fatigue effects and consisted of a measure of positive and negative affect and a state and trait measure of self-esteem. Finally, gender, age, occupation, ethnicity and political orientation were collected.

Full ethical approval was granted from the Goldsmiths Department of Psychology Ethics Committee, under the instruction that participants were briefed before the experiment began, their anonymity would remain, and that they could withdraw at any time without penalty. For this online experiment, participants confirmed their consent to participate by means of a check box. They were fully debriefed to explain the

manipulation and the experimenters provided information on how to obtain support or to ask further questions.

Materials.

Self-esteem manipulation. This was modified from Arndt and Greenberg (1999). The original methodology for boosting self-esteem temporarily by Arndt and Greenberg involved participants taking a series of personality questionnaires lasting up to 15 minutes and then being given short statements purporting to be based on their results. The profiles contained statements based on the Barnum effect (Forer, 1949), which were shown to boost self-esteem in the original 1999 paper.

This procedure was modified for the current study to accommodate the online nature of the experiment. Participants instead answered a short 15-item “personality questionnaire” written by the experimenter, with answers given on a five-point scale from “1 – not at all” to “5- extremely”. The items related to the overall themes of the personality feedback (e.g. “You have a tendency to be critical of yourself”). The full scale can be found in Appendix 3.2.

Participants were then given either a positive or neutral personality profile, dependent on their experimental condition. The full text can be found in Appendix 3.3. Participants finally answered three questions on a scale from 1-9 about how good the feedback made them feel, how accurate the feedback felt, and how interesting they found the feedback.

Generic Conspiracy Belief Scale (GCB) (Brotherton et al., 2013). Conspiracy belief was measured using a generic scale, designed to measure the underlying factors that relate to belief in specific conspiracy theories. Conspiracy belief is measured on this 15-item scale, with answers given on a five-point scale from “definitely not true” to “definitely true”. For this study, the scale demonstrated high internal consistency, $\alpha = .945$.

Positive and Negative Affect Scale (PANAS) (Watson, Clark, & Tellegen, 1988). This scale was included primarily to measure for any other possible effects from the self-esteem manipulation, as previous work has argued that raising self-esteem may also trigger an increase in positive affect (Greenberg et al., 1993; Arndt & Greenberg, 1999). The PANAS shows a list of 10 positive and 10 negative words that describe different feelings and emotions (e.g. Alert, Excited, Upset, Hostile), and participants record how much they feel each item in the present moment. The answers are recorded on a five-

point scale from “very slightly” to “extremely”. For this study, the scale demonstrated high internal consistency, $\alpha = .860$.

State Self-Esteem Scale (SSES) (Heatherton & Polivy, 1991). Given the experiment planned to actively induce a temporary increase in self-esteem, it was important to use a *state* sensitive measure of self-esteem. The SSES is designed to measure participants’ thoughts on self-esteem in the short moments during the experiment. This 20-item scale asks questions on performance (e.g. “I feel confident about my abilities”), appearance (e.g. “I feel unattractive”) and social relationships (e.g. “I feel concerned about the impression I am making”). The responses are on a five-point scale ranging from “not at all”, to “extremely”, asking participants how true the items are *in the moment*. For this study, the scale demonstrated high internal consistency, $\alpha = .927$.

Rosenberg Self-Esteem Scale (RSES) (Rosenberg, 1965). The Rosenberg Self-Esteem Scale has been widely used to measure self-esteem on a trait level using a ten-item scale assessing self-worth on a 1-4 scale ranging from “strongly disagree” to “strongly agree”. For this study, the scale demonstrated high internal consistency, $\alpha = .948$.

Results

Overall relationships. 108 participants were randomly assigned to the positive self-esteem condition, leaving 106 participants assigned to the neutral self-esteem condition. Table 3.7 below shows the means and standard deviations of the key scales.

Table 3.7. Means/total scores for scales used in Study 6 (standard deviations in parentheses).

Scales	Neutral feedback condition <i>n</i> = 106	Positive feedback condition <i>n</i> = 108
Manipulation check – “How good did the feedback make you feel?” (<i>higher score = more good</i>)	4.33 (1.71)	6.53 (1.86)
Manipulation check – Accuracy (<i>higher score = more accurate</i>)	4.31 (2.18)	6.03 (2.13)
Manipulation check – Interesting (<i>higher score = more interesting</i>)	5.14 (2.48)	6.52 (2.26)

Table 3.7 continued. Means/total scores for scales used in Study 6 (standard deviations in parentheses).

Scales	Neutral feedback condition <i>n</i> = 106	Positive feedback condition <i>n</i> = 108
PANAS – Positive affect (higher score = greater positive affect)	2.86 (0.89)	2.92 (0.93)
PANAS – Negative affect (higher score = greater negative affect)	1.33 (0.62)	1.40 (0.71)
Generic Conspiracy Belief Scale (higher score = greater belief)	2.51 (0.97)	2.51 (0.97)
Rosenberg Self-Esteem Scale total score (max = 40) (higher score = higher trait self-esteem)	19.44 (7.20)	20.84 (7.69)
State Self-Esteem Scale – Total total score (higher score = higher state self-esteem)	72.27 (15.32)	75.27 (17.01)
State Self-Esteem Scale – Appearance total score (higher score = higher state appearance self-esteem)	17.74 (5.68)	19.81 (6.00)
State Self-Esteem Scale – Performance total score (higher score = higher state performance self-esteem)	27.45 (5.56)	27.99 (6.20)
State Self-Esteem Scale – Social total score (higher score = higher state social self-esteem)	27.08 (6.77)	27.46 (6.83)

Self-esteem manipulation check. Participants who received positive personality feedback rated it as significantly more accurate ($t(212) = 5.83, p = <.001$), more interesting ($t(212) = 4.25, p = <.001$) and making them feel better ($t(212) = 8.99, p = <.001$) compared to the neutral feedback condition.

However, there was no significant difference between the state self-esteem scores on the SSES between the positive and neutral conditions ($t(212) = 1.32, p = .19$). Similarly, there was no significant difference between the trait self-esteem scores on the RSES ($t(212) = 1.37, p = .17$) between conditions. This demonstrates that the personality feedback manipulation, although making participants feel better, did not affect their self-esteem at either state or trait levels.

The SSES is a multi-dimensional measure of state self-esteem, with three sub-factors assessing appearance, performance, and social self-esteem. These were re-assessed to determine whether the self-esteem manipulation was targeting only certain aspects of state self-esteem. Participants in the positive self-esteem condition showed

significantly higher scores for appearance self-esteem ($M = 19.81$, $SD = 6.00$) compared to the control condition ($M = 17.74$, $SD = 5.92$; $t(212) = 2.60$, $p = .01$). The appearance self-esteem scores also significantly correlated with the “How good did the feedback make you feel?” question ($r = .253$, $p < .001$), further validating the effect on this particular sub-facet of self-esteem. Participants however, did not show any significant differences in their performance ($t(212) = .67$, $p = .50$) or social self-esteem scores ($t(212) = .41$, $p = .69$).

There were also no significant differences in positive ($t(212) = .50$, $p = .62$) or negative affect ($t(212) = .76$, $p = .45$) as measured by the PANAS, demonstrating that the experimental effect from the positive or neutral feedback conditions had only affected the appearance self-esteem and had not created any other shift in mood that could interfere with results.

The effect of self-esteem on conspiracy belief. Despite the manipulation having a significant effect on appearance self-esteem, the conspiracy belief scores between the two conditions failed to show a significant difference ($t(212) = .013$, $p = .989$).

The relationships between state self-esteem, trait self-esteem and generic conspiracy belief. In order to investigate possible relationships between the different variables, two-tailed partial correlations were conducted between state self-esteem, trait self-esteem, and conspiracy belief, with the experimental condition variable being controlled. The correlations are reported in Table 3.8

Table 3.8. *Correlation matrix for scales used in Study 6.*

Scales	1.	2.	3.	4.	5.	6.
1. GCB	—					
2. SSES (Total)	-.08	—				
3. SSES (Appearance)	.01	.84*	—			
4. SSES (Performance)	-.11	.89*	.66*	—		
5. SSES (Social)	-.10	.88*	.58*	.70*	—	
6. RSES	-.05	.82*	.72*	.79*	.66*	—

* $p < .001$, two-tailed. $n = 214$

Total state self-esteem was significantly positively correlated with trait self-esteem ($r = .82, p = <.001$) and significantly positively correlated with its subcomponents of appearance ($r = .84, p = <.001$), performance ($r = .89, p = <.001$), and social ($r = .88, p = <.001$) self-esteem. This demonstrated that the two self-esteem measures had significant overlaps in the variance they attempted to measure. Conspiracy belief was not significantly correlated with any measure of self-esteem.

Discussion

Providing positive feedback from a small personality survey to participants successfully increased their appearance-based state self-esteem as well making participants report feeling better than a neutral feedback control condition. However, the manipulation did not affect other elements of state self-esteem that cover performance or social self-esteem, and did not have a great enough effect overall on the state self-esteem scores when added together. This relationship between a personality feedback-based manipulation and its effect on appearance self-esteem has also been found in earlier work, suggesting that this particular manipulation may have limited success affecting other aspects of self-esteem (Rector & Roger, 1997).

The manipulation also did not have a significant effect on trait-based self-esteem, although results with similar manipulations in the past on trait self-esteem have been mixed. Most research suggests that self-esteem can be temporarily altered, but the magnitude of these changes is likely to be small, and the Rosenberg scale, in particular, can struggle to detect these (Heatherton & Polivy, 1991). As we saw from the manipulation in this current study, it only had an effect on one component of self-esteem so a global scale such as the RSES may not be sensitive enough to detect these types of changes (Heatherton, 1988). It may also be that attempts at manipulating self-esteem are not relevant enough to participants to cause any significant changes, perhaps relying on concepts that researchers believe make up self-esteem components but in reality do not matter greatly. Some positive feedback from an unauthorised, impersonal and largely meaningless “personality quiz” may do little materially to create any real changes in self-esteem. If this is the case, it again makes earlier published success with this methodology questionable.

Despite the manipulation having limited success on self-esteem measures, the increased appearance-based self-esteem scores did not have an effect on conspiracy belief, and the mean scores for the GCB between the two conditions were very similar.

Given that our manipulation only affected appearance-based self-esteem, it could be argued that other forms of self-esteem may have an effect on conspiracy belief, given that previous literature has used global measures to find correlational relationships. Leading back to the maladaptation hypotheses of conspiracy belief, performance self-esteem may well have an effect on conspiracy belief, if the arguments of Abalakina-Paap et al. (1999) could be validated. If a person feels they are not doing well, that they feel disadvantaged, conspiracy theories could serve as a way to restore performance-based self-esteem. This also feeds theoretically into other work on feelings of powerlessness and lack of control. Could, therefore, restoring a sense of control help to also restore performance self-esteem as well as lower conspiracy belief? This would be a possible avenue for further work, to better understand how these mechanisms interact.

These results add to the small body of work attempting to fully understand the role of self-esteem and conspiracy theory belief. Overall, the results remain mixed, but one study published after this study was completed argues that the existing literature may have been premature in linking low self-esteem with conspiracy belief. Cichocka, Marchlewska, and Golec de Zavala (2015) found that endorsement of conspiracy theories is more strongly associated with narcissism than low self-esteem and that mixed findings so far may come from the fact that not all self-esteem measures can determine narcissistic vs. secure self-esteem responses. Narcissism may also help to explain the paranoia correlations seen in some of the conspiracy literature. Cichocka et al. (2015) found in their second study that the effect of narcissism on conspiracy belief was driven by paranoid thoughts and was independent of any collective narcissism also measured. It is recommended that any future work on self-esteem should also take into account the possible overlap between self-esteem and narcissism.

As seen with the attempts at manipulation of paranoia in Studies 3, 4, and 5, it is possible that a 2x2 design may aid in detecting smaller changes in self-esteem and conspiracy belief. A pre-measurement of self-esteem, alongside an exposure to or an absence of conspiracy theories, with a boost to self-esteem or a neutral control condition, with a final post-measurement of self-esteem may help unpick the inconsistent results seen in the literature so far.

General discussion

The four studies presented sought to explore the effects of paranoia and self-esteem on belief in conspiracy theories, primarily with experimental methods aimed at

investigating a possible causal direction. It was hypothesised that conspiracy belief would be correlated positively with paranoia based on previous work, and that self-esteem may show smaller negative relationships depending on the experimental setup. It was also hypothesised that manipulating an increase in paranoia would also produce an increase in conspiracy belief – contrasting with a self-esteem manipulation whereby a boost in self-esteem would see a reduction in conspiracy belief. The findings of the four studies provided some positive evidence for the role of paranoia and consistent negative evidence for the role of self-esteem in conspiracy belief, but were not successful in manipulating either paranoia or self-esteem to determine a causal direction.

Firstly, Studies 3 and 5 found significant positive correlations between paranoia and conspiracy belief, confirming earlier work of a relationship between the two. Study 4, however, failed to find a significant relationship, despite using similar measures for both paranoia and conspiracy belief. Further analysis of Study 4 revealed a buffering effect of self-esteem, whereby those with higher self-esteem showed lower paranoia in response to the presence of a mirror, compared to those with lower self-esteem. It is suspected that this moderating effect also confounded any possible correlational data from this study, and opens up a wider discussion of the limitations of paranoia manipulations without accounting for self-esteem. It may also explain the mixed results in the published literature exploring correlations between self-esteem and conspiracy belief. For these four studies, there was not a single significant correlation between self-esteem and conspiracy belief.

Attempting to manipulate self-esteem directly also failed to produce the expected results on conspiracy belief. Although the self-esteem manipulation in Study 6 was successful in making participants feel better, the manipulation did not affect most measures of self-esteem. The scores for the “appearance” self-esteem component of the State Self-Esteem Scale were higher for the positive feedback condition, showing a small effect of the manipulation that was not generalised to other scales, both state and trait. This change in “appearance” self-esteem also failed to have an effect on conspiracy belief.

Alongside the main focus on paranoia and self-esteem, measures of submissive behaviour and political orientation were introduced in Studies 3 and 4 to assess their possible effect on conspiracy belief. In Study 3, submissive behaviour showed significant positive correlations with paranoia measures and a significant negative correlation with self-esteem, supporting earlier work that argued that participants with

higher levels of submissiveness also showed higher levels of suspiciousness and paranoid-like tendencies. However, there was no correlation between social submissiveness and conspiracy belief. This may support arguments that conspiracy theories themselves do not directly reflect paranoid delusions or other psychopathological interpretations, but may share some (not all) of the characteristics that feed both phenomena. Unfortunately, Study 4 failed to show a significant correlation between social submissiveness and either paranoia or self-esteem, failing to replicate the results seen in Study 3. This may or may not be down to the experimental manipulation used in Study 4, which was having an effect on participants' paranoia scores but was being buffered by self-esteem.

Conspiracy belief measured in Studies 3 and 4 also did not significantly correlate with political orientation. This finding helps provide more evidence in support of earlier work which argues that conspiracy belief is not reliant on political leaning, despite anecdotal evidence that conspiracy theories tend to be endorsed more on the right than on the left. In reality, political orientation is not an effective predictor of conspiracy belief, but may be a predictor of the content of individual conspiracy theories (Uscinski & Parent, 2014). In the US, for example, Democrats were more likely to believe that George Bush was complicit in the 9/11 terrorist attacks, whereby Republicans were more likely to believe Obama faked his own birth certificate. The findings from Studies 3 and 4 help support the argument that conspiracy belief is not adequately explained by political orientation, and participants on both sides of the political spectrum are equally likely to show such belief.

The limitations of the current research in this chapter should also be carefully considered. The first major limitation is the failure of all experimental attempts to effectively manipulate either paranoia or self-esteem. Although Study 4 found the mirror manipulation was partially effective at increasing paranoia, self-esteem appeared to be buffering the effect so that when the two conditions were compared, no significant difference in paranoia scores were found. The self-esteem manipulation for Study 6 only affected one component of state self-esteem, with the remaining scales for both state and trait self-esteem remaining unaffected, contradicting earlier results using this methodology. Consequently, the analysis could not establish the causal direction of the relationships, relying on correlational investigations of the key variables.

Another limitation of the current research comes from the sample sizes for Studies 4 and 5, which were limited by the lab-based nature of the experiments and the

undergraduate student samples recruited in exchange for course credit. Although the originally published methodologies for manipulating paranoia were completed using similar sample sizes, future research should seek to establish whether these manipulation paradigms are stable in larger samples, and samples recruited outside of undergraduate student samples.

Placing the results of the current work in context with the existing conspiracy literature, these results contribute to arguments that conspiracy theory belief and paranoia are linked, but are not necessarily expressions of clinical psychopathology. Self-esteem's effect on conspiracy belief has yet to be fully explored in the literature, and the non-significant correlations seen in the present studies for self-esteem also add to arguments that self-esteem contributes very little in the explanation of conspiracy belief. This, for example, is in contrast with the clinical paranoia literature, which shows a stronger relationship between self-esteem and clinical paranoia. The lack of this relationship in the conspiracy work, and for this chapter, adds to the arguments again that conspiracy belief is not a form of sub-clinical delusion or other psychopathological concern. Conspiracy belief may express and rely on shared underlying mechanisms that can also contribute to paranoia and delusional ideation. This may include feelings of a lack of control (explored in Chapter 2) and also cognitive biases that may influence how people process evidence (explored in Chapter 4).

A recent review published after this experimental work was completed has provided some clarity from the recent literature exploring the links between paranoid thought and belief in conspiracy theories. Imhoff and Lamberty (2018) presented a meta-analysis from 11 published studies that supported evidence of a reliable relationship between paranoia and conspiracy theory belief, equivalent to $r = .36$. This small correlation led the authors to present further work to determine how distinct paranoia and conspiracy theory belief are, finding that although conspiracy theory beliefs and paranoia were intercorrelated, they appeared to be distinct constructs. Conspiracy theory belief was related more closely to aspects relating to social or political identity, and paranoia more closely related to constructs more relevant to the self, such as personality or interpersonal control. The authors concluded that the key difference was that paranoia refers to threats against the self, compared to conspiracy theory belief that aimed to highlight threats against all of us (society). From this, the authors argued that depathologising conspiracy theory beliefs was necessary.

With an absence of an effective and robust paranoia manipulation, longitudinal studies may provide some clarity on whether conspiracy belief precedes paranoia, or paranoia precedes conspiracy belief (or indeed, if the relationship is reciprocal). Pre and post measurement of conspiracy belief and paranoia alongside both between-participant and within-participant exposures to conspiracy theories may help unpick a causal direction.

Overall summary

The studies presented in this chapter provided evidence of a relationship between paranoia and conspiracy belief, suggested a potential for shared processes in the formation of conspiracy belief and sub-clinical paranoia. Self-esteem was not found to be related to conspiracy belief, suggesting that conspiracy belief can be expressed in people with both low and high self-esteem. Similarly, political orientation was not related to conspiracy belief; both participants on the right and left of the political spectrum showed susceptibility to conspiracy theories. Finally, social submissiveness, originally hypothesised as a potential shared mechanism that could drive both paranoia and conspiracy belief, was found to be related to paranoia, but not conspiracy belief. These results add to the existing arguments in the literature that although conspiracy belief may share similar underlying characteristics to delusional ideation and paranoid thoughts, they are likely to be distinct concepts. This leads to the assumption that a psychopathological approach to conspiracy belief may not adequately explain conspiracist ideation, but may still offer insight if the relationship between conspiracy belief and paranoia is unpicked.

Chapter 4

Delusional ideation, jumping to conclusions, and conspiracy belief

Introduction

Delusions, as defined in the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; *DSM-5*; American Psychiatric Association, 2013) are false beliefs based on an inaccurate interpretation of reality which persist despite evidence to the contrary. Additionally, delusions tend to be self-referential, specific, and not generally accepted by other people as logical or plausible. Popular culture similarly attempts to label conspiracy theory believers as paranoid and/or delusional, given that believers appear hyper-vigilant against possibly threatening external agents, endorse theories that tend to be resistant to disconfirmatory evidence, and represent a minority viewpoint (Byford, 2011; N. Holm, 2009).

The layperson's assumption that conspiracy theories are a *product* of negative psychopathology, however, is quite easily countered. Clinical paranoid delusions are heavily self-referential and underpinned by perceived threats to the self; conspiracy theories, although driven by high levels of suspicion, are less concerned with threats to an individual but rather threats to everyone. Additionally, a key component of conspiracy theory rhetoric is the notion of fighting back and resisting perceived corrupt power systems, aided by the need to spread conspiracy theories. Paranoid individuals, on the other hand, tend to withdraw in the face of perceived personal threat and do not often seek to openly challenge or resist the source of the threat (Byford, 2011). Given the frequency of belief for a range of conspiracy theories across cultures, it is also unlikely that such large minorities of populations are suffering from clinical-level delusions.

Consequently, the conspiracy literature has focused on possible shared antecedents of both conspiracy belief and delusional ideation, which mirrored similar work in the clinical literature that steered away from the traditional view that delusions were irreducible, and instead focused on cognitive styles that may contribute to delusional formation and maintenance (Brotherton & Eser, 2015; Brotherton et al., 2013; Darwin et al., 2011; Freeman & Bentall, 2017). So, conspiracy theories themselves are unlikely to be delusional in their own right, but may share some similar characteristics to clinical delusions in their formation.

To help explore the underlying systems that could drive and maintain a distinct and closed conspiratorial worldview, research looking at the mechanisms of conspiracy theory rhetoric has identified several key cognitive biases at work. These include a proportionality bias, the idea that large significant events have large significant causes (Leman & Cinnirella, 2007); an attribution bias, a tendency to overestimate the effect of dispositional factors, especially in an attempt to understand the intentionality of others (Clarke, 2002); and confirmation bias, where beliefs and ideas that are consistent with one's own ideas tend to be reinforced while alternative ideas are downplayed or ignored (Leman & Cinnirella, 2007).

As discussed in Chapter 1, building on findings seen with paranormal belief, Darwin, Neave, and Holmes (2011) explored the relationship of schizotypy and paranoid ideation to belief in conspiracy. Schizotypy, a symptomatic precursor of the more serious condition of schizophrenia, involves cognitive, perceptual and affective symptoms (Meehl, 1990) and is hypothesized to manifest on a continuum, where traits include suspicion, magical thinking, social anxiety and unusual beliefs. Darwin et al. (2011) found significant positive correlations between conspiracy belief, paranoid ideation and schizotypy, and argued that sub-clinical levels of paranoia support the idea that conspiracy beliefs are rooted in a suspicious fear of the malevolent activities of others. Importantly, they state that if the paranoid behaviours become clinical, they would more likely manifest themselves as persecutory delusions (Freeman, 2007). However, to date, no research has demonstrated a link between conspiracy belief and clinical delusional disorders, or suggested a pathway by which this could happen.

With existing research demonstrating correlations between conspiracy belief, paranoia and schizotypy, it makes sense to consider whether the cognitive systems that can build and maintain a delusion could also be playing a part in the formation and maintenance of conspiracy belief. It is this argument that this chapter will further test, with an exploration of one particular data-gathering bias that has demonstrated repeated links with delusional ideation; the jumping-to-conclusions bias. Consistent work has demonstrated that patients with delusions show a tendency to gather less information than controls as part of decision making, manifesting as a reasoning style with links to schizophrenia, psychosis, as well as non-clinical participants showing sub-clinical delusional ideation (Freeman, 2007; Freeman, Pugh, & Garety, 2008; Glöckner & Moritz, 2009; Medlin & Warman, 2014; Zawadzki et al., 2012).

Jumping to Conclusions

Until recently, little experimental research had explored the possibility that a deluded individual's reasoning could be somehow abnormal. Early theoretical work suggested that delusions were the product of irregular syllogistic (conclusions reached from supposedly true premises) reasoning (von Domarus, 1944), but later experimental work failed to find any reasoning differences between deluded and non-deluded participants (Chapman & Chapman, 1959). Maher (1974) argued that once verbal knowledge and educational background were accounted for, differences between normal and abnormal participants could not be explained by any failures in syllogistic reasoning. He proposed that deluded patients were instead responding to perceptual anomalies, that patients do not suffer from any specific *cognitive* disadvantages but were reacting to a set of abnormal *sensory* conditions. This view was also argued in a review by Winters and Neale (1983) which discussed the lack of consensus in the existing reasoning research and posited that either position was equally plausible until further experimental work was undertaken.

As this experimental work continued, the research started to lead away from more general reasoning failures towards more specific inferential biases in the delusional mindset. Brennan and Hemsley (1984) demonstrated that paranoid schizophrenic patients detected stronger illusory correlations than non-paranoid schizophrenic patients and a control group. These illusory correlations were primarily demonstrated by reports by the participants of two events that are correlated, when in reality they are not. However, the significant drawback with this research was that the task was designed specifically to involve stimuli that were relevant to the paranoid patients' delusions. Any differences shown therefore cannot be said to be driven by a general inferential bias, but instead one specific to delusional belief. More recent work by Whitson and Galinsky (2008) demonstrated that manipulating feelings of a lack of control also increased illusory pattern perception, helping to support the arguments that individual differences may explain why some people are more likely than others to demonstrate deficits in reasoning.

Huq, Garety, and Hemsley's (1988) influential work aimed to provide an exploration into more general probabilistic reasoning, importantly distinct from any emotionally salient stimuli or information relevant to paranoia-driven inferences. They adopted an earlier paradigm by Phillips and Edwards (1966) in which participants are shown two jars of beads. One contained 85 white beads and 15 black beads, the other

jar contained the opposite ratio. The jars were then hidden from view, and one selected at random by the experimenter. One bead at a time was then drawn from the selected jar and shown to the participant, and then placed back into the jar so the ratios remained the same. The end goal for the participant was to determine which jar the beads were being drawn from, and participants were instructed to tell the experimenter when they had seen enough beads to be sure which jar the beads had come from. It was shown that people who suffered from delusions, compared to both a non-schizophrenic clinical sample and a non-clinical control, requested fewer beads before reaching a decision. It is this tendency to request less evidence before reaching a decision that was referred to as the “jumping-to-conclusions” reasoning style.

Using this non-emotional, neutral paradigm, Huq et al. (1988) successfully demonstrated a reasoning difference that was not necessarily unique to delusional belief, but instead represented a distinct reasoning bias. Further work later replicated these findings, and attempted to explore further the dynamics of the “beads task” to elicit specific dimensions that could be measured. Modified ratios of beads (60:40), memory aids, and probability estimates were introduced in various replications (Dudley & Over, 2003; Dudley, John, Young, & Over, 1997), and supported the arguments that the bias generalised over the difficulty of the task, was unaffected by any working memory deficiency, and served specifically to demonstrate an evidence gathering bias and not a probability bias. Dudley et al. (1997) also showed that participants made the correct decisions when they could not control the amount of evidence given to them, again suggesting that the issue was not incorrectly inferring probability and reaching a decision, but instead specifically about the amount of evidence that participants felt needed to be gathered. They found that deluded patients only demonstrated inaccuracies in the beads task when they could control the amount of evidence required, seeking less data before making a decision than non-deluded participants.

Other work to explore a general reasoning bias in patients with delusions, using other tasks more specifically designed towards syllogistic reasoning or conditional inferences failed to provide clear results (Kemp, Chua, McKenna, & David, 1997). This reinforced the position of Garety and Freeman (1999) in arguing that delusional patients do not exhibit a generalised reasoning inhibition, but instead they show a specific “jumping-to-conclusions (JTC) bias” that contributes to delusion formation and maintenance.

An emerging literature has shown that this JTC bias (defined as making a decision

with two or fewer beads) is seen in approximately 60-70% of deluded patients and that it is related specifically to delusional ideation, rather than to general schizophrenic symptomology (Fine, Gardner, Craigie, & Gold, 2007). Interestingly, the bias was also shown to be present in approximately 20% of a non-clinical, otherwise healthy population (Freeman et al., 2008) – providing possible explanations for sub-clinical forms of “weird beliefs” without the severity of associated clinical schizophrenic symptoms.

Since hypothesised, the possibility of a JTC bias that could explain delusional ideation formation and maintenance has motivated a growing body of research to investigate further. Research into possible correlates and mediating factors has shown that the bias is strongly related to high levels of conviction in paranoid thoughts and a confirmatory reasoning style (Freeman et al., 2008). Participants confirming, rather than disconfirming, whilst completing the Wason 2-4-6 task were hasty in their data gathering and considered fewer hypotheses (Dudley & Over, 2003).

This data gathering bias could have implications for conspiracy belief, especially in relation to confirmatory reasoning and jumping to conclusions based on little evidence. Conspiracy belief is often explained as part of a monological belief system, an overarching world view that is self-sustaining (M. Wood et al., 2012) and biased towards the acceptance of a deceptive and misleading power structure, distrust of authority, and paranoia. Similarly with persecutory delusions, abnormal beliefs are said to form when a person searches for meaning for internal or external experiences that are unusual, anomalous, or emotionally significant (Freeman et al., 2002) – a description that could also be hypothesised to be consistent with conspiracy belief. As the JTC bias has been shown to play a role in the formation of delusions, it could also play a role in the formation of conspiracy belief.

The roles of malevolent groups are heavily present in conspiracy belief and are perceived as a threat to the status quo. These can range from the more traditional New World Order or Jewish conspirators, to general corrupt government or large businesses. Conspiracy belief formation could also be hypothesised along similar lines to traditional persecutory delusion models, in that belief arises from a search for meaning of an anomalous or emotional experience and acting together with cognitive biases and a confirmatory belief attitude, result in a belief of threat. Once a threat belief is formed, it is maintained alongside pre-existing beliefs about the world, as well as a continuing confirmatory bias.

Can it be hypothesised, however, that conspiracy belief could be explained by existing models of paranoid and persecutory delusion? Levels of conspiracy belief vary between cultures and countries, but with experimental and polling data regularly demonstrating widespread belief, is it correct to assume that large sections of the population manifest delusions that label them as mentally unwell?

The current research suggests not, but instead an investigation into sub-clinical levels of delusional thinking alongside conspiracy belief may prove beneficial in helping to map out key similarities in conspiracy belief and delusion formation. It is important to note here that the current research continues with the belief that antecedents of delusional thinking exist on a continuum that can be psychometrically measured using schizotypal traits and symptoms. It is established in the current literature that these traits manifest themselves as individual differences, whereby people can demonstrate psychopathology highly without being clinically psychotic (Peters, Joseph, Day, & Garety, 2004).

Overview of studies in this chapter

The current chapter presents two studies which aimed to explore whether conspiracy theories could share similar characteristics with delusional ideation, given their shared characteristics. Persecutory delusions in particular appear to have a similar morphology (resistance to change, high levels of conviction, levels of threat or paranoia), but could similar psychological processes drive them? Study 7 examined the specific role of the jumping-to-conclusions bias on conspiracy belief, with Study 8 expanding on this with an additional exploration of the relationships between conspiracy belief and delusional ideation, schizotypy, with other cognitive biases.

Study 7: The beads task, sub-clinical delusional ideation and conspiracy theory belief

Introduction

The introduction to this chapter summarised the current literature exploring the role of the jumping-to-conclusions bias and its hypothesised role in the formation of delusions. It was the aim of this current study to explore whether the jumping-to-conclusions bias may have a role to play in conspiracy belief. A measure of sub-clinical delusional ideation was also included to assess a possible link between delusional

ideation and conspiracy belief, given that previous research has hypothesised that they could share similar underlying characteristics (Darwin et al., 2011).

Delusional ideation and belief in conspiracy theories ostensibly are likely to share similar cognitive characteristics, particularly in their resistance to contradictory evidence and the fear of persecution from hidden agents, so it is hypothesised that there is likely to be a correlation between delusional ideation and conspiracy belief in this study. The role of the jumping-to-conclusions bias, however, is less clear. If we assume that conspiracy belief and delusional ideation share common cognitive processes, then the jumping-to-conclusions bias may play a role in how conspiracy believers gather or process evidence, feeding into a wider conspiratorial cognitive style. It was therefore hypothesised that conspiracy belief would be correlated with the jumping-to-conclusions bias, and that participants who jump to conclusions would show higher belief in conspiracy theories as well as higher levels of delusional ideation. It was also hypothesised that jumping-to-conclusions would be positively correlated with delusional ideation.

Method

Participants and design. Participants were 103 individuals recruited from a university open day and a selection of online psychology recruitment websites (67 females, 35 males, 1 undisclosed; mean age 29.21, $SD = 9.88$; 36 students, 28 modern professionals, 11 senior managers, 9 traditional professionals, 6 junior managers, 6 clerical workers, 3 service workers, 1 technical worker, 3 others.). Conspiracy belief was the criterion variable and the jumping-to-conclusions bias and delusional thinking were predictor variables.

Materials and procedure. Ethical approval was obtained from the Goldsmiths College Psychology Department Ethics Committee. Participants completed the jumping-to-conclusions experimental paradigm known as the beads task followed by the Generic Conspiracy Belief (GCB) and Peters et al. Delusions Inventory (PDI) scales, rotated to avoid order effects. Demographics including age, occupation, and gender were collected last. The entire experiment was computerised using Limesurvey software for online delivery. The experiment was completed anonymously and participants were free to withdraw at any time. Once completed, participants were given a debrief sheet containing further information about the study and the experimenter contact details.

The beads task (Huq et al., 1988). Participants completed a computerised version of the beads task to discover whether they demonstrated the jumping-to-conclusions bias. Fine et al. (2007) demonstrated with meta-analysis that the most reliable measure of the JTC bias is a “draws to decision” methodology with an 85:15 ratio of beads, and consequently this was the version chosen for this study.

The beads task was computerised and the beads were drawn in a predetermined order as used by Huq et al. (1988). Participants were shown illustrations of two jars of beads side-by-side, one jar containing 85 black beads and 15 orange beads, and the second jar containing 15 black beads and 85 orange beads. The participant was told that the computer had selected a jar at random, and they must determine which jar the computer has selected. The computer then presented beads to the participant one at a time that had been drawn from the selected jar, and the participant had to decide which jar the beads were coming from. After each bead drawn, the participant had the option of either making a decision about which jar the computer selected or asking for another bead. There was a visual reminder at the bottom of the screen for each bead drawn to avoid any working memory complications. After 20 beads, participants who had still not made a decision were forced to make one. Participants were determined to exhibit the jumping-to-conclusions bias if they were happy to reach a decision based on one or two beads.

Generic Conspiracy Belief Scale (GCB) (Brotherton et al., 2013). Conspiracy belief was measured using the *Generic Conspiracy Belief Scale*. Each question is measured on a 5-point scale (1= definitely not true, 5 = definitely true), and a belief score is calculated from the mean of the responses. Cronbach’s α for the GCB in this study was .91.

Peters et al. Delusions Inventory (PDI) (Peters et al., 2004). The Peters et al. Delusions Inventory is a 21-item scale assessing a number of key areas of schizotypal traits from a non-clinical perspective. Participants are asked for a yes/no response if they have ever had particular experiences or hold particular beliefs (e.g. “Do you ever feel as if people are reading your mind?”). If participants answer yes, they are also asked on a 5-point scale how distressing the experience or belief is (1 = not at all distressing, 5 = very distressing), how often they think about it (1 = hardly ever think about it, 5 = think about it all the time), and how true they believe the thought to be (1 = don’t believe it’s true, 5 = believe it is absolutely true). Four scores were calculated,

including a count of all items that received a “Yes” answer (a PDI Yes/No score), and a sum of all scores on each of the distress, preoccupation, and conviction sub-scales. An additional “grand total” PDI was also calculated, adding up the three dimensions together with the Yes/No scores. Cronbach’s α for the PDI in this study was .75.

Results

Overall relationships. Table 4.1 reports the means and standard deviations of the scales used. In our sample, 14.6% ($n = 15$) made a decision using two or fewer beads, demonstrating the jumping-to-conclusions bias. Out of a total of 21 possible delusional experiences measured by the PDI, the average endorsement frequency for the sample was 23.0%.

Table 4.1. Means for scales used in Study 7 (standard deviations in parentheses).

Scales	Mean/SD
Beads drawn <i>(higher score = less evidence of JTC bias)</i>	7.43 (5.55)
Generic Conspiracy Belief <i>(higher score = greater belief)</i>	2.46 (0.72)
Peters et al. Delusion Inventory – Grand total <i>(higher score = more delusional traits)</i>	44.02 (34.48)
Peters et al. Delusion Inventory – Yes/No scores <i>(higher score = more delusional traits)</i>	4.83 (3.24)
Peters et al. Delusion Inventory – Distress <i>(higher score = more delusional traits)</i>	11.75 (10.55)
Peters et al. Delusion Inventory – Preoccupation <i>(higher score = more delusional traits)</i>	12.23 (10.48)
Peters et al. Delusion Inventory – Conviction <i>(higher score = more delusional traits)</i>	15.21 (11.45)

Correlations. In order to assess the relationships between conspiracy belief, delusional thinking and the JTC bias, alongside age and gender, a series of two-tailed point-biserial correlations were calculated. A binary variable indicated whether participants did or did not jump to conclusions. These are reported in Table 4.2 below.

Predicting conspiracy belief from delusional ideation and jumping-to-conclusions bias. To determine the possible predictive power of delusional thinking, age and gender on conspiracy belief, a linear regression model was run. As jumping to

conclusions was not significantly correlated with conspiracy belief, the variable was dropped from the model.

Delusional thinking significantly predicted conspiracy belief, $b = .12$, $t(101) = 6.43$, $p < .001$. Delusional thinking explained a significant proportion of variance in conspiracy belief, $R^2 = .3$, $F(1,98) = 41.28$, $p < .001$.

Normally research has shown that the PDI can be negatively correlated with age (Peters et al., 2004), which was also seen in the current study, $r = -.34$, $p < .01$. There was also a significant difference between males' and females' scores on the PDI, where males scored significantly higher than females ($U = 856$, $p = .025$, $r = .22$).

Table 4.2. Correlation matrix for scales used in Study 7.

Scales	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. GCB	–								
2. JTC Yes/No	.06	–							
3. PDI Total	.55**	.12	–						
4. PDI Yes/No	.53**	.12	.97**	–					
5. PDI Distress	.49**	.14	.96**	.90**	–				
6. PDI Preoccupation	.55**	.11	.98**	.93**	.92**	–			
7. PDI Conviction	.54**	.09	.96**	.94**	.86**	.92**	–		
8. Age	-.20*	-.02	-.34*	-.33*	-.31*	-.35*	-.31*	–	
9. Gender	-.05	.01	-.22*	-.22*	-.16	-.24*	-.22*	.05	–

* $p < .05$, ** $p < .01$ two-tailed. $n = 103$

However, adding age and gender as further predictors in the regression model did not significantly change the PDI's ability to predict conspiracy belief ($\Delta R^2 = .007$, $F(2,96) = .488$, $p = .615$).

Comparing participants who did or did not exhibit the jumping-to-conclusions bias. 15 participants showed a jumping-to-conclusions bias reaching a decision with two or fewer beads. However, there were no significant differences between these participants and the remaining sample ($n = 88$) that did not jump to conclusions on scores of conspiracy belief or delusional ideation. These results are reported in Table 4.3. However, the uneven base size for the two groups means that the data should be treated with caution.

Table 4.3. Mean comparison for those who did and did not jump to conclusions in Study 7 (standard deviations in parentheses).

Scales	Jumped to conclusions ($n = 15$)	Did not jump to conclusions ($n = 88$)	Significance (p)
Generic Conspiracy Belief (higher score = greater belief)	2.57 (0.69)	2.45 (0.73)	.532
PDI – Grand total (higher score = more delusional traits)	53.60 (43.32)	42.39 (32.76)	.246
PDI – Yes/No (higher score = more delusional traits)	5.73 (3.83)	4.67 (3.12)	.242
PDI – Distress (higher score = more delusional traits)	15.20 (15.12)	11.16 (9.56)	.172
PDI Inventory – Preoccupation (higher score = more delusional traits)	15.00 (12.76)	11.76 (10.06)	.271
PDI– Conviction (higher score = more delusional traits)	17.67 (12.62)	14.80 (11.26)	.372

Discussion

The results showed that the jumping-to-conclusions bias was not significantly related to conspiracy belief or delusional ideation. However, delusional ideation was significantly correlated with conspiracy belief, with those who scored higher on delusional ideation also scoring higher on generic conspiracy belief. Comparing participants who did or did not jump to conclusions did not demonstrate any significant

differences, but this was possibly down to low power given that only 15 participants demonstrated the JTC bias.

The correlation shown between delusional thinking and conspiracy belief supports previous research that these types of belief could be partially explained by possible deficits in reasoning. The experimental research is still unclear whether cognitive biases associated with persecutory delusions are state or trait variables (Freeman et al., 2002), but models have been proposed to demonstrate the roles of the need to search for meaning for anomalous experiences, with interactions between pre-existing beliefs and personality. A further exploration of related biases and processes associated with conspiracy beliefs could help further understanding of the similarities between delusional processes and conspiracy belief.

It is important to emphasise here that this research does not try to suggest conspiracy believers are suffering from clinically significant delusions; indeed, the Peters et al. Delusions Inventory is a distinct measure of delusional-like beliefs that exist on a *sub-clinical* level. Instead, it aims to determine if the underlying antecedents of delusional thinking and conspiracy belief are linked, and what shared processes can drive these belief systems.

On the basis of results from this study, it would appear that level of conspiracy belief is not related to the specific jumping-to-conclusions bias. However, there is a considerable amount of literature that demonstrates that the JTC bias is a key component in the development of clinical delusions, in its role of the faulty appraisal of anomalous experiences. Despite this, the lack of relationship between the JTC bias and PDI scores in this study is troubling, given that the JTC bias is most commonly seen in patients who suffer from delusions (Broome et al., 2007; Huq et al., 1988). Although the 14.6% of our sample who jumped to conclusions is on par with other studies with a non-clinical population (20% in Freeman, Pugh, & Garety, 2008), the beads task is often completed visually using real beads, rather than computerized. This lends to the possibility that some participants perhaps did not understand the task, or the instructions were unclear. Participants were not told for example, that there was a limit to how many beads could be taken before a decision was forced (in this case, 20).

In addition to potential methodological issues with the beads task, previous work has also provided mixed results in finding a direct correlation between the jumping-to-conclusions bias and measures of delusional ideation such as the Peters et al. Delusions Inventory. Freeman et al. (2008) found that the JTC reasoning style was associated with

the *conviction* of paranoid thoughts rather than just the presence of delusional ideas themselves, suggesting again the bias acts as part of an evidence gathering strategy. In addition, McKay, Langdon, and Coltheart (2006) also failed to find a direct correlation between the JTC “draws to decision” measure and the PDI, but did find participants who scored highly on the PDI had greater conviction in their choices. By breaking down the PDI score further, they also found the two dimensions of conviction and preoccupation were working against each other – whereby higher levels of conviction were related with fewer beads drawn, compared to higher levels of preoccupation where participants took more beads to make a decision.

Although the relationship between conspiracy belief and delusional ideation supports earlier work, delusional ideation only accounted for 15% of the variance in the predictive model. It is expected therefore that other factors must also influence the conspiratorial worldview, especially given that there are distinct differences between the components of delusions compared to conspiracy theories. A wider exploration of related concepts may help increase the amount of variance that can be explained using a predictive model, as well as providing evidence that conspiracy beliefs are related but distinct from delusional models.

Study 8: The beads task, non-clinical delusional ideation and conspiracy theory belief

Introduction

Study 7 demonstrated that delusional ideation was a small but significant predictor of conspiracy belief, which reinforced previous research that aims to explain conspiracy belief by deficits in reasoning. However, the jumping-to-conclusions bias as measured by the beads task was found to be unrelated to conspiracy belief. Study 8 sought to expand on this work by introducing wider measures of cognitive biases alongside other related aspects of delusional ideation and psychosis-based research in non-clinical populations. Study 7 also argued that the lack of a relationship between the jumping-to-conclusions bias and either conspiracy belief or delusional ideation could have been down to methodological issues in the presentation of the beads task. The current study would again use the beads task with small refinements to the respondent instructions to make it clear that after 20 beads, a decision must be made.

The current study would also examine whether aspects of delusion proneness as explained by schizotypy could also be related to conspiracy belief. Schizotypal individuals tend to hold unusual beliefs and display forms of sub-clinical persecutory delusion and these tendencies correlate with measures of conspiracy belief, supporting a hypothesis that conspiracy beliefs are rooted in a suspicious fear of the intent of others' activities. Schizotypy as a distinct trait was developed from a re-evaluation of the traditional categorical view of psychosis to instead suggest that it is part of a wider continuum of personality features that can present to varying degrees through a normal population (Eysenck, 1992). Schizotypal traits can include odd beliefs and magical thinking, low levels of self-esteem, and cognitive bias (Meehl, 1990) and is related to delusion-proneness (Connors et al., 2014), paranoia (Barrantes-Vidal, Chun, Myin-Germeys, & Kwapil, 2013), and more positive symptoms such as creativity (Acar & Sen, 2013).

Aside from the specific jumping-to-conclusions bias, other forms of cognitive bias also have a role to play in delusion formation and maintenance (Freeman, 2007). Dichotomous thinking, catastrophising and emotion-based reasoning have all been shown to be related to delusional ideation (Peters et al., 2013). While dichotomous thinking may be beneficial in aiding quick decision-making, it has been shown that thinking dichotomously can lead to personality disorders through the implication that it promotes a lack of belief flexibility and resistance to changing evidence (Oshio, 2012). Similarly, although emotion-based reasoning allows a greater degree of emotional empathy and successful social functioning (Blickle et al., 2009), it affects our ability to judge evidence logically and can affect a patient's judgement of persecutory delusions (Garety et al., 2005). It is plausible, therefore, that similar processes could be at work with conspiracy belief, especially given that conspiracy belief demonstrates similar belief inflexibility and resistance to counterfactual evidence gathering.

The aim of this current study was to explore the relationships between conspiracy belief, delusional ideation, schizotypy and cognitive biases. It was hypothesised that these factors would all be positively correlated with conspiracy belief and subsequently it would then be possible to use confirmatory factor analysis (CFA) to build and test a series of models of conspiracy belief. The study would also assess the role of the jumping-to-conclusions bias in contributing to any such models.

Method

Participants and design. Participants were 133 British students, recruited both from Goldsmiths Psychology Department's undergraduate participant pool and department open days (78 females, 52 males, 3 undisclosed; mean age 28.20, SD = 12.37). Conspiracy belief was the criterion variable and measures of the jumping-to-conclusions bias, paranoia, cognitive biases and schizotypy were predictor variables.

Materials and procedure. Participants first completed the jumping-to-conclusions experimental paradigm known as the beads task. They then completed the Generic Conspiracy Belief (GCB) Scale, the Peters et al. Delusions Inventory (PDI), the Schizotypal Personality Questionnaire, and the Cognitive Biases Questionnaire for Psychosis scales. These scales were rotated to avoid any order effects. Finally, participants' age and gender were collected.

The experiment was programmed into online survey software known as Limesurvey. Participants were reminded before participating that the experiment was anonymous and they were free to withdraw at any time. When the experiment was completed, participants were debriefed electronically with further details about the study and the contact details of the experimenter.

The beads task (Huq et al., 1988). As per Study 7, the beads task was used to assess whether participants exhibited a jumping-to-conclusions bias. The task was computerised and administered as it was in Study 7, with additional instructions presented to participants that warned them that after 20 beads, a decision must be made.

Generic Conspiracy Belief Scale (GCB) (Brotherton et al., 2013). Conspiracy belief was measured using the Generic Conspiracy Belief Scale. Cronbach's α for the GCB in this study was .94.

Peters et al. Delusions Inventory (PDI) (Peters, Joseph, Day, & Garety, 2004). As in Study 7, The Peters et al. Delusions Inventory was used to assess proneness to delusional ideation. A PDI score was calculated by scoring each question answered "yes" with a 1, creating a score with a maximum of 21. Cronbach's α for the PDI in this study was .74

Schizotypal Personality Questionnaire (Raine, 1991). The Schizotypal Personality Questionnaire (SPQ) is a 74-item scale that uses the diagnostic criteria for schizotypal personality disorder to determine sub-clinical levels of schizotypal tendency. Nine schizotypal traits are measured using this scale that include ideas of reference, excessive social anxiety, odd beliefs or magical thinking, unusual perceptual

experiences, odd or eccentric behaviour, no close friends, odd speech, constricted affect, and suspiciousness. It is designed for use on a non-clinical sample. The self-report questions are in the form of “yes/no”, and each “yes” endorsement scores 1 point, up to a maximum of 74 points. Scores for the nine subscales can also be calculated in this way. Cronbach’s α for the SPQ in this study was .94.

Cognitive Biases Questionnaire for psychosis (CBQp) (Peters et al., 2013). The CBQp aims to measure five cognitive biases that have demonstrated a relationship with psychosis and delusion formation. It measures participants’ thinking through five key distortions; jumping-to-conclusions, intentionalising, catastrophising, emotional reasoning and dichotomous thinking. The scale contains 30 vignettes split equally into two overall themes, “Anomalous Perceptions” and “Threatening Events”. Each vignette has three statements, illustrating either an absence of the bias (score of 1), a possible presence of the bias (score of 2), or likely presence of the bias (score of 3). For example (scores in parentheses): “Imagine that the phone rings. When you answer, the other party hangs up. I am most likely to think:

- A) I wonder if there’s something suspicious about this (2);
- B) Somebody is definitely checking up on me (3);
- C) Someone’s probably got the wrong number (1).”

Scores were added up to create a total CBQp score with a maximum score of 90, and subsequent subscale scores. Cronbach’s α for the total CBQp in this study was .87.

Results

Overall relationships. Table 4.4 shows the means and standard deviations of the scales used.

Table 4.4. Mean/total ratings for scales used in Study 8 (standard deviations in parentheses).

Scales	Mean/SD
Beads drawn - mean (higher score = more beads)	7.63 (5.87)
Generic Conspiracy Belief Scale mean (higher score = greater belief)	2.34 (0.91)
Peters et al. Delusion Inventory – mean (max = 21) (higher score = higher delusional ideation)	4.35 (3.40)

Table 4.4 continued. Mean/total ratings for scales used in Study 8 (standard deviations in parentheses).

Scales	Mean/SD
Schizotypal Personality Questionnaire – mean (max = 74) (higher score = higher schizotypal traits)	24.58 (13.93)
Cognitive Biases Questionnaire (CBQ) – mean total (max = 90) (higher score = higher susceptibility to cognitive biases)	41.91 (7.52)
CBQ “Anomalous Perceptions” – mean (max = 45) (higher score = higher self-esteem)	21.97 (4.83)
CBQ “Threatening Event” - mean (max = 45) (higher score = more socially submissive)	19.94 (3.39)

Jumping-to-conclusions. 29 participants (21.8%) made a decision on the beads task using two or fewer beads, demonstrating the jumping-to-conclusions bias. A t-test showed that those who jumped-to-conclusions scored significantly higher ($M = 2.69$, $SD = 1.01$) on the Generic Conspiracy Belief scale compared to those who did not ($M = 2.24$, $SD = .86$) ($t(131) = 2.41$, $p < .01$). There were no significant differences in the scores for those who jumped to conclusions and those who did not on the PDI, SPQ and CBQp (PDI, $p = .09$; SPQ, $p = .08$; CBQp, $p = .07$).

Correlations. In order to test the hypothesis that conspiracy belief would be positively correlated with an increase in scores in delusional thinking, jumping-to-conclusions, cognitive biases and schizotypal personality traits, a series of one-tailed point-biserial correlations were completed. A dichotomous variable was used to demonstrate whether a participant had or had not jumped to conclusions. The results are reported in Table 4.5. Conspiracy belief was significantly and positively correlated with jumping-to-conclusions ($p = .01$); delusional thinking; distress, conviction and preoccupation of delusional beliefs; and cognitive biases related to threatening events and anomalous perceptions (all $p < .001$).

Confirmatory factor analysis (CFA). Several models were created using SPSS AMOS for confirmatory factor analysis (CFA). Several hypothesized models were tested in order to demonstrate possible links between conspiracy belief and delusional ideation, schizotypal personality and cognitively biased thinking.

Model fit for this study was assessed in three ways; χ^2 as a measure of overall fit, CFI as a measure of incremental fit, and the root mean square error of approximation (RMSEA). A non-significant χ^2 statistic indicates that the pattern of data predicted by

the model is not distinguishable from the observed. In addition, values of CFI range from 0 to 1, where a value of more than .90 demonstrates an acceptable fit of the model to the data; whereas an RMSEA value of less than .05 indicates a good fit (Bollen, 1989; Loehlin, 1992).

The first model created a single factor called “Delusional Ideation” and scores from the PDI, CBQ and SPQ were loaded on to it. This factor was then used to predict whether a participant jumped to conclusions. This model was a poor fit ($\chi^2 (2, n = 133) = 1.422, p = .49, RMSEA = .373, CFI = 1.00$) and there was a large amount of correlation between some of the variables and their error rates. The relationship between the “delusional ideation” factor and the jumping to conclusions variable was also weak.

The next model continued with a single factor “Delusional ideation”, and scores from the PDI, CBQ and SPQ were loaded on to it. This delusional ideation factor was then instead used to predict scores on the GCB, with the JTC variable dropped. This model was also a poor fit ($\chi^2 (2, n = 133) = 1.178, p = .56, RMSEA = .473, CFI = 1.00$).

A further model created an additional factor “Cognitive Biases”, which the scores from both the “Threatening Events” and “Anomalous Perceptions” aspects of the CBQ were loaded on to. In addition, these factors were allowed to correlate with each other. The conspiracy belief scores were the final variable that correlated with these two factors. This model was a good fit ($\chi^2 (3, n = 133) = 2.007, p = .57, RMSEA = .000, CFI = 1.00$). The final model can be found in Figure 4.1 below.

Figure 4.1. Best-fit model demonstrating the relationships between labelled factors of delusional ideation and cognitive biases, with conspiracy belief. Standardised regression weights are shown.

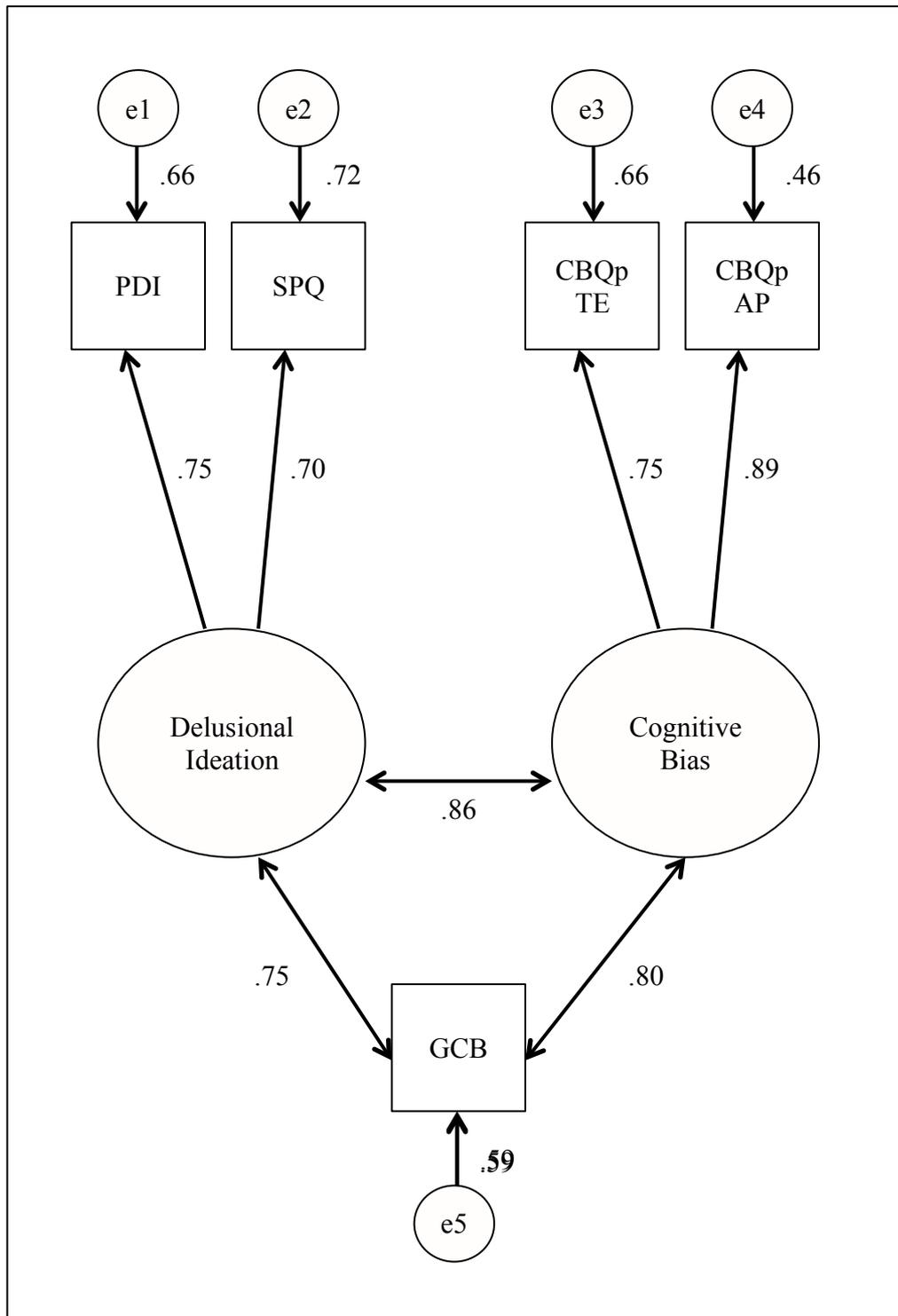


Table 4.5. Correlation matrix for scales used in Study 8.

Scales	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. JTC Y/N	–									
2. PDI – Y/N	.12	–								
3. PDI – Dis.	.14	.92**	–							
4. PDI – Pre.	.15	.94**	.96**	–						
5. PDI – Con.	.09	.95**	.93**	.95**	–					
6. CBQp - Total	.13	.59**	.65**	.66**	.59**	–				
7. CBQp - TE	.17	.52**	.59**	.59**	.50**	.94**	–			
8. CBQp - AP	.05	.58**	.61**	.62**	.59**	.88**	.66**	–		
9. SPQ	.19	.67**	.68**	.69**	.62**	.70**	.68**	.59**	–	
10. GCB	.21*	.55*	.58**	.56**	.57**	.53**	.45**	.54**	.43**	–

* $p < .05$, ** $p < .01$ two-tailed. $n = 133$. **Key:** JTC = Jumping-to-conclusions; PDI = Peters' et al. Delusions Inventory; PDI Dis. = Distress subscale of PDI; PDI Pre. = Preoccupation subscale of PDI; PDI Con. = Conviction subscale of PDI; CBQp = Cognitive Biases Questionnaire for Psychosis; CBQp TE = Threatening Events subscale of the CBQp; CBQp AP = Anomalous Perceptions subscale of the CBQp; SPQ = Schizotypy Personality Questionnaire; GCB = Generic Conspiracy Belief

Discussion

Study 8 again demonstrated a measurable data-gathering bias that existed in a non-clinical population. The beads task showed that approximately 22% of the sample made a decision in two or fewer beads and the study also found that participants who jumped to conclusions had significantly higher belief in conspiracy theories than those who did not. The JTC reasoning style was not related, however, to higher levels of delusional conviction, which goes against previous findings by Freeman, Pugh, and Garety (2008).

The results also revealed a curiosity in the decision-making of some participants, who did jump to conclusions but selected the incorrect jar, and were in fact the only participants who made an incorrect decision on the beads task. As the order of the beads presented was fixed for each participant to allow for greater cross-comparison, the first three beads that participants see are always orange. These 7 participants (24% of all who jumped to conclusions) seemed to demonstrate a “resistance to evidence” that was above and beyond what we would expect to see on this task. These specific participants seemed to exhibit a mistrust of the procedure as a whole, and selected the incorrect jar, as a resistance to what they felt was a leading choice. Their disobedience perhaps represents one of the limitations of this paradigm and also an area of further study.

This pattern of “resistance” was also demonstrated by Jolley, Thompson, Hurley et al. (2014), where deluded patients made contradictory decisions despite successive beads suggesting the other jar. In their study, the participants had high levels of delusions, high IQ scores and their responses were not related to a misunderstanding of the task; the researchers concluded that these behaviours were driven by a suspiciousness of the evidence being presented. In our study, although highly speculative given the small sample size ($n = 7$), we found those who contradicted the logical (and correct) jar choice compared to the participants who did not jump to conclusions, showed significantly higher levels of delusional distress ($t(119) = 1.85, p = .03$), preoccupation ($t(119) = 1.98, p = .025$), and conviction ($t(119) = 2.00, p = .02$), scored significantly higher on the SPQ ($t(119) = 2.59, p = <.01$), and also showed significantly higher belief in conspiracy ($t(119) = 3.08, p = <.001$).

Study 8 unfortunately continued to find anomalies in the beads task paradigm that were seen in Study 7 for measuring the jumping-to-conclusions bias. Previous work continues to provide unclear results in finding a correlation between delusional ideation

and the jumping-to-conclusions bias (Freeman, 2007; Freeman et al., 2008; McKay, Langdon, & Coltheart, 2006; Whitorf et al., 2012; Zawadzki et al., 2012). This absence of a correlation with the Peters et al. Delusions Inventory was seen in both studies in this chapter, and it was proposed that the task for Study 8 be better explained to participants to prevent a clustering of participants taking the full 20 beads and then being forced to make a decision. Despite this, and other minor modifications to the task, the same lack of relationship persists.

This conservative response of selecting a greater number of beads is more typical of a non-clinical sample (Zawadzki et al., 2012) and represents the limitations of using the beads task on this type of participant. The majority of work completed in this area links the jumping-to-conclusions bias with schizophrenic patients, and only a modest amount of work has also shown this bias to exist in a non-clinical setting. Little research has explored the use of control participants in validating the bias with other measures of sub-clinical delusions. It is sensible to assume therefore that the continued negative results in relationships with the bias and other forms of delusional thinking or cognitive biases suggest that the effects of this specific type of data-gathering bias might be limited to schizophrenic samples, or that the beads task is an ineffective way of measuring this bias when compared to other approaches.

CFA models that included the jumping-to-conclusions bias variable were not found to be a good fit for the data. Although jumping to conclusions could be hypothesized to contribute to the factor of “Cognitive Biases”, its addition added nothing significant to the overall model, and that as the JTC bias represents just one type of cognitive bias, the factor was already adequately defined by other measures.

The fact that in the final CFA model, conspiracy belief loaded onto both factors of “Cognitive Biases” and “Delusional Ideation” demonstrates multiple relationships at work in explaining conspiracy belief. This finding adds to the growing body of research that demonstrates links between schizotypal traits and conspiracy belief. Because conspiracy belief can be seen here to follow some of the same characteristics and behaviours as delusional ideation, it would be prudent to continue to explore and contrast clinical forms of delusions and sub-clinical delusion-prone ideation, in an attempt to place conspiracy belief in the correct context. The correlation between the two factors of delusional ideation and cognitive biases is also further evidence of how delusions can be formed and maintained. Freeman (2007) proposed a model of

persecutory delusion formation that relied on the presence of cognitive biases, which is conceptually supported by this non-clinical dataset.

Using the delusional ideation literature as a starting point, it might be sensible to include measures of conviction and preoccupation when measuring generic conspiracy belief. Low levels of conspiracy belief, for example, might not be supported by high levels of conviction, and we may find a difference in the types of people who entertain conspiracy theories as interesting and plausible narratives, versus the types of people who exhibit high levels of belief and conviction which might begin to affect their behaviour.

Part of the overall “cognitive biases” factor in the CFA model comes from a section of the cognitive biases questionnaire that deals with threatening events. Delusional beliefs often occur after a stressful or threatening event or experience and can be created and reinforced from the search for an explanation, alongside confirmation of already pre-existing beliefs and ideas that the person may already hold. As a result, a delusional belief may be reinforced by the individual using it as an explanation for the experience, alongside the belief that they are “not losing their mind” (Freeman et al., 2002). The possible framework could also extend to conspiracy theories, of which the majority are created and shared after a significant world event.

This response to threat, borne through paranoia, is a behaviour that has been previously demonstrated to be relevant in conspiracy belief (Darwin, Neave, & Holmes, 2011; Grzesiak-Feldman & Ejsmont, 2008). Holm (2009) has also argued that conspiracy thinking creates a deeply suspicious world-view, with a paranoid mistrust of external agents. Given the relationships with threat responses in this current work, a further examination of the role of paranoia in the formation and maintenance of conspiracy belief could provide promising insight.

Using the created model, Study 8 has demonstrated that conspiracy belief is related to existing models of delusional ideation and is potentially susceptible to the same forms of cognitive biases and patterns of thinking that help form and maintain more serious forms of clinical delusion. This causal hypothesis however, cannot be validated with the correlational approach for Study 8. Conspiracist ideation showed a small correlation with the jumping-to-conclusions bias, but its role as part of a wider collection of cognitive biases is unclear. Delusional ideation and cognitive biases are both strong and significant predictors of belief in conspiracy theories – but this does not necessarily mean that they are born out of the same processes, given that our model is

correlational in design. Further work would be needed to establish causal relationships to demonstrate that conspiracy beliefs may or may not be forms of sub-clinical delusions, as opposed to being a wider phenomenon that could be explained differently.

General discussion

The two studies in this chapter aimed to explore the role of the jumping-to-conclusions bias in conspiracy belief, as well as assessing possible shared antecedents with delusional ideation, schizotypy and proneness to cognitive biases. The results from these studies have provided a mixed picture. Study 7 successfully demonstrated that a minority of a non-clinical sample would exhibit a jumping-to-conclusions bias when measured using the beads task, but that this bias was not related to delusional ideation, or conspiracy belief. Study 8 also found a similar percentage of participants who exhibited the bias, and while this correlated with conspiracy belief it did not correlate with delusional ideation, schizotypy, or a generic measure of cognitive biases proneness. Despite this, belief in conspiracy theories was related to delusional ideation, schizotypy and cognitive biases, supporting earlier work in this area and suggesting possibly shared cognitive antecedents. While delusional ideation and related concepts are associated with conspiracy belief, they together only contributed a small proportion of the variance in the models tested in both studies.

The studies presented in this chapter add further consideration to the limitations of applying a psychopathological model to conspiracy belief. They also raise questions about the exact nature of the beads task given the mixed findings of the current results. The literature describes a large number of variants of the beads task without necessary clarity on the exact nature of the usefulness of such differences. A meta-analysis by Fine et al. (2007) attempted to provide some uniformity by assessing the various versions of the beads task to establish which had the most validity in measuring the JTC bias, but argued that as a consequence of the indistinct task, published findings had not reached a consensus on exactly how the JTC bias was meant to affect patients with delusions. Although the literature appears to have reached agreement that the JTC bias is a product of hasty decision making using less evidence rather than a bias of probabilistic reasoning, it is not clear why this process should lead to delusional ideation. The prevailing hypothesis is that anomalous experiences are incorporated into a delusional mind-set due to the mis-weighting of the value of evidence, or a resistance

to disconfirmatory evidence that may otherwise attribute the experience towards a more mundane explanation.

This inconsistency surrounding the JTC bias and its measurement via the beads task subsequently has led to a literature that has created a variety of beads tasks all purporting to measure the same thing but with a different impact on delusional ideation as a result. For example, a beads task where a participant must draw beads until they wish to make a decision on which jar the beads have come from (draws to decision) would be used to give evidence that delusional patients unfairly weight evidence at the beginning of the sequence. A “draws to certainty” beads task, where patients give a confidence rating as part of the beads task, tests a different hypothesis, that a form of motivated reasoning to confirm a hypothesis leads greater confidence with fewer beads. There are beads tasks that use a ratio of 85:15 or 60:40, beads tasks that allow an unlimited number of beads to be taken, up to the maximum of 100, and others that limit the beads to 20 or 50. There are beads tasks that ask participants to record their certainty with each bead, or ask for their certainty only when making a decision. Even with the Fine et al. (2007) analysis, the use of a variety of beads tasks in the subsequent literature persists.

The use of the beads task in a non-clinical sample also presents some issues. The predominant literature has focused on patients with schizophrenia to determine the role the JTC bias has in delusion formation and maintenance. This leads to an obvious confound, given that schizophrenic patients typically display reduced cognitive capability, which would likely lead to reduced performance on tasks such as these. Subsequently, the limited amount of work published that evaluates the use of the beads task in a non-clinical sample (Freeman et al., 2008; Lincoln et al., 2010; McKay et al., 2006) has done so to try and address this confound, rather than to explore the nature of the JTC outside of a deluded sample. This also leads to mixed results when discussing the effect the JTC bias may have on measures of sub-clinical delusional ideation, such as the PDI. With no clear link in the literature between how sub-clinical delusional ideation may convert into clinical delusions, it is not surprising that the existing research has struggled to find a clear relationship between a predominantly clinical measure of delusional thinking in the form of the beads task, with a sub-clinical measure of delusions. Freeman et al. (2008) studying a non-clinical sample found that the JTC bias was not related to the presence of delusional ideation but the *conviction* of those beliefs. With a sample size of 200 the relationship between jumping to

conclusions and conviction of delusional ideation was only just significant ($p = .046$), and did not significantly correlate with any other measure of delusion proneness. In Study 8 this finding was not replicated; the data did not show a significant correlation with the presence, conviction or preoccupation with sub-clinical delusional thoughts.

The limitations of using the beads task with a non-clinical sample should also be considered a limitation of the work in this chapter. The literature has not sufficiently demonstrated the usefulness of measuring this proposed bias outside of a clinical setting, and although some work has suggested this bias may exist in approximately 20% of non-clinical samples, it has not successfully demonstrated any detrimental effects from this. A meta-analysis of the beads task in non-clinical samples, published after the work in this chapter was completed, found a small correlation between the beads task and scores on the PDI ($r = .10$) (Ross, McKay, Coltheart, & Langdon, 2015). The authors argued that the effect sizes were so small that if paired with other measures of delusion the beads task was likely not to contribute any additional variance, and that this was likely down to the large amounts of beads task variants being used. The authors' other main argument was that the beads task may not adequately measure the JTC bias in non-clinical samples, especially when we consider the probabilities of making a correct choice during the task. If (with a ratio of 85:15) the first 2 beads drawn from the chosen jar are black, then the probability that the jar that was picked is 85% black to 15% orange is 0.97 (Ross et al., 2015). Can it be said therefore that a person jumps to conclusions making a decision when the probability of being correct is so high?

Despite the limitations of the beads task, the results in the chapter present some results that allow us to further understand the role of delusional ideation, schizotypy, and conspiracy belief. Medium sized correlations replicated across both studies demonstrated that it is likely conspiracy belief and delusional ideation may share similar characteristics, but this did not expand to the role of the jumping-to-conclusions bias in how people may weight or gather evidence. Further work should continue to take a lead from the sub-clinical delusion literature to assess the similarities and differences between delusion formation and conspiracy theory belief. The work presented in this chapter also further highlights that although it is likely some characteristics are shared, there are distinct differences between conspiracy theories and delusions, and that any future work should be sensitive of the uniqueness of the conspiracy mindset.

Chapter 5

General discussion

Key findings

Revisiting the aims of this thesis

The work in this thesis aimed to expand on previous correlational work to determine possible causal directions for existing psychopathological components of conspiracy belief. A series of experiments examining the role of personal control, paranoia, delusional ideation, self-esteem, and the jumping-to-conclusions bias on conspiracy belief were conducted and the results summarised and discussed.

Key findings

Study 1 demonstrated that a lack of control manipulation caused a small but significant increase in generic conspiracy belief. However, although participants reported feelings of “powerlessness” differed between conditions, the manipulation failed to affect a “personal sense of power” scale, suggesting that the manipulation does not generalise to feelings of power over social situations. It also raised a concern regarding the validity of the control manipulation - does this task relate solely to feelings of control over the task, or does it also generalise to general control that may explain its effect on conspiracy belief? Study 1 also failed to replicate earlier findings by Whitson and Galinsky (2008) that suggested that personal need for structure would increase when control was threatened, as an attempt at compensation. This is problematic, given that the later theoretical implications of these findings are to suggest that conspiracy theories are also an attempt at compensatory control.

Study 2 sought to better assess the nature of the control manipulation by introducing measures of both task-based and generalised personal control. The study found that the manipulation’s effect was limited to measure of task-based control, and did not generalise to any feelings of everyday personal control. It again failed to replicate earlier findings by Whitson and Galinsky (2008) that showed personal need for structure would increase when control was threatened. The manipulation did, however, make participants more frustrated, angry, and suspicious, but these emotions did not

significantly predict feelings of personal control in the two conditions, suggesting they were limited to feelings generated from the threat to task-based control.

The study also found that there was a small but significant correlation between task-based control and generalised personal control, suggesting that although the concepts are related, the task may not be having its desired effect on generalised personal control.

Chapter 3 set out to establish experimental methods to determine a possible causal link between paranoia and conspiracy belief. Regrettably, three different methods of manipulating paranoia in a laboratory setting failed to provide the expected results. Study 3 used a novel modification of the “Scrambled Sentences Task”, which failed to change scores on a paranoia measure, but the data at an overall level showed a small but significant correlation between conspiracy belief and paranoia. It also established larger significant correlations between paranoia and self-esteem, whereby participants with lower self-esteem showed higher paranoid thoughts. Self-esteem, however, was not shown to be related to conspiracy belief. Study 4 attempted a previously published paranoia manipulation using a 2-way mirror to elicit heightened self-consciousness as a proxy for paranoia. This again failed to affect paranoia scores, but after an assessment of a possible moderation effect it was discovered that the mirror’s effect on paranoia scores was being buffered by self-esteem. Participants with high self-esteem in the manipulation condition showed lower paranoia scores than participants with high self-esteem in the control condition. Study 5 used a related manipulation of self-consciousness using a simulated CCTV camera, coupled with an impossible task – another experimental manipulation that has shown previous published success in raising paranoia. This too failed to significantly affect state or trait paranoia, or belief in conspiracy theories, but again provided a significant correlation between conspiracy belief and paranoia. Finally, Study 6 attempted to explore the role of self-esteem further, given that self-esteem was previously shown to be buffering attempts at manipulating paranoia. Regrettably, despite using a previously published self-esteem manipulation based on concepts driven by the “Forer” effect, the study was only successful in increasing “appearance” self-esteem, suggesting that the manipulation made participants feel better about themselves, but did not generalise to overall self-esteem measures. Conspiracy belief was also not affected by the change in self-esteem.

Finally, Studies 3 and 4 also measured of political orientation, and found that conspiracy belief was not adequately explained by political stance, and that participants on both side of the political spectrum were equally likely to show belief.

Study 7 found a significant positive correlation between conspiracy belief and delusional ideation. The beads task, however, provided mixed results. The data for Study 7 supported earlier work that demonstrated a possible jumping-to-conclusions bias in a non-clinical sample, but it was found that the presence of this bias was not related to conspiracy belief or delusional ideation. Similarly, there were no significant differences between those who did jump to conclusions, and those that did not, on conspiracy belief or delusional ideation. In the discussion of Study 7, possible methodological issues with the beads task are discussed, as it appeared that participants were not informed that a limited number of beads were available to make a decision.

Study 8 attempted to run the beads task again with more precise participant instructions, alongside measures of schizotypy, delusional ideation, cognitive biases, and conspiracy belief. 22% of the sample exhibited the jumping-to-conclusions bias, who also showed significantly higher belief in conspiracy, but no other significant differences were found. A confirmatory factor analysis model demonstrated that two factors, “Cognitive Biases” and “Delusional Ideation” were successful in predicting conspiracy belief. The jumping-to-conclusions variable, however, did not significantly improve this model, with the variance already likely captured by existing measures of delusional ideation and cognitive biases. Study 8 also found a small percentage of participants who jumped to conclusions and selected the incorrect jar, demonstrating a resistance to evidence that suggested these participants mistrusted the task and the leading choice the beads task was presenting.

Implications

Personal control. Although Study 1 found that a lack of control manipulation had an effect on conspiracy belief, there are wider concerns about the exact mechanism of the “concept identification task” on control. Study 1 and Study 2 failed to replicate existing findings whereby a lack of control would result in an increase in participants’ need for structure; a mechanism the original authors suggested was part of a compensation to the control threat. This effect on need for structure was also used in arguments to support the validity of the control manipulation. Study 2 aimed to understand the effect of this manipulation on a variety of control measures, and could

not find evidence to support the claim that the task was successfully affecting general control.

Consequently, although Study 1 successfully demonstrated that a control threat raised belief in conspiracy theories, further work is needed to determine the exact mechanism of this task, and to place the results in context. It is particularly unhelpful that existing literature uses the terms power and control interchangeably, without establishing they are separate concepts. Similarly, there are different types of control, some of which may be more relevant when it comes to assess the allure of conspiracy theories. Low feelings of political control, for example, may push individuals towards conspiracy theories in ways personal control over everyday situations may not.

Paranoia and self-esteem. Chapter 3 adds further evidence that conspiracy theory belief and paranoia are related but are not necessarily manifestations of clinical pathology. Additionally, the results showed that self-esteem's effect on conspiracy belief continues to contribute very little to our understanding. The lack of a consistent relationship between conspiracy belief and self-esteem actually supports our understanding that conspiracy belief remains distinct from clinical levels of delusion. Work studying clinical paranoia shows a strong link between self-esteem and paranoia, which subsequently has implications for mental wellbeing. Conspiracy theories on the other hand, do not show this relationship with self-esteem. Although as discussed in the introduction, conspiracy theories are not without harmful consequences, it appears from these results that belief in conspiracy theories does not negatively affect self-esteem.

Chapter 3 again reveals a troubling pattern when attempting to replicate existing paradigms that have previously been published as successful. Two published paranoia manipulations failed to replicate in Studies 4 and 5, and there is also a conspicuous lack of replication and follow-up studies published in the literature.

Delusional ideation and the jumping-to-conclusions bias. Chapter 4 successfully demonstrated a relationship between delusional ideation, schizotypy, cognitive biases, and conspiracy belief. Although correlational in nature, the results suggested that belief in conspiracy theories share similar underlying cognitive processes that can lead to odd or unusual beliefs, as well as leaving people more prone to delusions. These findings provide exciting opportunities for further study to determine why schizotypy, delusional ideation and conspiracy theory overlap.

Chapter 4 also raised some concerns about the beads task and its reliability in measuring the "jumping-to-conclusions" bias. Although the literature argues that the

JTC bias is a likely pathway for deluded patients making errors in judgment and decision-making, few studies have demonstrated a correlation between the beads task and measures of delusional ideation such as the PDI. In both Studies 7 and 8, the beads task did not correlate with the PDI, and little work has demonstrated whether exhibiting the JTC bias has any significant or detrimental effects on non-clinical participants.

Chapter 4 showed that conspiracy believers are prone to a wide range of related cognitive biases; including dichotomous thinking, jumping-to-conclusions, emotional reasoning, and odd beliefs and magical thinking. We cannot infer causality from the data presented, but it is likely that these key characteristics are playing a part in how people present conspiracist ideation. What is not clear is whether conspiracy believers also present sub-clinical delusions, or instead present sub-clinical delusional ideation that relates to their overlying conspiracy belief. As discussed in Chapter 3, delusions tend to be self-referential in their focus and target, whereas conspiracy belief is more concerned with threats to everyone. If conspiracy believers share similar thought processes to those prone to delusion, what factor drives people to belief in conspiracy theories rather than belief in delusions?

Limitations

It is important to recognise that the work presented in this thesis is not without limitations. Typical of most work in the psychological literature, the general representativeness of the sample needs further discussion. Although some efforts were made to recruit more widely using Internet sample across countries, a proportion of the work presented here was derived from university student samples. Naturally, all participants were ultimately self-selecting and this may have led to a biased sample; a particular concern when trying to draw conclusions that the general population exhibit the same behaviours as seen in these smaller samples.

For the recruitment of all studies, the experiments were suitably edited to remove references to conspiracy beliefs or politics from the invitation and briefing literature. Nevertheless, it is possible that these studies were not successful in attracting the full spectrum of conspiracy believers, especially those who were likely to show the highest belief. The ability to recruit larger sample sizes from the online studies (Studies 3, 4, 6, and 8) to some extent may have helped increase the chances that those at the extreme edges of belief were included.

Another limitation can be found for Studies 6 and 7, that suffer from low base sizes due to the limited resources available in being able to recruit a large sample for a lab-based experiment. Although the number of participants recruited matched similar work in this area attempting to manipulate paranoia using a camera ($n = 10$ per condition; Ellett & Chadwick, 2007) and using a two-way mirror ($n = 20$ per condition; Fenigstein & Venable, 1992), the studies failed to replicate the manipulations' effects.

The use of the Generic Conspiracy Belief scale can be seen as both a strength and a limitation for this thesis. The use of one consistent measure throughout this work allows results between chapters to be compared, as well as to serve as an attempt at exploring generic conspiracy belief from multiple approaches. The use of a generic measure as opposed to asking participants about specific conspiracy theories was an attempt at measuring common underlying antecedents of conspiracy belief rather than potentially just measuring familiarity with possibly politically-charged and culturally-specific theories themselves. The GCB, however, is not the only measure that exists that attempts to measure conspiracy belief in this way. The Conspiracy Mentality Questionnaire (Bruder et al., 2013), published around the same time as the GCB, also takes a generic approach, compared to the more theory-specific approach of the Belief in Conspiracy Theories Inventory (Swami et al., 2010). A recent review assessing the factorial validity of the different scales in the literature was published after the experimental work in this thesis was completed (Swami et al., 2017). These authors found that the GCB's 5-factor model did not replicate for their data, instead finding that a 2-factor model was a better fit. They found the 3 items relating to extra-terrestrial (ET) conspiracy theories and the 1 item relating to mind control technology loaded onto a separate factor away from the rest of the "general items". The authors suggested that it was unclear whether the scale measures a single dimension (general conspiracy belief) or multiple dimensions (including ET conspiracy theories). Consequently, the lack of examination of the individual factors of the GCB for this thesis should be considered a limitation, especially given this recent work published questioning the factorial validity of this scale. This also raises questions more generally with measuring conspiracy belief in this way – do these scales successfully measure conspiracist "ideation" or rather just endorsement of either certain theories, or the broad themes behind them?

Although the use of a generic scale can help avoid issues with bias from cultural context and pre-existing awareness of popular conspiracy theories, it may not be sensitive enough to detect changes in conspiracy theory belief in specific contexts. The

GCB is predicated on the argument that conspiracy theory belief is “monological”, whereby an individual’s support for a particular conspiracy theory belief is presented as part of a wider belief system offering conspiracy theories as explanations for a variety of topics. Indeed, one of the most robust findings of the conspiracy theory belief literature is the correlation between belief in different conspiracy theories (Goertzel, 1994; Swami et al., 2011; Swami & Furnham, 2012).

However, as research in this area has gained traction, the idea of a monological conspiratorial “world-view” has evolved. One of the limitations of this approach is that specific conspiracy theories can be incompatible or even contradictory. In Wood et al. (2012), the more participants believed that Osama Bin Laden was already dead when the US raided his compound, the more they believed he was still alive. Underpinning this dichotomy was the belief that the authorities were engaged in some form of cover-up, allowing mutually incompatible conspiracy theories to be incorporated into a worldview that was driven instead by a different belief.

To some extent, a generic scale attempts to remove the discussion of content of competing conspiracy theories down to underlying core beliefs, but which is still reliant on the idea that all theories are equal and all are driven by the same core “monologicality”. Franks, Bangerter, Bauer, Hall, and Noort (2017) argued that a conspiratorial worldview may be adhered to up to a certain point, but through the use of semi-structured interviews with conspiracy theory believers, the researchers argued that a conspiratorial world-view is not limited to just the presence of a suspicion of ‘cover-up’. Further work in this area also lead to Douglas, Sutton, and Cichocka (2017) arguing that people may be drawn to conspiratorial explanations when they satisfy epistemic (including sense-making), existential (restoring control or certainty), or social (preserving the self or group) motives.

For this work, the use of a generic scale may have reduced the possibility of detecting an effect on some of the manipulations, if we consider that the endorsement of a conspiracy theory may help explain or satisfy an epistemic or existential motive.

Nevertheless, the work presented here adds to the growing body of work still in its infancy – conspiracy belief research is only recently attracting attention in the broad psychological literature, and published experimental work assessing possible causes of conspiracy belief remains rare.

Direction for future work

Further work is needed to establish whether personal control is related to conspiracy theories. If the compensatory model of control is valid, then why do we see negative correlations between belief in conspiracy theories and feelings of personal control? To test whether conspiracy belief would restore possible feelings of a lack of control, a pre-post 2x2 experimental design would allow any possible compensation mechanisms to be studied directly.

Chapter 2 also highlighted that future researchers should be wary about relying on the concept-identification task to manipulate feelings of control without adequately identifying which types of control are relevant for their hypotheses, and whether subsequent arguments on a compensatory mechanism are supported by the current data. Recent failed replications published after this experimental work was completed also highlight the importance of requiring a higher standard of evidence when using these types of manipulation – particularly in the current age of the “replication crisis”. Most conspiracy work published refers to the original Whitson and Galinsky (2008) study as an established effect, despite no published work existing that explains how the paradigm might affect the different types of personal control currently being discussed in the literature.

For paranoia work, future manipulations using a self-consciousness proxy should take self-esteem into account. The evidence from Chapter 3 adds to the body of work that has established a relationship between conspiracy theory belief and paranoia, but a causal connection could not be established. Alternative experimental designs may be possible to determine whether paranoia increases or decreases after exposure to conspiracy belief, but may struggle in identifying the possibility that the relationship is reciprocal. As for the findings from Chapter 2, pre and post measurement of conspiracy theory belief and paranoia scores with between- and within-participant exposures to conspiracy theories may help in uncovering causal directions.

Finally, for work on delusional ideation and the jumping-to-conclusions bias as measured by the beads task, special care should be taken when investigating possible causal relationships. Chapter 4 added to the groundwork for future studies that should explain some of the characteristics that are shared between delusional ideation, schizotypy and conspiracy theory belief. The strengths of the relationships seen in Chapter 4 also suggest that although conspiracy theory belief and delusional ideation are linked, conspiracy beliefs are unique in their presentation, and cannot be adequately explained by conventional measures of delusional ideation.

In Chapter 4, both studies failed to find a correlation between the beads task and delusional ideation, and little work has been published to determine whether the JTC bias has any detrimental effects on non-clinical participants. Future work should attempt to address this, both as part of a validation of the beads task itself and also to broaden our understanding of the jumping-to-conclusions bias in non-clinical populations.

Chapter 4 also suggests way to improve the GCB by adding measures of conviction and preoccupation. There may be subsets of conspiracy belief that may correlate more than others with all of the research areas presented in this thesis; conspiracy believers who show higher conviction in their beliefs likely act differently to believers who are attracted to theories more for entertainment. The thesis also did not attempt to measure generic conspiracy theory belief using the 5 factors of the GCB. It is conceivable that different types of conspiracy theory belief may respond to different attempts at manipulation, and would be a sensible area for future work.

More broadly, the work presented in this thesis supports the direction of recent work published that argues that although psychopathological components are important to consider, conspiracy theory belief cannot solely be explained by this approach (Douglas et al., 2017, 2019). The work in this thesis found moderate correlations between paranoia, delusional ideation and conspiracy theory belief, underpinning a recent meta-analysis that suggested that although these antecedents are related, conspiracy theory beliefs present uniquely, and cannot be considered as entire products of psychopathology (Imhoff & Lamberty, 2018). Future work in this area is beginning to refine its approach, studying conspiracy theories more holistically as a political and social construct, that may rely on psychopathological tendencies as a way of compensating (effectively or not) for existential threats. Importantly, if evidence of the potential harm of belief in conspiracy theories continues to be presented, it is incumbent on researchers to consider how psychological findings can inform interventions.

Overall conclusion

In conclusion, this thesis has presented novel work demonstrating that a lack of control can increase generic conspiracy belief, as well as demonstrating that the lack of control manipulation first popularised by Whitson and Galinsky (2008) fails to affect generalised personal control. The research also demonstrated that failures in manipulating paranoia using self-consciousness proxies may be due to the moderating effect of self-esteem. Despite the manipulation failures, conspiracy belief was

consistently related to paranoia, but not with self-esteem. The work presented also found that conspiracy belief could not easily be predicted by political orientation, and that participants on both sides of the spectrum were equally likely to show belief.

A novel finding was also present in the exploration of the jumping-to-conclusion bias where a small percentage of participants who exhibited the bias made more mistakes on picking the correct jar, as well as demonstrating significantly higher levels of delusional ideation and conspiracy belief; suggesting a resistance to evidence above and beyond what is normally expected for the beads task. From this work, conspiracy belief also appears related to delusional ideation and specifically the jumping-to-conclusions bias; however, its effect was small compared to other measures of delusional ideation.

Conspiracy belief, although related to delusional ideation, paranoia and possible deficits of reasoning and faulty evidence gathering processes, cannot be fully explained simply as by-products of sub-clinical disordered thinking. Like belief in the paranormal and other odd beliefs, conspiracy belief appears to rely on normal processes and biases seen across human cognition. More work needs to be completed to attempt a model encompassing the broad spectrum of factors that may influence conspiracy belief so that correlational relationships can be tested using causal designs. Careful consideration should also be applied to existing work that has demonstrated successful manipulation of personal control, paranoia, and self-esteem given the limited success in replicating this work.

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Appendix 3.1. Scrambled sentences for paranoia and control conditions.

Paranoid sentences

“She was being followed”

“I am being watched”

“The man acted suspiciously”

“They will hurt me”

“The villains harmed her”

“I mailed it over”

“He saw the hammer”

“He finished it yesterday”

“I bought it today”

“I was somewhat prepared”

Neutral control sentences

“She was always worried”

“Replace the old shoes”

“Have a good day”

“Do it once more”

“I mailed it over”

“He saw the hammer”

“He finished it yesterday”

“The sky is blue”

“I bought it today”

“I was somewhat prepared”

**Appendix 3.2. Original self-esteem manipulation by Arndt and Greenberg (1999)
(modified for the current experiment)**

Personality Questionnaire

This is a short personality questionnaire, please try and give honest answers. Once complete, the system will generate a short personality profile based on your responses.

	1 not at all	2 a little bit	3 somewhat	4 very much	5 extremely
You have a great need for other people to like and admire you.					
You have a tendency to be critical of yourself.					
You have a great deal of unused capacity, which you have not turned to your advantage.					
While you have some personality weaknesses, you are generally able to compensate for them.					
Your sexual maturity presented problems for you.					
Disciplined and self-controlled outside, you tend to be worrisome and insecure inside.					
At times you have serious doubts as to whether you have made the right decision or done the right thing.					
You prefer a certain amount of change and variety and become dissatisfied when hemmed in by restrictions and limitations.					

You pride yourself as an independent thinker and do not accept others' statements without satisfactory proof.					
You have found it unwise to be too frank in revealing yourself to others.					
At times you are extroverted, affable, and sociable, while at other times you are introverted, wary, reserved.					
Some of your aspirations tend to be pretty unrealistic.					
Security is one of your major goals in life.					

Appendix 3.3. Personality feedback from self-esteem manipulation by Arndt and Greenberg (1999)

Positive Feedback Condition

The system has generated your personality profile based on your answers. Please read carefully and then answer the following questions.

Time and Place of Evaluation:

Methods used: Beck Personality Inventory, Rosenberg Self-Assessment, Sensitization Scale, Eysenck Trait Inventory, and the Field Dependency Assessment

Evaluation:

You are self-sufficient and you do not have a strong need for other people to like you and admire you. You wisely tend to accept yourself as you are rather than be critical of yourself. You have an exceptional amount of unused energy which you can easily learn to turn to your advantage. While you may feel you have some personality weaknesses, your personality is very strong. Your sexual adjustment has presented far less than the usual amount of problems for you.

While you may feel worrisome and insecure, you have a great deal of discipline and control on the inside. You seldom have serious doubts as to whether you have made the right decision or done the right thing. You may prefer a certain amount of change and variety but when necessary can work effectively and creatively even when hemmed in by restrictions and limitations.

You pride yourself on being an independent thinker and are open to new opinions and viewpoints. You are more capable than most of being quite frank in revealing yourself to others. Although you are generally extraverted, affable, sociable, you also have to capacity enjoy and fully utilize the time you have to yourself. Given your personality traits, there's a good chance that even your most ambitious aspirations are realistic.

Neutral Feedback Condition

The system has generated your personality profile based on your answers. Please read carefully and then answer the following questions.

Time and Place of Evaluation:

Methods used: Beck Personality Inventory, Rosenberg Self-Assessment, Sensitization Scale, Eysenck Trait Inventory, and the Field Dependency Assessment

Evaluation:

You need other people to like you and admire you. You have some tendency to be too critical of yourself when you should accept yourself as you are. Much of your energy is not used to full advantage. You have personality weaknesses. However, you are able to compensate for most of them. Your sexual adjustment has presented few problems for you.

Often you have difficulty disciplining yourself, hindering you from getting things done. You are usually confident in your abilities but you are often concerned about realizing your potential. At times you doubt whether you have made the right decision or done the right thing. You prefer a certain amount of change and variety but sometimes allow yourself to be hemmed in by restrictions and limitations.

You try to be an independent thinker but often fail to do so, accepting others' opinions without satisfactory proof. You have found it unwise to be too frank in revealing yourself to others. At times you are extraverted, affable, sociable, while at other times you are introverted, wary and reserved. Some of your aspirations are a bit unrealistic but others are attainable.