

The measurement and prediction of conspiracy beliefs

by

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Abstract

A conspiracy theory or belief has typically been defined as an allegation of malevolent secrecy and plotting by a group of powerful actors, working in unison to fulfil sinister hidden goals at the expense of the general populace. Such beliefs tend to contradict common (and typically more benign) explanations for events and have the potential to reinforce or be used to 'justify' undesirable behaviours (e.g., discrimination, non-adherence to crucial healthcare practices, and environmental damage). However, the social psychological literature, specifically, concerning conspiracy beliefs is in its relative infancy. The overarching aim of this thesis is to provide greater coherency to future literature via a comprehensive examination of the measurement and prediction of conspiracy beliefs.

A review of the existing research illustrates that, to date, the literature has tended to take a 'fractionated' approach to the study of conspiracy beliefs. That is, studies have tended to focus on scenario-specific conspiracies, and isolated predictors of conspiracy belief. Demonstrating that belief in real-world conspiracies and a generalised tendency to believe in conspiracies are equivalent has theoretical implications of understanding exactly what leads to these beliefs. To address this issue Study 1 examined the development, validation, and comparison of a Specific Conspiracy Belief Scale and a Generalised Conspiracy Belief Scale. A comparison of the relationships between various psychological predictor variables and both of these conspiracy belief scales was conducted in Study 2. These studies revealed that the Generalised Conspiracy Belief Scale was equivalent in performance in terms of its relationship to various predictor variables, and reliability and validity, to previously used specific conspiracy belief measures. The advantage of using the single generalised measure is its ability to be used consistently and comparatively across a range of different conspiracy scenarios.

The review of the literature also revealed that although a number of predictor variables have been identified as being associated with conspiracy beliefs, studies have tended to only look at a relatively small subset of variables within a given study. Indeed,

a critical analysis shows that the variables themselves may fall in to various (not necessarily independent) groupings or clusters: *socio-political, personality, psychopathological, cognitive, and psychological control factors*. Thus, the second goal of this thesis was to gain a better understanding of the relative contribution of the variety of variables that have been suggested as predicting conspiracy beliefs. A comprehensive analysis of the role played by a large number of potential predictor variables on their own and as part of domain groupings was performed within the context of a single population study. This issue formed a second aim of Study 2. The results showed that these variables can be reduced down to several common elements, which reveals there is no (as yet identified) single powerfully predictive psychological cause of conspiracy thinking. Rather, it is likely that psychopathological, socio-political, personality, and cognitive elements combine to explain individual differences in conspiracy belief.

Finally, the validity of the Generalised Conspiracy Belief Scale and the relationships between a subset of key predictor variables (identified in Study 2) and conspiracy beliefs in the context of a wider population sample was a focus of Study 3. By using a large New Zealand-wide sample, Study 3 also broadened the scope of the thesis to examine the potential contribution of key demographic variables *and* psychological predictor variables in the prediction of conspiracy beliefs. Combining the demographic and psychological variables together in a hierarchical multiple regression revealed that nearly a quarter of variance in conspiracy belief was explained by these factors. However, when removing the shared variance of these predictors a number of demographic and psychological variables became non-significant or weakly predictive at best – a finding which again suggests that there are common elements that predict conspiracy belief. The remaining unique predictors of conspiracy thinking suggests that one of these common elements represent a hostile, suspicious, cynical, and threat-based worldview. Finally, although demographic variables do impact conspiracy beliefs, their unique effect is very small, and their effect works indirectly by impacting psychological predictors of conspiracy thinking.

In conclusion, the current thesis has demonstrated that a single Conspiracy Belief Scale can serve as a useful and valid tool for future studies investigating

conspiracy beliefs and that although individual psychological and demographic variables only weakly predict conspiracy beliefs on their own, they do cluster around potential themes which can aid in the development in a more comprehensive theoretical perspective on conspiracy.

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From “The Measurement of Perceived Relationship Quality Components: A Confirmatory Factor Analytic Approach,” by G. J. O. Fletcher, J. A. Simpson, and G. Thomas, 2000, *Personality and Social Psychology Bulletin*, 26, p. 342. Copyright 2000 by the Society for Personality and Social Psychology, Inc.

Chapter 1

The psychology of conspiracy beliefs

In the wake of human tragedy, why do some individuals struggle to accept the official version of events? How could so many in the United States of America come to believe that the perpetrators of the tragic terrorist attacks on September 11th, 2001, were in fact their very own leaders? An administration that worked together in the utmost secrecy, attacking their own citizens despite the abhorrent consequences, in order to start a war or impinge on civil liberties? Why do some fail to accept official explanations for dire social predicaments, such as the spread of the HIV virus or severe economic downturns? Why believe that the government deliberately spreads diseases amongst the poor or that Jews control world riches, deliberately manipulating the entire global economy to their advantage? And why greet an official explanation for significant world events with incredulity, instead seeking alternative, seemingly outlandish, accounts? More than 300,000 people from industry, universities, and government were involved in a U.S. national effort to land on the moon in 1969. And yet some people believe the moon landings were a hoax, with not a single individual of the 300,000 involved revealing the truth. This list of conspiracy theories goes on. The list also grows. With every new tragedy – for example, the 2012 Sandy Hook mass shootings, the 2015 Paris terrorist attacks, the 2016 Orlando nightclub massacre – more conspiracies are born. In light of these, and other, examples the primary question this thesis seeks to answer is what psychological factors lead individuals to believe in such conspiracy theories?

In this introduction, I will first describe what I mean by the term ‘conspiracy theory’, and what constitutes ‘conspiracy belief’. I will present some background information regarding the prevalence of these beliefs in the general population, followed by a justification of why it is so crucial to undertake a thorough psychological investigation of the causes of conspiracy belief. I will present an overview of the empirical research regarding conspiracy belief to date, including the current theoretical

propositions for why people engage in this type of thinking. Finally, I will conclude by identifying some significant gaps in the literature that this thesis will address.

What do we mean by belief in conspiracy theories?

There has been some contention regarding the most appropriate definition of ‘conspiracy theory’ in disciplines such as philosophy (e.g., Clarke, 2002; Coady, 2003; Keeley, 1999; Sunstein & Vermeule, 2009), however there is more consensus in the psychological literature. Here, a conspiracy theory has typically been defined as allegations of malevolent secrecy and plotting by a group of powerful actors, working in unison to fulfil sinister hidden goals (e.g., Abalakina-Paap, Stephan, Craig, & Gregory, 1999; Douglas & Sutton, 2011; Zonis & Joseph, 1994). These theories tend to contradict common (and typically more benign) explanations for events (Bruder, Haffke, Neave, Nouripanah, & Imhoff, 2013) and others have extended this definition to include the notion that conspiracy theories are false and “unnecessary assumptions” in the face of these commonplace explanations (e.g., Aaronovitch, 2009; Swami & Furnham, 2014). As alluded to above, they prosper in times of societal change (e.g., a threat of war or upcoming election campaigns), in response to significant world events (e.g., the assassination of a president or death of a celebrity), and in response to negative societal conditions (e.g., the spread of a virus or climate change: Byford & Billig, 2001; Groh, 1987). There is no denying that conspiracies can and do happen, however the idea that multiple conspiracies of a grand nature are occurring simultaneously at any given time surpasses logic. This generalised tendency to attribute the cause of events to conspiracy theories has been assigned various labels such as *conspiracist belief*, *conspiracist ideation*, *a conspiracist worldview*, *conspiracism*, and a *conspiracy mentality* (e.g., Barron, Morgan, Towell, Altemeyer, & Swami, 2014; Bruder et al., 2013; Moscovici, 1987; Wood, Douglas, & Sutton, 2012). I will use these terms interchangeably throughout my thesis.

Characterising conspiracist ideation as a psychological belief system has arisen from the now common finding that beliefs in apparently distinct conspiracies tend to co-occur. That is, belief in one conspiracy theory is likely to be associated with belief in multiple other conspiracies. The first empirical study to demonstrate this was

undertaken by Goertzel (1994). In a survey of 348 New Jersey residents, Goertzel found moderate to strong positive correlations between endorsement of a number of (at the time) topical conspiracy theories (e.g., *'Ronald Reagan and George Bush conspired with the Iranians so that the American hostages would not be released until after the 1980 elections'* and *'The AIDS virus was created deliberately in a government laboratory'*). He noted that this was somewhat surprising given the lack of any logical connection between some of the items – for example, conspiracy theories regarding the United States being visited by flying saucers and the Japanese conspiring to destroy the American economy (although arguably these items did share a common theme in that the conspiracy theories sampled suggested a threat to the security of the U.S.). Regardless, this led Goertzel to conclude that belief in conspiracy theories formed a 'monological belief system' whereby each belief serves as evidence for other constituent beliefs. These findings have been consistently replicated, with researchers reporting associations between belief in a wide range of conspiracy theories including anti-Semitic conspiracy theories, theories regarding African Americans, 9/11 conspiracies, and the general attitude that conspiracies exist (e.g., Abalakina-Paap et al., 1999; Crocker, Luhtanen, Broadnax, & Blaine, 1999; Grzesiak-Feldman & Ejsmont, 2008; Swami, Chamorro-Premuzic, & Furnham, 2010).

Providing further evidence that conspiracist ideation forms a generalised belief system are two unique studies undertaken by Swami et al. (2011) and Wood et al. (2012). Examining whether conspiracy beliefs form a monological belief system, Swami et al. administered a scale measuring belief in entirely fictitious conspiracy beliefs regarding a popular energy drink and its founding company to a sample of Austrian participants. They reported a positive relationship between belief in these fictitious conspiracies and responses to another scale measuring belief in real-world conspiracies. This suggests that those evidencing conspiracist ideation more readily accept novel conspiracy theories, perhaps because they use their existing conspiracy beliefs as evidence that the novel conspiracies are likely veridical.

Wood et al. (2012) extend this proposition, suggesting that belief in any given conspiracy theory is generated by an overarching conspiracist worldview that is

comprised of general higher-order beliefs conducive to endorsing a multitude of conspiracy theories, such as the notion that officials routinely engage in cover-ups. They argued that it is these higher-order beliefs that form the monological belief system, and that this can explain belief in seemingly unrelated conspiracies, to the point that individuals could come to believe in even contradictory conspiracy theories. In their first study examining conspiracy theories regarding the death of Princess Diana, they found just that, with participants indicating endorsement of one theory (e.g., that Princess Diana faked her own death) being more likely to endorse conspiracies that were contradictory in nature (e.g., that Princess Diana was assassinated). In a second study examining conspiracies about Osama bin Laden, they found that the positive relationship between contradictory conspiracy theories was explained entirely by the broader belief that authorities had engaged in deception. This supports the notion that conspiracist beliefs form a monological belief system but suggests that it is the higher-order, more generalised, beliefs directing specific conspiracy endorsement that serve as the evidence for accepting other conspiracies as true.

Brotherton, French, and Pickering (2013) provide further evidence that a conspiracist worldview is formed by a number of separate assumptions about the world. In an attempt to create a measure of conspiracy beliefs that did not contain specific conspiracies (which requires participants to be familiar with a given theory and can be influenced by particularly topical issues of the moment), they identified the broader, more generic assumptions underlying a list of 75 specific conspiracies. Using exploratory factor analysis (EFA), five conceptually meaningful clusters of items were found, which reflected beliefs in a malevolent government; extra-terrestrial cover-up; malevolent global conspiracies whereby small groups control world events; threats to personal wellbeing involving health and liberty; and beliefs about the suppression and control of information. A shortened combined scale using these items correlated strongly with other surveys gauging belief in specific conspiracy theories. Whilst the five factors identified by Brotherton et al. may not reach the highest level of abstraction possible in terms of overarching assumptions about the world (e.g., perhaps beliefs in malevolent government and malevolent global conspiracies are dictated by a belief that

malevolent forces control every-day life), they still indicate that there are broader beliefs influencing belief in any given conspiracy theory. In this case in particular, these beliefs appear to be those of cover-up (consistent with the argument of Wood et al., 2012), control, and a heightened perception of threat.

Taken together, these findings show that some people have a generalised conspiracist worldview or belief system that shapes their perceptions of the world around them and important events. It appears likely that the actual detailed content of a conspiracy theory is less important for a believer than the fact that the conspiracy is consistent with a set of broader world beliefs that make any given conspiracy theory appear feasible. This conception of conspiracist ideation has important implications for its psychometric measurement – the crucial first step in assessing the antecedents and potential consequences of such a worldview. This will be discussed further in Chapter 2.

The prevalence of conspiracy beliefs

Although one might assume that conspiracy theories appeal only to those on the fringes of society, the statistics paint a surprisingly different picture. In Goertzel's (1994) seminal study only 6.2% of respondents indicated zero belief in any of the presented conspiracy theories. In this study, Goertzel described 1983 Gallup poll findings that showed only 11% of the sample believed the official one-man account of the assassination of JFK. This number increased to 13% in 2001, and the number believing that others were involved rose from 74% to 81% (Carlson, 2001). More than half of participants in a survey conducted by Stempel III and Hargrove (1997) believed that these "others" were American government officials. For this particular event, a conspiracy theory is perceived as the most likely cause by the majority of the population.

Examining another significant event in American history, Stempel, Hargrove, and Stempel III (2007) showed that over a third of 1,010 U.S. adults thought it was at least somewhat likely that people in the American government either actively assisted, or else took no action to prevent, the 9/11 terrorist attacks. A poll of New York City residents by Zogby International (2004) showed that 49% of the sample endorsed this

conspiracy. Surveying 16,000 people across seventeen countries, World Public Opinion.org. (2008) reported that majorities in only nine of these countries believed the official version of the 9/11 attacks. An average of 15% of respondents in the other eleven countries believed it more likely that the American government was responsible for the attacks. Perhaps the assassination of JFK and the terror attacks of 9/11 are special cases because of their extreme social and historical significance, but frequency statistics for other conspiracy theories suggest not.

In the survey conducted by Stempel III and Hargrove (1997) 47% of Americans indicated that they thought it was likely or somewhat likely that the U.S. Airforce was concealing proof of the existence of intelligent life on other planets. A survey of 1,359 Britons showed a similar proportion (52%) endorsed a UFO cover-up conspiracy theory (Speigel, 2012). A CBS poll in 2003 revealed that 26% of U.S. respondents believed the death of Princess of Diana was probably planned (Hancock, 2004) and a YouGov U.K. poll showed that 38% of Britons believed her death was not an accident (Jordan, 2013). These are just a few examples of the strength of a particular conspiracy theory, although of course the samples are limited to just U.S. and U.K. residents and only sample belief in a single conspiracy theory. It appears that believing in the odd conspiracy is not extraordinary, but is still cause for concern given that this increases the odds of believing in more. What's more, if belief in one conspiracy happens to be something as significant as believing that global warming is a hoax or that vaccinations cause autism, this belief can have very real detrimental consequences.

When research is extended to examine how many people believe in multiple conspiracies, the numbers predictably drop. For example, of four nationally representative surveys conducted in the U.S., in 2006, 2010, and 2011, Oliver and Wood (2014) reported that 27% of the combined samples believed in only two of seven presented conspiracies, while this number decreased significantly (to 12%) for belief in three or four more conspiracies. Bowman and Rugg (2013) report a similar estimate – undertaking a public opinion survey of American residents, they approximated that 10% of participants believed in all of the conspiracy theories presented to them. In Goertzel's (1994) study, 10.6% of participants expressed belief in five out of the ten

conspiracy theories sampled, dropping to just 1% for endorsement of all ten conspiracies. It is likely that the people falling at this end of the conspiracy belief spectrum are the ones that truly qualify as having a conspiracist mind-set or worldview - that they are “conspiracy theorists”. However, like any other individual difference, conspiracist ideation has been treated as dimensional in nature, with no clear-cut categorization that classifies a person as a “conspiracy theorist”. Regardless of whether an individual believes in one conspiracy or a whole raft of conspiracies, it is crucial to examine the factors that predisposes people to these beliefs. An outline of the known consequences of conspiracist ideation is provided in the next section with the argument that they justify the need for empirical research in this area.

Why is it important to understand the psychology of conspiracy belief?

The consequences of believing in particular conspiracy theories are wide-ranging and demonstrate why it is so important to understand the factors rendering an individual more likely to engage in conspiracy thinking. Some of the earlier recognized and well-documented consequences of contemporary conspiracy thinking concerns both the HIV virus and contraception use. Bogart, Galvan, Wagner, and Klein (2011) undertook a six-month longitudinal study investigating the effects of HIV conspiracy beliefs in 181 African American males. They found that, over time, conspiracy beliefs such as believing the HIV virus is a manmade disease, or was deliberately spread in minority communities, predicted a greater likelihood of unprotected sex compared to those who did not endorse such views. Similarly, Bird and Bogart (2005) showed that conspiracy beliefs about government involvement in HIV (e.g., that the government created HIV as a means to black genocide) was related to less positive attitudes towards condom use for birth control. Additionally, HIV conspiracy beliefs have been associated with decreased compliance with antiretroviral treatment in African American men with HIV (Bogart, Wagner, Galvan, & Banks, 2010). Bird and Bogart also examined conspiracy beliefs regarding birth control (e.g., the belief that African Americans are used as guinea pigs for new methods of birth control) and found they were associated with more negative attitudes toward condom and contraceptive pill use. In another study, birth control conspiracy beliefs were implicated in lower use of contraceptive

measures in a sample of 500 African Americans (Thorburn & Bogart, 2005). These results show that believing in a conspiracy theory can, and does, translate into real consequences. However, given diabolical events such as the Tuskegee syphilis study (see Freimuth et al., 2001), medical conspiracy beliefs surrounding treatment and spread of disease and the resultant consequences in this population are not necessarily surprising or unjustified. Nevertheless, examining conspiracy thinking among non-African Americans still reveals the real-world pernicious effects of adhering to conspiracy theories.

Conspiracy theories do occur in broader populations and have wide-ranging consequences. For example, rejection of science, partly due to conspiracy beliefs, is a significant problem. In a large U.S. study, Lewandowsky, Gignac, and Oberauer (2013) found significant associations between conspiracist thinking and rejection of scientific propositions, including attitudes towards vaccination, climate change, and genetically modified food. They also found that conspiracist ideation was associated with rejection of medically accepted facts about HIV/AIDS and the relationship between smoking and lung cancer (Lewandowsky, Oberauer, & Gignac, 2013). If these beliefs translate into behaviour then there is cause for concern and, indeed, evidence suggests this is the case. As just one example, the anti-vaxxer movement (fuelled by conspiracy theories regarding the perceived risks of vaccinations) has been identified as a key culprit in the return of diseases such as measles and polio in regions where they had been previously eradicated, because some parents choose not to vaccinate their children (Craciun & Baban, 2012; Kollipara, 2014; Sifferlin, 2014). In an experimental test of the effects of vaccination conspiracies, Jolley and Douglas (2014a) found that those exposed to anti-vaccine conspiracy theory material demonstrated less intention to vaccinate a fictitious child. In this area alone there have been scores of preventable illnesses and deaths as a direct result of conspiracy beliefs. (Council on Foreign Relations, 2016; Medscape, 2015)

On an even larger scale, in terms of potential consequences, are climate change conspiracies. The belief that global warming is a hoax, or at the very least, that the effects of human activity have been overstated by a self-interested scientific

community, is a very damaging conspiracy theory. When politicians and key industry stakeholders hold this view (either because they truly believe it or else because it serves their political interests) we have an example of a conspiracy theory that has the potential to cause damage on a global scale. Even at the individual level, steps to reduce environmental damage count, so it is concerning that evidence suggests that exposure to climate change conspiracies reduces willingness to participate in activities aimed at reducing global warming. For example, Jolley and Douglas (2014b) had participants read a paragraph that contained either pro- or anti- climate change conspiracy theory information. Relative to reading information that refuted these conspiracies, participants in the conspiracy condition displayed less intention to reduce their carbon footprint. Consistent with this, van der Linden (2015) reported that participants who viewed a global warming conspiracy video were less likely to sign a petition to help reduce global warming and perceived significantly more dissent in the scientific community regarding human-caused climate change. This genre of conspiracy is clearly a threat to attempts to reduce the human impact on global warming.

As alluded to already in examples of the consequences of conspiracy thinking, these beliefs are particularly harmful when they are espoused by people in leadership positions – when people are unsure of facts, or do not have the skills to interpret the scientific evidence, they naturally turn to their leaders for an explanation (Douglas & Sutton, 2015). A leader who endorses conspiracy theories can make large-scale decisions based on these beliefs, affecting a huge number of people. South Africa's former President Thabo Mbeki delayed HIV prevention and treatment for eight years due to AIDS denialist beliefs, resulting in an estimated 330,000 deaths and 35,000 babies born with the HIV infection (Kalichman, 2014). The Zambian Government rejected aid in the form of genetically modified food in the face of famine (Goertzel, 2010). These are real-world examples of conspiracies negatively impacting hundreds of thousands of people, even to the point of death.

These examples of the consequences of conspiracy thinking are not an exhaustive list, and yet they still demonstrate there is more than enough reason why we need to understand what drives these beliefs, and ultimately, how to reduce them. Some

conspiracy theories may indeed just be harmless and amusing, but one cannot deny the sinister and dangerous effects of others. Attempts to understand conspiracy belief are gaining momentum in the scientific literature and I will summarise these efforts next. Analysis of this literature reveals several themes, or clusters, of potential causes for conspiracy beliefs and areas where I believe more research is required are identified. Following this, I will conclude this literature review with an outline of the research questions my thesis is intended to address.

Why do people believe in conspiracy theories?

Before discussion of the potential causes of conspiracy thinking, one must note that this thesis focuses on the psychological aspects of this construct and hence does not claim to present a comprehensive model of the causes of conspiracist ideation. As noted by Zonis and Joseph (1994), to fully understand conspiracy thinking requires analysis from a range of disciplines – historical, cultural, social structural, political, and psychological. These areas of study clearly overlap, but the majority of research described here comes from the discipline of psychology, and it is the psychological “profile” of conspiracy beliefs that I intend to investigate.

Research examining the psychological roots of conspiracy thinking began in the 1990s and has gained momentum in the past fifteen years specifically. It has largely consisted of correlational studies but, more recently, experimental designs have also been employed. A number of correlates, and in some cases causal relationships, of conspiracy thinking have now been identified and are discussed below. Multiple reasons for conspiracy belief have been proposed, and perhaps due to the fact that this construct is relatively new to psychology, researchers have typically examined a multitude of potential predictors within one or two studies. This is useful for gaining a rapid and broad understanding of what is associated with conspiracist belief, but makes it difficult to evaluate theoretical positions. Thus, below I have presented the literature organized by four very broad themes (which are not necessarily mutually exclusive), following which I shall summarise the main theories regarding the causes of conspiracy beliefs, and outline which of these have the most support.

1. Socio-political, interpersonal, and personality factors

Belief in conspiracies has consistently been related to constructs indicating that those who feel alienated from society, disempowered, and marginalized are more likely to engage in conspiracy thinking. Notably, positive associations between conspiracy thinking and anomie (a construct that captures an individual's lack of identification with societal norms) have been reported across multiple samples (e.g., Abalakina-Paap et al., 1999; Brotherton et al., 2013; Goertzel, 1994; Imhoff & Bruder, 2014; Leman & Cinnirella, 2013; Moulding et al., 2016). In addition, variables that may be argued to represent facets of anomie are also positively related to conspiracy belief. For example, across a series of studies investigating beliefs in fictitious conspiracies, beliefs in conspiracies surrounding the 9/11 and 7/7 terrorist attacks, more general conspiracy theories, and even the tendency to attribute the disappearance of Amelia Earhart and Fred Noonan to a conspiracy, Swami and colleagues have found conspiracy belief to be associated with political cynicism and negative attitudes toward authority (Swami et al., 2010; Swami et al., 2011; Swami & Furnham, 2012). Similarly, Moulding et al. (2016) reported that social isolation and a sense of normlessness predicted conspiracy belief alongside anomie, but one could argue that these predictors represent the same underlying construct. These findings suggest that conspiracies appeal to those who do not identify with prevailing social norms and reject the legitimacy of mainstream authorities and their information channels. Consistent with this, support for democratic principles has been related to conspiracy thinking (Swami et al., 2010; Swami et al., 2011; Swami & Furnham, 2012). If the political system is regarded as undemocratic, then individuals who strongly endorse democratic principles may turn to conspiracy thinking because they reject the legitimacy of a common source of explanations for events and societal conditions.

Conspiracy thinking is more likely not only among those who feel alienated from society, but also in those who feel more powerless. Abalakina-Paap et al. (1999), Imhoff and Bruder (2014) and Moulding et al. (2016) report associations between measures of powerlessness and conspiracy beliefs. An external locus of control, which captures the perception that events are outside of one's control, has also been associated with the

generalised belief that conspiracies exist (Abalakina-Paap et al.). Abalakina-Paap et al. note that conspiracy theories may appeal to those who feel powerless about their situation because it helps these individuals to understand and accept their circumstances. Although the idea of a conspiracy at play is hardly a comforting one, perhaps it is more appealing than accepting that bad things happen to good people (Groh, 1987). This is consistent with the thesis of Inglehart (1987), who proposed that those at the extreme right and left of the political spectrum are more likely to endorse conspiracies because they are frustrated in achieving their political goals, and require an explanation for their predicament other than that their beliefs are misplaced. This notion has received empirical support in a series of four studies undertaken by van Prooijen, Krouwel, and Pollet (2015). They found that conspiracy belief was highest in those who identified as being at the extreme right or left of the political spectrum, and this relationship was partially mediated by a belief in simple political solutions. It may be that having a rigid, black-and-white explanatory style may combine with perceptions of powerlessness to increase one's tendency to believe in conspiracies.

Although perhaps partially a symptom of feeling powerless, lower levels of both personal and collective self-esteem have also been implicated in conspiracy belief (e.g., Abalakina-Paap et al., 1999; Swami et al., 2011; Swami & Furnham, 2012), although somewhat inconsistently (see Crocker et al., 1999; Stieger, Gumhalter, Tran, Voracek, & Swami, 2013; Swami, 2012). Cichocka, Marchlewska, and de Zavala (2016) helped to elucidate these inconsistencies with an investigation into whether it is self-esteem or narcissism that actually predicts conspiracy belief. As the two constructs overlap and typical measures of self-esteem may not distinguish between them, Cichocka et al. proposed that narcissism may be increasing the predictive ability of self-esteem, thus explaining the inconsistent results to date. They argued that because narcissists are so obsessed with how people perceive them, they are at risk of paranoid ideation concerning this, which in turn places them at risk of conspiracy theorizing. Across three studies, they found that the expected relationships with conspiracy belief (negative for self-esteem and positive for narcissism) only arose when the overlap between the two predictor variables was accounted for, and narcissism was a stronger predictor.

Paranoia partially mediated the relationship between narcissism and conspiracy belief, while self-esteem became a non-significant predictor when including a measure of negative perceptions of humanity (a construct measuring generalised negative feelings about people). Further investigation is required, but it is possible that those who are unhappy with themselves or their in-group as well as those who have increased levels of paranoia, are at greater risk for conspiracy thinking. Of note, lower satisfaction with life has previously been associated with greater conspiracy belief (Swami et al., 2011), suggesting that dissatisfaction with one's situation is still a valid motivator for conspiracy thinking.

Unsurprisingly, low levels of interpersonal trust have also been consistently associated with conspiracy thinking (e.g., Abalakina-Paap et al., 1999; Brotherton et al., 2013; Goertzel, 1994). This may reflect a generally negative worldview, and findings that show a positive relationship between belief in conspiracies and hostility (e.g., Abalakina-Paap et al., 1999) and belief that the world is a dangerous and threatening place (e.g., Eicher et al., 2014; Moulding et al., 2016) support this. Given that the self-esteem of those with higher levels of narcissism has been classified as 'fragile' and sensitive to threat (Morf & Rhodewalt, 2001), this may also help to explain the association between narcissism and conspiracy beliefs. This dangerous threat-perceptive worldview is in turn associated with two other important socio-political variables which have been shown to be related to conspiracist ideation – right-wing authoritarianism (RWA) and social dominance orientation (SDO). RWA (a variable which captures three attitudinal clusters – *submission* to authority, *aggression* towards outgroups, and *conventionalism*) and SDO (the extent to which individuals endorse group-based hierarchies) correlate positively with conspiracy thinking (e.g., Abalakina-Paap et al., 1999; Grzesiak-Feldman & Irzycka, 2009; Swami, 2012) and work undertaken by Wilson and Rose (2014) supports this notion. We investigated conspiracy beliefs within the framework of the dual-process motivational model of intergroup attitudes and prejudice proposed by Duckitt (2001). This model accounts for individual differences in prejudice via two motivational goals – dominance and superiority versus egalitarianism (SDO; Sidanius & Pratto, 2001), and social cohesion

and security versus autonomy and independence (RWA; Altemeyer, 1981). SDO and RWA depend in turn depend on the extent to which one believes the world to be competitive (in the case of SDO) or dangerous (in the case of RWA). We reported that nearly a quarter of the variance in conspiracy beliefs was explained by this model (which also incorporated paranoia, discussed below). This suggests a number of reasons for why individuals may endorse conspiracies – perceptions of threat (perhaps to current hierarchy or the status quo); prejudice towards outgroups; a belief that everyone is out for themselves and hence cannot be trusted; and generalised hostility are all likely candidates.

Imhoff and Bruder (2014) argued that a conspiracy mentality can be conceptualized as a generalised political attitude like RWA and SDO, and should be considered as a potential predictor of prejudice. Unlike high levels of RWA and SDO, which respectively predict prejudice toward deviant and low-status individuals and groups, conspiracy mentality, according to Imhoff and Bruder, should predict prejudice toward high power individuals and groups because they are perceived to be responsible for significant world events and predicaments. In a first study, they found that a measure of conspiracy mentality was only related to the authoritarian aggression factor of RWA and the dominance factor of SDO, supporting the claim above that it is likely the aggression component of RWA that predicts conspiracy belief. In other studies, they found weak or non-significant relationships between conspiracy mentality and the combined SDO and RWA scales. Examining five forms of prejudice (e.g., anti-Semitism and anti-capitalism), SDO and RWA were consistently related to prejudice toward low-power ethnic or religious minorities, while conspiracy mentality was consistently associated with negative attitudes toward high-power groups. In a further study examining negative attitudes toward a larger selection of 32 target groups, those scoring high on conspiracy mentality had more negative attitudes toward high-power groups, while RWA and SDO predicted negative attitudes toward low status groups. Importantly, those higher in conspiracy mentality rated these high-power groups as more threatening and less likeable, whereas those high in RWA and SDO rated the high power groups more positively. Furthermore, examining the role of RWA and conspiracy

mentality in relation to attributing blame for a specific event – the Fukushima nuclear disaster – Imhoff and Bruder found that conspiracy mentality was positively related to assigning blame to intentional misconduct and negligence and negatively related to attributing the event to chance, while RWA displayed the opposite pattern. The results of this study suggest that RWA, SDO, and conspiracy beliefs are related by shared prejudice and threat, but the targets of these negative perceptions differ. Imhoff and Bruder conclude that conspiracy mentality helps the disaffected to explain negative predicaments among their low-power in-groups. They further argue that a conspiracy mentality may act as a mental shortcut of blaming individuals and groups for problems rather than dealing with the complexities of a given issue.

Lastly, in more recent years the role of the Big Five personality factors have also been investigated in relation to conspiracy thinking. In their investigation of 9/11 conspiracy beliefs, Swami et al. (2010) found that (dis)agreeableness directly predicted belief in 9/11 conspiracies while openness directly predicted belief in more general conspiracy theories, and indirectly predicted 9/11 conspiracy beliefs through this link. They argued that the negative association between agreeableness and conspiracy beliefs was likely due to the fact that disagreeableness is related to feelings of suspicion and hostility towards others. Openness to experience was argued to be related to conspiracy beliefs because those high in this personality trait are more accepting of unique or unusual ideas. Similar patterns of correlation have been shown by Swami et al. (2011), Swami and Furnham (2012), and in the case of openness, Swami et al. (2013), but regression analyses suggest their predictive contribution is not unique, and very weak at best. Other research has found agreeableness and openness either to be non-significant or weak predictors in the opposite direction to that described above (Brotherton et al., 2013; Furnham, 2013; Imhoff & Bruder, 2014). The other personality variables of extroversion, conscientiousness, and emotional stability have proven to be non-significant or else inconsistent and weak predictors (e.g., Brotherton et al., 2013; Swami & Furnham, 2012; Swami et al., 2013). As these personality variables are at the more distal end of the spectrum in terms of predicting conspiracy belief, it is likely that

any role they do play in conspiracy thinking is due to interactions with more proximal predictors such as interpersonal trust and aggression.

Together, these findings present a number of potential theoretical reasons for why some individuals engage in conspiracy thinking. These include 1) conspiracies appeal to those who feel powerless or unhappy with their current predicaments; 2) they can appeal to those who feel disconnected from society or lack identification with prevailing societal norms; 3) conspiracies can function as explanations and/or provide an enemy to blame for negative situations and events; 4) perceiving conspiracies is consistent with a generalised negative and cynical worldview; and 5) conspiracies in themselves may represent a form of prejudice against specific groups. Importantly, these theoretical statements are not necessarily mutually exclusive, and this is reflected in the research findings to date. A common theme across the research described so far is the focus on either a single variable or a small collection of variables in relation to conspiracy belief across multiple studies. While this is a necessary step in a cumulative research process, viewing the list of related factors as it stands, one could take the view that there are a multitude of different predictors of conspiracy belief. In reality many of these variables share common elements and it is possible that this commonality alone predicts belief in conspiracies. Only by examining the variables together in one sample is it possible to determine whether this is the case and if some of the theories for conspiracy belief hold more weight than others.

2. Psychopathological factors

In the past, belief in conspiracies was attributed to those suffering from delusions and pathological paranoia, either at an individual level or collectively (e.g., Groh, 1987; Robins & Post, 1997; Wulff, 1987). Most researchers have moved away from this viewpoint, noting now that conspiracy belief is sufficiently widespread that one cannot claim that it is simply a result of psychopathology (Sunstein & Vermeule, 2009). While that may be the case, individual differences in subclinical psychopathological factors do play a role in conspiracy thinking. Considering that conspiracy theories flourish in times of societal unrest and in response to significant (and often unsettling) world events, it is not surprising that anxiety has been associated

with conspiracy thinking (Grzesiak-Feldman, 2007, 2013; Swami, Weis, Lay, Barron, & Furnham, 2016). However, a study undertaken by Swami, Furnham, et al. (2016) suggests that it is stressful life events rather than anxiety per se that is associated with conspiracy belief. In this study, once the effects of stress were controlled for, anxiety became a non-significant predictor of conspiracy thinking. Perhaps the experience of salient life stressors induces uncertainty and a sense of lack of control and prompts the search for explanations more so than the more enduring and unchanging experience of anxiety, thus rendering an individual more likely to turn to conspiracy theories in times of high stress. Indirect evidence for this comes in the form of associations found between conspiracy belief and death anxiety (of which a strong component is uncertainty and a lack of control: Newheiser, Farias, & Tausch, 2011).

The cliché of a conspiracy theorist being paranoid does have some empirical support to the extent that individual differences in paranoia in non-clinical samples have been related to conspiracy belief (Cichocka et al., 2016; Darwin, Neave, & Holmes, 2011; Grzesiak-Feldman & Ejsmont, 2008; Swami, Weis, et al., 2016). Paranoia is at the very heart of conspiracy thinking, but the two constructs are not one and the same. Researchers have noted that the two belief systems can be distinguished by who the threat is directed towards – believing in conspiracies implicates threat to a collective, whereas paranoia tends to involve individual-focused perceptions of threat (Dagnall, Drinkwater, Parker, Denovan, & Parton, 2015).

At its most basic however, to be paranoid is to be suspicious and mistrustful of others and this is a requisite for conspiracy thinking. As paranoia is a key component of conspiracy belief, experiencing high levels of persecutory thinking combined with other identified conspiracy correlates such as anomie or hostility may increase the tendency to believe in conspiracies. We found that paranoia fit well within the dual-process motivational model of intergroup attitudes, influencing conspiracy belief via a positive relationship to both a competitive worldview and SDO (Wilson & Rose, 2014). Notably, paranoia was not a significant predictor of a dangerous worldview or RWA. We suggested that this was potentially because paranoia is individual-focused in nature, and thus did not relate to RWA because it is a group-referential construct. Although

SDO is also explicitly group-focused, it may be that SDO is concerned with threats to both the individual and in-group hierarchies. Regardless, paranoia was demonstrated to relate to conspiracy beliefs, and combined with the belief that the world is a competitive cutthroat jungle and that some groups should be on top with other lower-status groups below, paranoia accounted for a moderate portion of variance in conspiracy thinking.

Individual differences in schizotypal personality have also been implicated in conspiracy belief. Schizotypy has previously been described as a subclinical form of schizophrenia or a predisposition to psychosis (Meehl, 1990), however it has also been viewed as a normal personality dimension that varies in the non-clinical population (Claridge et al., 1996). Schizotypal traits include social anxiety, paranoia, odd or eccentric beliefs or magical thinking, unusual perceptual experiences, constricted affect, odd behaviour and/or speech, and issues with interpersonal relationships (Raine, 1991). Subsequent factor analytic work by Raine and Benishay (1995) suggests that these traits may best be explained by three categories of characteristics: 1) cognitive-perceptual deficits (comprising of ideas of reference, magical thinking, unusual perceptual experiences, and paranoid ideation), 2) interpersonal deficits (social anxiety, no close friends, constricted affect, and paranoid ideation), and 3) disorganisation (odd behaviour and odd speech). Positive associations between total measures of schizotypy and conspiracy belief have been reported (Bruder et al., 2013; Darwin et al., 2011; van der Tempel & Alcock, 2015). On closer inspection, conspiracy belief has typically been associated with only the cognitive-perceptual and disorganized facets of schizotypy (Barron et al., 2014; Dagnall et al., 2015; Swami et al., 2013), although including each of the individual subscales in regression analyses tends to reveal that only one or two individual predictors within these broader categories are driving these results (e.g., Barron et al., 2014).

Dagnall et al. (2015) cast doubt on a distinct role for schizotypy in conspiracy beliefs. They noted initial relationships between conspiracy belief and the cognitive-perceptual and disorganized factors of schizotypy, but with more detailed analyses, they found that when including a measure of sub-clinical delusional ideation these

predictors failed to account for any additional unique variance in conspiracy thinking. Delusional ideation has been related to conspiracy belief previously (Brotherton et al., 2013) and because the delusion measures employed to date contain paranoia as a central theme (Peters, Joseph, Day, & Garety, 2004), these results are not necessarily surprising. Swami, Weis, et al. (2016) attempted to clarify these results by instead focusing on the relationships between conspiracy belief and the 25 maladaptive personality traits identified in the DSM-5. These traits fall into five broad clusters: 1) antagonism (e.g., callousness and manipulativeness); 2) disinhibition (impulsivity and risk taking); 3) negative affectivity (e.g., hostility and suspiciousness); 4) detachment (withdrawal and intimacy avoidance); and 5) psychoticism (e.g., eccentricity and unusual beliefs and experiences), the last of which is said to subsume schizotypal traits. All 25 traits correlated significantly and positively with conspiracy belief, and the five strongest correlates (all variables from the psychoticism domain in addition to callousness and suspiciousness) were included in a multiple regression analysis. Suspiciousness and unusual beliefs and experiences were the only remaining significant predictors of conspiracy belief in this regression. Using a rather different approach, these results confirm that paranoia, combined with unusual beliefs and experiences (be they a result of schizotypy or something else), is associated with greater conspiracy beliefs, regardless of which maladaptive label is applied.

Evaluating the role of psychopathological factors in conspiracy beliefs suggests that unpleasant life situations or events (such as those leading to stress) are again implicated in conspiracy thinking. It is entirely possible that the same theoretical proposition that conspiracies act to provide explanations and outlets for blame applies in this case too. In addition to this, belief in conspiracies appear to be driven by a combination of paranoia (which is an obvious candidate) and the experience of unusual or eccentric beliefs and experiences. It appears likely that instead of multiple psychopathologies leading to conspiracies, it is this common sub-delusional and paranoid element of each construct that contributes to an increased tendency to endorse conspiracies. To consistently perceive conspiracies is to make connections between stimuli that do not exist, to reject more plausible and rational explanations,

and to see malicious intent in others, so these findings are not unexpected. Once again however, these variables have typically been investigated in isolation from one another and the suggestion that a common element is responsible for predicting conspiracy belief warrants further investigation.

3. Cognitive and perceptual factors

As well as treating conspiracy belief as psychopathological in origin, another common assumption has been that those who believe in conspiracies must have some form of cognitive deficit or at the very least, lack an ability to evaluate evidence critically (Sunstein & Vermeule, 2009; Wulff, 1987). There has been support for this notion in the sense that some studies have shown that conspiracy belief is negatively associated with education levels (e.g., Douglas, Sutton, Callan, Dawtry, & Harvey, 2016; Goertzel, 1994; Oliver & Wood, 2014; van Elk, 2015), intelligence (e.g., Stieger et al., 2013; Swami et al., 2011; Swami & Furnham, 2012), and positively associated with reality-testing deficits (which captures the extent to which an individual is critical of the logical plausibility of their beliefs: Drinkwater, Dagnall, & Parker, 2012). However, as with taking a psychopathological approach to conspiracy belief, it is too simplistic to dismiss these beliefs as just the result of irrationality or cognitive deficits. The empirical research reflects this approach in its focus on the role of cognitive heuristics, reasoning biases, and thinking styles in conspiracy belief as opposed to cognitive shortcomings.

In their most basic form, conspiracy theories are causal attributions (Kruglanski, 1987), and factors that affect such phenomena can therefore impact belief in conspiracies. One example of this is the ‘major event – major cause’ heuristic that can occur as a source of bias in inference-making processes. Extending on early work of McCauley and Jacques (1979), Leman and Cinnirella (2007) found that participants were more likely to attribute the death of a president via assassination (a major event) to a conspiracy (major cause) than when the president was described as either being hit in the assassination but surviving or being shot at and missed in the attempt (less serious events). However, Leman and Cinnirella noted that pre-existing belief in conspiracies did not influence this bias – it occurred regardless of belief and it was not the case that those endorsing greater conspiracy belief fell prey to this bias more than

their more sceptical counterparts. This effect was replicated by van Prooijen and van Dijk (2014), who found increased endorsement of conspiracy theories about events with major as opposed to more minor consequences, but only when participants viewed the event from the perspective of those affected. They found that the relationship between this perspective-taking and conspiracy beliefs was partially explained by a sense-making motivation. Together these findings support the observation that conspiracies arise in response to significant events and further confirms that belief in conspiracies can occur because individuals need to make sense of unfathomable events and situations.

When individuals do engage in sense-making processes in an attempt to understand and explain significant events, there also appear to be reasoning biases that predispose some to perceive conspiracies. Brotherton and French (2014) found that those who reported higher levels of conspiracy belief were more likely to make conjunction fallacy errors – that is, they were more likely to overestimate the likelihood of co-occurring events. They displayed this error across neutral, paranormal, and conspiracy-related vignettes, suggesting that those with greater conspiracy belief have a domain-general tendency to overestimate co-occurring events that is not specific to scenarios solely suggestive of conspiracies. They thus concluded that those with greater levels of conspiracist ideation have a biased perception of randomness. This effect was replicated by Moulding et al. (2016), who found positive relationships between multiple measures of conspiracy belief and the conjunction fallacy, as well as the belief that the world is a non-random place. This is consistent with the idea that conspiracy thinking is associated with perceiving connections where there are none (discussed in more detail below), however Dieguez, Wagner-Egger, and Gauvrit (2015) did not find any association between different measures of perceived randomness and conspiracy beliefs across three studies. Dieguez et al. proposed that the conjunction fallacy measures the ability to undertake sound probabilistic reasoning whereas (at least with the measures that they used) randomness perception occurred at a more basic cognitive level, indicating that errors with more in-depth reasoning can contribute to conspiracy beliefs rather than basic perceptual processes.

Unsurprisingly, a link between attributions of intentionality and conspiracy belief has also been identified. Brotherton and French (2015) found a positive relationship between conspiracy beliefs and the number of intentional attributions inferred for purposefully ambiguous statements. They also found a positive relationship between conspiracy thinking and anthropomorphism, which is considered a proxy for hypersensitive agency detection (HAD) – the tendency to infer agency and intentionality where there is none. Studies have found similar results using both measures of anthropomorphism and more direct measures of HAD (Douglas et al., 2016; Imhoff & Bruder, 2014; van der Tempel & Alcock, 2015) and initial results suggest that it may also help to explain the negative relationship between education levels and conspiracy thinking (Douglas et al., 2016). This perceptual bias has been implicated in paranormal belief, which shows many similarities to belief in conspiracies (e.g., Drinkwater et al., 2012; Lobato, Mendoza, Sims, & Chin, 2014). Perceiving agency where there is none, or at the very least interpreting benign agency as malicious, shares similarities with paranoia and forms part of the very definition of a conspiracy theory, so the fact that this perceptual bias relates to conspiracy belief makes sense. van der Tempel and Alcock expanded on these results, reporting that the relationship between HAD and conspiracy beliefs was strongest in a high (versus medium and low) schizotypy group. They suggested that HAD is heightened in those with greater levels of schizotypy due to their more frequent ambiguous experiences such as paranoia and perceptual anomalies, and this in turn leads to an increased likelihood of attributing events to conspiracies to impose structure and meaning. According to van der Tempel and Alcock, conspiracy belief acts as a compensatory mechanism for those who require a sense of structure for their ambiguous perceptions.

Related to both paranoia and a tendency to over-attribute intentionality, Oliver and Wood (2014) claim that conspiracy theorising is just another form of political discourse, and its common elements include a tendency to attribute the cause of significant social and political events and phenomena to unseen, intentional, and malevolent forces combined with a tendency to interpret events in a Manichean struggle between good and evil. They theorised that these tendencies arise from a

cognitive bias to perceive causal connections where there are none, combined with an attraction toward melodramatic narratives as explanations. They claimed that conspiracies can provide compelling explanations for otherwise confusing or ambiguous events. Unfortunately they did not undertake a rigorous test of this proposal but they found some limited evidence that supported their view, with a single-item measure of a Manichean outlook (*'Politics is ultimately a struggle between good and evil'*) predicting conspiracy belief. This notion is consistent with the argument that conspiracy theories can provide a sense of structure and simplicity in the face of ambiguity (e.g., Kruglanski, 1987) . Early on, Abalakina-Paap et al. (1999) noted that one reason people may believe in conspiracies is because conspiracies provide simplified explanations for complex phenomena. They predicted that if this was the case, conspiracies should appeal more to those who prefer cognitive simplicity, have a low tolerance of ambiguity, and prefer not to analyse the multitude of potential causes for events. They found little empirical support for these claims however, and further studies have also failed to support this proposition. For example, of three conspiracy belief measures used, Moulding et al. (2016) reported that intolerance of uncertainty was only positively associated with one measure and a scale measuring the need for cognitive closure (which characterises a preference for any answer – even if false – over ambiguity) did not correlate with conspiracy beliefs at all. This was also the case in two studies undertaken by Leman and Cinnirella (2013) – they found no relationship between conspiracy belief and the need for cognitive closure, however their sample sizes were very small. The idea that conspiracies help to provide simplified explanations and structure is one of the most commonly cited reasons for conspiracy belief, but it has actually received little empirical support to date.

Related to this, Swami, Voracek, Stieger, Tran, and Furnham (2014) proposed that the reasoning biases that have thus far been associated with conspiracy beliefs could represent broader relationships with cognitive ability, or alternatively, these associations could be a result of relationships with particular thinking dispositions that dictate how individuals gather and evaluate evidence for their beliefs. In an initial study they found a positive, but very weak, relationship between conspiracy beliefs and a

need for cognitive closure. As their sample size was very large (nearly 1,000 participants) in contrast with the small sample sizes used above, this may explain the null results of other studies. Consistent with this finding, open-mindedness (which captures the extent to which an individual actively engages in seeking knowledge, questions existing knowledge, and considers alternative arguments) was negatively weakly associated with conspiracy belief. There was no relationship with the need for cognition (which measures individual differences in the motivation to engage in and the enjoyment of effortful thinking), consistent with the findings of Abalakina-Paap et al. (1999). However, further regression analysis revealed that the strongest predictors of conspiracy belief were lower levels of analytical thinking and higher levels of experiential-intuitive reasoning, with need for cognitive closure no longer a significant predictor. Swami et al. went on to show that experimentally increasing analytic thinking resulted in decreased conspiracy beliefs compared to a control across four studies. They argued that analytic thinking results in increased attention to the factual and logical inaccuracies present in most conspiracy theories. They also noted that an analytic thinking style is associated with normal responses on tests of cognitive biases, and argued that such a reasoning style may act to reduce and inhibit intuitions and biases that would usually lead to a greater likelihood of believing in conspiracies.

More indirect evidence to suggest that variation in thinking dispositions play a role in conspiracy beliefs comes from the now well-replicated finding that conspiracy beliefs are moderately to strongly related to belief in the paranormal and superstition (e.g., Brotherton & French, 2014; Brotherton et al., 2013; Bruder et al., 2013; Drinkwater et al., 2012; Oliver & Wood, 2014; Stieger et al., 2013; Swami et al., 2011; van Elk, 2015). On the face of it, there are core similarities between conspiracy and paranormal beliefs. Both types of beliefs typically defy conventional understandings of phenomena and involve drawing unlikely connections between ostensibly unrelated stimuli (Brotherton & French, 2014). These constructs share a number of correlates, such as an external locus of control, less critical reasoning, and schizotypy (Irwin, 1993). Of particular relevance is the finding that those who have higher levels of paranormal belief tend to have a more subjective worldview, basing their evaluation of

the physical environment and human behaviour on intuitive grounds as opposed to more objective processes (Zusne & Jones, 1982). Given the relationship between less analytical thinking and conspiracy belief, combined with the robust finding that conspiracy belief is associated with greater endorsement of the paranormal and superstition, it is possible that this worldview may also incorporate conspiracy thinking.

Lobato et al. (2014) provide further evidence that a subjective worldview underlies these constructs. They examined the role of ontological confusion in conspiracy, paranormal, and pseudoscience beliefs. Ontological confusion refers to an impaired ability to accurately distinguish between the three core ways of understanding the world – physical, biological, and psychological. A predisposition to mix and confuse these distinct categories has been identified in those with high levels of paranormal belief (Lindeman & Aarnio, 2007), and it has been proposed that this is due to an overreliance on intuitive – as opposed to analytical – reasoning styles. Lobato et al. found that ontological confusion did indeed predict conspiracy belief along with endorsement of the paranormal and pseudoscientific propositions, and concluded that underlying these three clusters of beliefs is a common intuitive cognitive style. This claim is expressed well by Swami et al. (2011), who note that “conspiratorial, paranormal, and superstitious ideation may be predicated upon a common thinking style, as each largely rejects official mechanisms of information-generation and expert opinion, relying instead on lay experience for legitimation” (p. 454).

An evaluation of these more cognitive approaches to explaining conspiracy thinking reveals several potential contributors to these beliefs. Some of the stereotypes associating conspiracy belief with credulity and lower performance on measures of intelligence do have support, but to stop the analysis here paints an unfair picture of those who endorse conspiracies. It is possible that these indices reflect an association with a more subjective thinking disposition that incorporates an intuitive approach to information processing, and this in turn is what predicts conspiracy belief. Conceptualising the world and events as non-random appears to be a significant factor in conspiracy thinking and may also reflect this broader thinking disposition. Over-

attributing intentionality and agency fits well within this framework and also hints at an interplay with paranoid ideation – a construct that implicates perceptions of malicious agency and intentions. Lastly, commentary in the cognitive literature once again conceptualises belief in conspiracies as a sense-making process that arises in response to ambiguous or unsettling situations. However, correlational studies that have included plausible and logical variables related to this view (e.g., intolerance of ambiguity and a need for cognitive closure) have proven inconclusive. The final section of the literature review on the potential causes of conspiracy beliefs focuses solely on this area because a recent body of work suggests we should not be too quick to dismiss the sense-making and control functions that endorsement of conspiracies may fulfil.

4. Uncertainty and control

Apparent throughout the literature cited thus far is the implication that believing in conspiracies can help to provide a sense of structure and order in response to the upheaval associated with significant events or predicaments. Researchers have proposed that conspiracy theories act to provide explanations for ambiguous or inexplicable events, helping to reassume a sense of order and control. Conversely, correlational studies examining individual differences in areas such as tolerance of uncertainty and the need for cognitive closure have not provided support for this view, however the experimental studies described below suggest that these factors are still important determinants of conspiracy beliefs. There are several potential explanations for the discrepancy, which I will discuss following the overview of the experimental literature in this domain.

Examining conspiracy belief within the theoretical framework of compensatory control and conviction reveals the importance of a personal sense of control in explaining conspiracy thinking. Noting that maintaining a sense of control and avoiding uncertainty is a crucial motivating factor in human life and a motivation behind the attribution process, Whitson and Galinsky (2008) proposed that threats to control would result in attempts to regain it via other means. They argued that when personal control is threatened, the resultant discomfort would cause people to compensate by perceiving structure and order perceptually via pattern perception – identifying

meaningful and coherent relationships in sets of ambiguous stimuli. Across six experiments they demonstrated that a decreased sense of personal control resulted in an increased tendency to perceive illusory patterns such as seeing images in random noise, developing superstitions, and most relevant – attributing conspiracies to a set of ambiguous behaviours. According to this view then, conspiracy belief acts as a compensatory mechanism that results from attempts to regain control.

At the same time as the compensatory control theoretical model was proposed, Kay, Gaucher, Napier, Callan, and Laurin (2008) presented a complementary framework in the form of compensatory conviction. They argued that a sense of control is a sub-goal of the broader motivation to imbue the world with meaning and structure to avoid aversive feelings in response to perceiving the world as random, chaotic, and meaningless. They suggested that in addition to pattern perception individuals can gain this meaning and sense of structure by placing their faith in external systems such as government or interventionist deities. They demonstrated support for this claim, finding that reducing personal control increased endorsement of the notion of ‘God as a Controller’ (and notably, not the deemphasised control alternative of a ‘God as a Creator’), and also increased support for governmental control. Importantly, Laurin, Kay, and Moscovitch (2008) went on to show that it is a lack of control specifically, and not anxiety in isolation, that results in compensatory mechanisms of control. This fits well with the findings reported by Swami, Furnham, et al. (2016), who showed that it was stress and not anxiety that led to conspiracy beliefs. It is possible that anxiety is only a predictor of conspiracy belief to the extent that it is associated with stress and uncertainty. This is further supported by the results of Whitson, Galinsky, and Kay (2015), who found that regardless of emotional valence it was the uncertainty aspect of an emotion that resulted in increased adherence to external systems (including conspiracy and paranormal beliefs).

These results are certainly suggestive that reduced control can lead to increased conspiracy thinking, however this was examined less comprehensively than ideal due to the researchers’ broader focus of generalised pattern perception and compensatory conviction than on conspiracy beliefs specifically. In addition, compensatory conviction

in external systems such as governmental institutions may in fact increase endorsement for those that are typically seen as the typical *perpetrators* of conspiracies, thus serving to decrease conspiracy belief (van Prooijen & Jostmann, 2013). More recent studies have helped to clarify and expand on the role of uncertainty in conspiracy thinking. van Prooijen and Jostmann argued that conspiracy beliefs function to provide explanations for distressing events and are therefore associated with sense-making processes that serve the goal of perceiving order and predictability in the world. When these are threatened, sense-making processes are activated, and conspiracy beliefs provide the explanation required to reinstate a feeling of certainty and control. Drawing from uncertainty management model of justice, they suggested that uncertainty prompts individuals to search for moral information about potential perpetrators of a significant event to help in the sense-making process, and it is the extent to which individuals perceive immorality in authorities that determines whether they will endorse a conspiracy theory. In two experiments, van Prooijen and Jostmann found that only when uncertainty was made salient did morality information affect conspiracy beliefs. This suggests that uncertainty can lead to conspiracy thinking, but not instantaneously or in isolation from other psychological factors.

Interestingly, the results of the above experiment sheds new light on the effects of projection on conspiracy theorising reported by Douglas and Sutton (2011). They observed a positive association between Machiavellianism and conspiracy beliefs and found that personal willingness to conspire fully explained this relationship. In a follow-up experiment, participants who received a positive moral prime endorsed conspiracies less compared to a control and also displayed a lower willingness to conspire. Again, personal willingness to conspire fully explained the relationship between moral prime and conspiracy endorsement. Douglas and Sutton proposed that individuals projected their own morality onto the intentions and actions of alleged conspirators, thus impacting conspiracy beliefs. It may well be that there is an interplay between one's own moral tendencies and the search for more information regarding the morality of authorities in response to threats to certainty and order.

Another interaction effect between uncertainty and lack of control in relation to conspiracy thinking has been reported by van Prooijen (2016). Here, the effects of self-uncertainty combined with a sense of belongingness were examined in relation to conspiracy beliefs. van Prooijen argued that because of the collective nature of conspiracy theories, the extent to which one feels they are part of the threatened in-group should determine their belief in conspiracy theories attributed to threatening out-groups. High levels of uncertainty may exacerbate this effect because feeling uncertain about oneself increases the need to belong to a social group. Results of two experiments supported this hypothesis – receiving a cue signalling group inclusion resulted in stronger conspiracy beliefs compared to receiving a group exclusion cue, and this effect was stronger for those with unstable self-esteem (a proxy for diminished self-certainty, and notably, a facet of narcissistic self-esteem) and for those who were experimentally induced to feel uncertain. These results are consistent with the finding that perspective-taking increases conspiracy belief (van Prooijen & van Dijk, 2014) but extends this by showing that uncertainty can determine whether people attempt to identify with a social group, which subsequently impacts conspiracy beliefs. van Prooijen highlights the fact that this theoretical account of conspiracy belief combines factors from both the social and cognitive domains and points towards the need for an integrated theoretical approach in understanding conspiracy beliefs.

Lastly, van Prooijen and Acker (2015) examined the external validity of control and certainty effects upon conspiracy thinking in addition to an attempt to resolve a methodological issue present in some of the experiments mentioned above. They made the observation that in some cases, conspiracy beliefs were compared across experimental conditions that manipulated low versus high control and certainty, with no neutral baselines reported. The problem with this method is that one cannot tell if diminished certainty and control *increases* conspiracy beliefs from a baseline level, or alternatively, if the manipulation aimed at increasing certainty and control *decreases* conspiracy thinking from baseline beliefs. Participants assigned to a high, low, or neutral control manipulation condition were asked to complete a scale measuring endorsement of a number of conspiracy statements concerning the introduction of a

new metro line that had been plagued with problems. In comparison to the baseline condition, reaffirming control reduced conspiracy beliefs while the low control condition produced no differences in conspiracy endorsement relative to the baseline condition. As van Prooijen and Acker reason, this does not necessarily suggest that experimentally induced control threats have no impact on conspiracy beliefs, rather it is likely that these add little more to the levels of distress and uncertainty that people already feel without any experimental treatment. Although only a preliminary finding and no manipulation check for control reported, these results raise the possibility that conspiracy thinking is influenced by both ends of the control spectrum.

In their second study, van Prooijen and Acker (2015) examined endorsement of conspiracy theories in the context of a real-life threat to control – that of the predicted fallout from the Y2K bug in 1999. Here, reanalysis of previously unpublished data revealed that a control threat (measured via five questions that gauged participants' perceived control over the potential problems associated with the Y2K bug) was positively associated with belief in four out of five specific and unrelated conspiracy theories. This effect occurred even when controlling for demographic variables, political orientation, trust in the government, and the belief that the Y2K bug was a conspiracy in itself. It is possible that the control threat measured in this study also taps other constructs such as anxiety (e.g., *'To what extent does Y2K have the potential to cause catastrophic death and destruction around the world?'*), but this is still a compelling result in that it demonstrates the real-world effects of a lack of control on conspiracy thinking. This last result speaks to the external validity of the identified effects in this set of experiments, although again, must be treated with caution given its preliminary nature.

So why then is there is a discrepancy between experimentally induced uncertainty and control versus individual differences in conceptually related variables in relation to conspiracy beliefs? There are a number of potential explanations. First, the correlational studies to date have included conceptually *related* variables to the need for order, structure, certainty, and control, but they have not surveyed the full range of these constructs. To date, intolerance of ambiguity and uncertainty, a need for

cognitive closure, a need for cognition, and attributional complexity have been assessed, but it may be that more explicit measures of control need to be used. Imhoff and Bruder (2014) did assess desirability of control and found that an increased desire for socio-political control (but not other subscales) was positively related to conspiracy thinking. This is a more explicit measure of control and also hints at needing to assess individual subscales of any measures to get a clearer picture of predictors. In addition, the majority of effects have been weak (and not just in the control and uncertainty domain), thus a suitable sample size is required to detect these if they do exist. Secondly, in the majority of the experiments interactions between uncertainty/lack of control and other relevant variables have been analysed, and only then has the effect of certainty and control on conspiracy beliefs become apparent. The correlational studies to date have not reported such interactions. Third, and I believe most important, uncertainty and a lack of control are situational rather than dispositional constructs, and this could very well account for why effects on conspiracy thinking are found in experiments and not studies assessing individual differences in related constructs. In an experimental setting one is able to amplify situational uncertainty and lack of control and shortcut the temporal associations between cause and effect, meaning that other factors that could hinder or obscure the relationships between uncertainty, lack of control, and conspiracy beliefs do not come so strongly into play. Indeed, in real-life, individuals may turn to other ways of compensating for a lack of control than the limited choices provided to them in experimental settings such as pattern perception or adherence to one particular external system.

Where to from here?

The critical analysis of the conspiracy literature presented here has illustrated that the psychological research on conspiracy beliefs has matured to the point that several key issues need to be addressed. Firstly, studies have thus far tended to investigate conspiracy thinking in the context of specific conspiracy beliefs, assuming that because these beliefs cluster together they must form a generalised belief system. However, a fundamental question is whether this approach is valid. It is possible (although unlikely) that specific conspiracy beliefs versus a generalised tendency to

believe in conspiracies are distinct constructs and this needs to be tested empirically. To address this issue Study 1 (Chapter 2) examined the establishment and validity of both a Specific and a Generalised Conspiracy Belief Scale. Demonstrating that these scales measure the same, or different, constructs has important implications for the understanding of what causes conspiracy belief. A comparison of the relationships between various conspiracy predictor variables and the Generalised Conspiracy Belief Scale versus this Specific Conspiracy Belief Scale was conducted in Study 2 (Chapter 3). These variables were chosen on the basis of the review conducted in this chapter.

A second overarching aim of this thesis is to gain a better understanding of the relative contribution of the variety of variables that have been suggested as predicting conspiracy beliefs (whether domain-specific or generalised). The analysis presented here has shown that potential predictors of conspiracy thinking can be categorised in to four main clusters or groups: socio-political/personality/interpersonal factors; psychopathological factors; cognitive factors; and uncertainty and control. However, these categories and associated theoretical propositions are not necessarily mutually exclusive and represent the diversity of variables that have been identified as predicting conspiracy thinking. Because previous studies have tended to explore these variables in isolation and to different degrees, the relative importance of domains, and indeed individual variables, has not yet been fully explored. Therefore, a comprehensive analysis of the role played by a broad selection of potential predictor variables on their own and as part of domain groupings needs to be performed within the context of a single population study. This issue formed a second aim of Study 2.

Finally, the validity of the Generalised Conspiracy Belief Scale and the relationships between a subset of key predictor variables (identified in Study 2) and conspiracy beliefs in the context of a wider population sample was a focus of Study 3 (Chapter 4). By using a large New Zealand-wide sample, Study 3 also broadened the scope of the thesis to example the potential influence of key demographic variables in addition to predictor variables in the establishment of conspiracy beliefs. This last study also represents one of the few, and certainly the largest, New Zealand-based investigation of the psychological predictors of conspiracy thinking.

Chapter 2

Measuring conspiracy beliefs

The crucial first step in understanding any psychological construct lies in its measurement. In order to successfully measure a construct one must be confident of its validity and structure (i.e., whether it comprises multiple dimensions or just one), and reliability. When I began my research program investigating the psychological predictors of conspiracy belief there was no commonly used scale to measure this construct. Invariably, researchers would create their own scale to fit their purposes and some only reported preliminary analyses of reliability such as inter-item correlations and Cronbach's alpha (e.g., Crocker et al., 1999; Darwin et al., 2011; Drinkwater et al., 2012; Leman & Cinnirella, 2013; Lobato et al., 2014). Of the scales that have been accompanied by reports of EFA to date, researchers have typically concluded that one factor best explains the data, indicating that conspiracy belief forms a unidimensional construct (e.g., Goertzel, 1994; Swami et al., 2010; Wood et al., 2012). However, throughout the literature there are hints of a more complex picture, with different genres of conspiracy theory belief identified (e.g., Parsons, Simmons, Shinhoster, & Kilburn, 1999; Stieger et al., 2013; Swami, 2012; Swami et al., 2013; Thorburn & Bogart, 2005). The question remains as to whether these genres can be treated as one overall belief system, or whether they are best treated as separate facets. Before I began my investigation of the predictors of conspiracy belief, the dimensionality of this belief system required further investigation. Only subsequent to this could a valid and reliable measure of conspiracy belief be created and the psychological roots of conspiracy thinking identified. The primary aim of this study therefore was to create and fully investigate the psychometric properties of a conspiracy belief scale. Below is a brief summary of previous attempts to measure conspiracy beliefs, followed by an outline of the present research.

Previous attempts to measure individual differences in conspiracy belief

By far the most common method to measure conspiracy belief has been to compile a list of specific real-world conspiracy theories and ask respondents to rate

their endorsement of these using a Likert-type scale. Goertzel (1994) began this tradition by gauging participants' belief in a list of ten topical conspiracy theories, undertaking an EFA on these responses. He found that one factor best explained these beliefs and the majority of research has followed suit. To provide a few examples, Abalakina-Paap et al. (1999), Swami et al. (2010), Douglas and Sutton (2011), Darwin et al. (2011), and Oliver and Wood (2014) all created unidimensional scales by constructing a list of specific conspiracy theories, sourced from the web, encyclopaedias, magazines, television programs, and common knowledge. These measures sampled broadly from the gamut of conspiracy theories, including classic examples such as those centred around famous assassinations, claims of alien cover-ups and secret cabals, stories of government deceptions and sabotage, alternative explanations for acts of terrorism, and accusations surrounding the spread of diseases and illicit drugs. In the cases where more than one cluster¹ of conspiracy beliefs was identified using EFA, most, if not all, items still loaded most heavily on the first general factor (e.g., Stieger et al., 2013; Swami, 2012; Swami et al., 2011; Wood et al., 2012). This indicates that conspiracy belief forms a generalised trait that dictates belief in any given conspiracy theory. Goertzel famously referred to this pattern of results as representing a monological belief system, whereby each conspiracy belief serves as evidence for each of the other conspiracy beliefs. Instead of evaluating the evidence for each newly encountered conspiracy theory, one simply concludes that it must be true because it is consistent with existing beliefs.

At the same time however, there is a suggestion that what appears to be a unidimensional construct could potentially be multidimensional in nature depending on the content of the conspiracies being sampled or how they are analysed. For example, Parsons et al. (1999) found that their items concerning conspiracy theories against Black Americans clustered into two factors – conspiracies that represented malicious intent on the part of the U.S. government and another group of conspiracies that reflected benign neglect. In their analysis of birth control conspiracy beliefs

¹ Note that I use the word 'cluster' in a generic sense throughout this thesis, as opposed to that used in a statistical cluster analysis.

Thorburn and Bogart (2005) reported two dimensions of belief – conspiracies relating to Black genocide and conspiracies regarding the safety of birth control. Evidence for other groups of conspiracy beliefs are apparent in the literature. As already mentioned, Swami and colleagues undertook a number of studies investigating beliefs in specific classes of conspiracy theories, for example 9/11 conspiracies, 7/7 conspiracies, conspiracy beliefs about the moon landings, and Jewish conspiracies (Swami, 2012; Swami et al., 2010; Swami et al., 2013). Conspiracy beliefs concerning climate change, commercial matters, and vaccines have also been treated as separate scales in the past (Furnham, 2013; Jolley & Douglas, 2014a; Lewandowsky, Oberauer, et al., 2013; van Prooijen et al., 2015). These specialised scales tend to correlate strongly with scales surveying a broader range of real-world conspiracy theory beliefs, but they also hint at the possibility of there being separate clusters of belief falling under a wider umbrella of conspiracy thinking.

Although using specific real-world conspiracy theories to create measures of conspiracy belief has the advantage of topicality and ecological validity, and has been the most common approach, it is not without its problems. This method has some noted downsides because it relies on the respondent being familiar with the conspiracy theories in question (e.g., Uscinski, Klofstad, & Atkinson, 2016), of which some are more widely known in some countries than others. This limits cross-national comparison of conspiracy theory beliefs (e.g., Bruder et al., 2013). One way of combatting these concerns is to create a scale that measures a generalised tendency to believe in conspiracies – asking questions that tap into the belief that conspiracy theories occur regularly and explain significant societal phenomena. This method has been less commonly used but provides one mechanism for avoiding the problems of unfamiliarity that can be encountered when using specific conspiracy theories.

The first to report a generalised conspiracy belief measure was Abalakina-Paap et al. (1999), arguing that for some, the actual specifics of a given conspiracy may not be as important as the general attitude that conspiracy theories exist. This general scale contained nineteen items with statements such as *'Underground movements threaten the stability of American society'* and *'People who see conspiracies behind everything are*

simply imagining things' (contrait item). The measure moderately and positively correlated with a scale of belief in specific real-world conspiracy theories and produced somewhat different relationships with several psychological variables, suggesting that the two methods were not interchangeable. Drinkwater et al. (2012) published a five-item scale measuring the general belief in the veracity of conspiracy theories. This contained items such as *'I have heard several conspiracy theories which I believe to be true'*. In contrast to the findings of Abalakina-Paap and colleagues, this scale correlated strongly and positively with a measure of belief in specific conspiracy theories and mimicked the pattern of results found between specific conspiracy belief and the included psychological predictors. At the beginning of my research therefore, there were only two measures of general conspiracy belief published and the question remained as to whether this form of instrument would produce different results to a measure using specific conspiracy theories.

Shortly after commencing my research program (and having already designed and validated two measures of conspiracy belief, as discussed below), two groups of researchers created a generalised conspiracy belief scale to address concerns about using real conspiracy theories in the measurement of this construct. Imhoff and Bruder (2014) argued that belief in specific conspiracy theories was dictated by a generalised conspiracy mentality and created a twelve-item questionnaire to measure as such. These items omitted details pertaining to any one specific conspiracy theory. Examples include *'Those at the top do whatever they want'* and *'A few powerful groups of people determine the destiny of millions'*. No EFA was undertaken on this data (with Imhoff and Bruder instead proceeding straight to confirmatory factor analysis, which is not recommended: Byrne, 2010), but they argued that reliability analyses suggested the items measured one construct. At the same time they also reported the development of a shorter five-item conspiracy mentality questionnaire which contained very similar items (Bruder et al., 2013). Importantly, they were able to demonstrate that this generalised measure formed one unitary construct (this time using EFA), was equivalent across three different cultural groups, and was moderately to strongly associated with belief in over thirty individual specific conspiracy theories. They also

found that this scale related in similar ways (in terms of the direction and strength of effects) to previously identified correlates of specific conspiracy belief measures, suggesting the two methods of measurement could be interchangeable.

Lastly, certainly the most comprehensive attempt to create a generalised measure of conspiracy belief was undertaken by Brotherton et al. (2013). As well as acknowledging the fact that most studies to date had failed to fully examine the psychometric properties of their conspiracy measures, they reasoned that a lack of a widely adopted scale resulted in a number of problems. These included differences in the kinds of conspiracy theories used in each individual scale and the potential for idiosyncrasies in the wording of very similar items to affect participants' responses. However, they argued that the most fundamental problem of specific conspiracy theory scales was that researchers assumed that measuring belief in a small subset of conspiracies reflected individual differences in conspiracy thinking when the whole range of "conspiracism" may in fact remain unmeasured. As mentioned in Chapter 1, Brotherton et al. analysed a large number of specific conspiracy theories, converting them to statements that omitted identifying features (e.g., replacing the names of specific entities with non-specific descriptors such as 'the government' and 'certain organisations'). An EFA of these items revealed five conceptually meaningful groups of generic conspiracy beliefs (beliefs in a malevolent government, extra-terrestrial cover-up, malevolent global conspiracies, threats to personal wellbeing and liberty, and beliefs about the suppression and control of information). Creating a unidimensional fifteen-item scale from these clusters resulted in a generic conspiracy belief measure which correlated strongly with measures of belief in specific conspiracy theories and replicated patterns with previously identified predictors of specific conspiracy belief. This measure has very recently been adopted in a number of studies (e.g., Brotherton & French, 2014; Cichocka et al., 2016; Dieguez et al., 2015; Swami, Weis, et al., 2016; van der Tempel & Alcock, 2015). The fact that this Generic Conspiracist Beliefs Questionnaire comprised multiple factors of conspiracy beliefs yet also formed a unidimensional factor was consistent with work I had already undertaken and allowed

me to retrospectively compare and consider my results in relation to this new scale. This is discussed in detail in Study 1A.

Study Overview

As this research program commenced prior to the existence of a widely used specific or generalised conspiracy belief scale, I chose to create and evaluate both. As well as wanting to be confident of the psychometric properties of any conspiracy belief scale I used in my research, the question remained as to whether it mattered if a generalised or specific conspiracy belief scale was used. This in fact is still an area in the literature that requires elucidation and Chapter 3 will address this. What follows is a series of four studies that collectively addressed the need for a psychometrically sound measure of conspiracy belief and, at the same time, clarifies the structure of this belief system. Study 1A outlines an EFA of both a specific and general conspiracy belief measure, an assessment of the convergent and discriminant validity of the resultant scales, and reliability analyses. Study 1B presents a confirmatory factor analysis (CFA) of both scales. Lastly, studies 1C and 1D address issues identified with my first attempt to create a generalised measure of conspiracy thinking.

Study 1A

Method

Participants

A total of 350 participants took part in this study, comprising 231 females and 119 males. These participants were recruited from an introductory psychology course at Victoria University of Wellington and received credit towards a mandatory research participation requirement for their time². Their ages ranged from 17 to 47 years, with a mean age of 19.19 years ($SD = 3.19$). The majority of the sample identified as New Zealand European (77.7%) , followed by 15.7% indicating another ethnicity (e.g., Chinese or Samoan), and 6.6% identifying as New Zealand Māori (Indigenous New

² All participants were recruited in this manner for each of the four studies in this chapter.

Zealanders). Most of these participants were studying towards their arts degree (62%) while 26% were studying towards a science degree.

Measures

Generalised Conspiracy Belief Scale. To measure generalised conspiracy belief, ten novel items were created, omitting specific details such as naming agents, locations, or time courses that could relate to an actual conspiracy theory. These items referenced ideas relating to the belief that what appears to be a conspiracy is merely coincidence (contrait item) and beliefs that secret non-specified groups are attempting to control world events. The general conspiracy measure created by Abalakina-Paap et al. (1999) was referenced to help form these items. The complete list of items can be found in Table 2, in the results section of this study. Participants were asked to rate their agreement with each of these statements on a 1 (*strongly disagree*) to 7 (*strongly agree*) Likert scale. Higher scores indicated endorsement of the item in question. As for all cases in this thesis, contrait items were recoded prior to analysis, so that higher scores indicated stronger generalised conspiracy belief.

Specific Conspiracy Belief Scale. To assess the factor structure of real-world conspiracy beliefs, a sample of 49 conspiracy theories was selected from a range of sources including several books (e.g., McConnachie & Tudge, 2005; Vankin & Whalen, 1999), magazines (*Uncensored, Paranoia*), internet discussion sites (e.g., *Above Top Secret.com*), and existing conspiracy belief scales (Abalakina-Paap et al., 1999; Goertzel, 1994). These were carefully worded into one-sentence statements so that participants could indicate how likely they believed each conspiracy to be. Examples include conspiracies involving extra-terrestrial life forms, conspiracies regarding a number of well-known deaths, and conspiracies concerning secret elites and their nefarious plans for world domination. For the full list of items, please refer to Table 3 (in the results section of this study). Participants rated how likely they believed each conspiracy theory to be, ranging from 1 (*very unlikely*) to 7 (*very likely*), with higher scores indicating stronger belief in the likelihood of real-world conspiracies.

As mentioned previously, assessing conspiracy ideation by measuring endorsement of specific conspiracy theories bears the risk that participants may not be familiar with a given item – conspiracy theories about real world events are bound to specific protagonists, locations, and time periods, of which any given participant may be unfamiliar. For this reason participants were asked to indicate whether they had actually *heard* of each conspiracy theory in addition to indicating how likely they considered the conspiracy theory to be (regardless of their familiarity with that item). This enabled me to identify obscure items that future samples may have trouble recognising whilst still allowing for an examination of the structure of conspiracy beliefs.

Measures used to test validity

To ensure consistency the same measures were used to test for convergent and discriminant validity in each of the four studies of this Chapter. I present information on these measures below that applies to all studies, and the internal reliability information from each sample is provided in Table 1. As can be seen in this table, in some cases the Cronbach's alpha fell below the accepted minimum level of .70 to .80. This is understandable because all of the scales with the exception of the scale measuring interpersonal trust contain less than ten items. The Cronbach's alpha is inflated by the number of items a scale contains so in the cases where scales do not contain very many items, obtaining an alpha value below .70 is not unexpected. In this situation, one can refer to the corrected item-total correlations of each item to ensure that the given item correlates with the total scale score (Field, 2009). In addition to this, magical thinking was measured using items with a yes/no response format. It is worth noting that the Cronbach's alpha is not ideal for assessing the reliability of scales with binary responses (Sijtsma, 2009) so more emphasis will be placed on the corrected item-total correlations in this case.

Convergent validity

Anomie. A five-item measure of anomie created by Srole (1956) was used to test convergent validity of the two conspiracy belief measures. Anomie has been

consistently associated with conspiracy belief (e.g., Abalakina-Paap et al., 1999; Goertzel, 1994), therefore a positive correlation was expected between the two constructs. This particular anomie measure was chosen because it was used previously in relation to conspiracy beliefs, allowing for a direct comparison of results. The scale contains items such as *'In spite of what some people say, the lot of the average man is getting worse, not better'* and *'These days a person doesn't really know whom he can count on'*. Participants are asked to rate how true they think each statement to be, with responses ranging from 1 (*very untrue*) to 7 (*very true*), with higher scores indicating higher levels of anomie. Srole reported the items represented one dimension in his 1956 study and internal reliability was acceptable in the current studies and similar to that obtained by other researchers (Brotherton et al., 2013; Goertzel, 1994).

Interpersonal Trust. Interpersonal trust was selected as an indicator of convergent validity because again, this had been consistently associated with conspiracy beliefs, with both Abalakina-Paap et al. (1999) and Goertzel (1994) reporting a negative relationship between the two. This was measured with fourteen items taken from the Philosophies of Human Nature Scale (Wrightsmann, 1964), a scale intended to measure one's expectations about how others generally behave. This scale was selected on the basis that it had previously been used by Abalakina-Paap and colleagues in relation to both specific and general conspiracy beliefs. Participants are asked to rate their level of agreement from 1 (*strongly disagree*) to 7 (*strongly agree*) with items such as *'Most people are basically honest'* and *'People usually tell the truth, even when they know they would be better off lying'*. Higher scores indicate higher levels of trust. Wrightsmann reports good reliability of the measure using university samples and internal consistency was acceptable in the present studies.

Magical Thinking. The odd beliefs or magical thinking subscale of the Schizotypal Personality Questionnaire (SPQ; Raine, 1991) was used as an additional measure of convergent validity. At the time of commencing my research this measure was selected based on observed similarities between the construct of magical thinking and conspiracy beliefs – both of which involve perceiving connections that do not exist and endorsing ideas that may be considered unusual by mainstream society. A positive

relationship between these two factors was expected, and this has since been empirically demonstrated by others (e.g., Bruder et al., 2013; Darwin et al., 2011). The magical thinking subscale contains seven items (e.g., ‘*Can other people feel your feelings when they are not there?*’ and ‘*Have you had experiences with astrology, seeing the future, UFOs, ESP or a sixth sense?*’), and participants respond on a *yes* (coded as 1)/*no* (coded as 0) scale. Higher scores indicate higher levels of magical thinking. Raine reports good reliability using student samples, and internal reliability was acceptable in the current study.

Discriminant validity

Big Five Personality. Three of the Big Five personality traits were chosen as indicators of discriminant validity. For the purposes of this study the extraversion, conscientiousness, and neuroticism traits were selected because they were non-significant predictors of conspiracy beliefs (while agreeableness and openness were) in Swami and colleagues’ investigation of 9/11 conspiracy beliefs (Swami et al., 2010). Discriminant validity could be assumed if the two measures of conspiracy belief did not correlate with these three factors. These traits were measured with relevant items from the Ten-Item Personality Inventory designed by Gosling, Rentfrow, and Swann Jr (2003). Each personality domain is assessed with two items and participants are asked to rate the extent to which each trait applies to them, ranging from 1 (*disagree strongly*) to 7 (*agree strongly*). Higher numbers indicate higher levels of the trait in question. Examples of items include ‘*Anxious, easily upset*’, and ‘*Reserved, quiet*’. Excellent reliability of the items was reported by Gosling et al., and correlations among the pairs of items were indicative of acceptable internal consistency in the current study with one exception: In Study 1C the minimum correlation (.15, as can be seen in Table 1) was lower than ideal, but was still significant. This scale was selected because it was brief and similar to that used by Swami et al.

Table 1.

Reliability information in the form of Cronbach's alphas and corrected item-total correlations for validity measures used in Studies 1A, 1B, 1C, and 1D.

| Samples | Measures | | | | | | |
|----------|----------|-----------|--------------------------------|---------------------|-----------|------------------|-----------|
| | Anomie | | Big 5 Personality ^a | Interpersonal Trust | | Magical Thinking | |
| | α | r | r | α | r | α | r |
| Study 1A | .62 | .29 - .51 | .42 - .48*** | .76 | -- | .60 | .28 - .40 |
| Study 1B | .63 | .31 - .51 | .42 - .47*** | .77 | -- | .59 | .23 - .41 |
| Study 1C | .65 | .34 - .56 | .15 - .48* | .79 | -- | .64 | .21 - .51 |
| Study 1D | .60 | .33 - .46 | -- ^b | .64 | .42 - .52 | .69 | .24 - .67 |

Note. In cases where the Cronbach's alpha is less than the ideal of .7 the range of corrected item-total correlations has also been provided as an additional measure of reliability.

^aThe Big Five Personality Questionnaire subscales each contain two items therefore only a correlation is provided as reliability information for this construct (as it would not make sense to provide a Cronbach's alpha for two items). The information depicted in this table presents the lowest and highest correlations obtained of the three pairs of variables measured for each sample. Each pair of correlations for the individual Big Five Personality subscales were significant at a minimum of the .05 level. The Anomie scale comprised five items; Interpersonal Trust comprised fourteen items, and the Magical Thinking scale comprised seven items.

^bThe Big Five Personality Questionnaire was not administered in this study.

* $p < .05$, *** $p < .001$

General Procedure³

Participants were invited to complete the questionnaires as part of a research participation requirement associated with their undergraduate psychology course. The survey was administered online using the SurveyMonkey® program. In Study 1A and 1C participants were permitted to complete the survey when and wherever they chose. In Study 1B and 1D participants completed the survey in the first laboratory of their class over the course of one week. Participation was voluntary, and the option to withdraw at any stage up until submission of responses was provided. Upon commencing the survey, an information page was presented that outlined the general purpose of the research and what would be involved if the participant agreed to take part in the study. Contact details of the researchers were also provided if participants had any questions, comments, or concerns. An option was given to have debriefing information emailed to the participant if so desired, upon completion of data collection several months later. Ethical approval was granted for these studies by the Victoria University of Wellington School of Psychology Human Ethics Committee.

Results

Generalised Conspiracy Belief Scale

Factor Structure. Intercorrelations among the ten generalised conspiracy items were first examined to ensure adequate relationships between them. On this basis, one item (*Sometimes, things just happen without anyone being behind them*) was removed prior to Principal Components Analysis (PCA) as it correlated (weakly, below .30) with only five of the other items. All other items showed significant intercorrelations (correlations in this study ranged from .11 to .53, average $r = .24$). Although some of these correlations fell below the typically cited criteria of .20 - .30 (Field, 2009; Giles, 2002), I chose to persevere with the PCA for two reasons. First, it has been noted that the criteria of .20 or .30 is a subjective one with no hard and fast rules for its use (e.g., Field, 2009; Giles, 2002), and second, a significant Bartlett's test of sphericity (reported

³ The procedure information for all four studies in this chapter is identical with the exception of where participants completed the surveys, so I provide a general procedure here that applies to each study.

below) indicated the correlations among the variables were significantly different from zero, thus showing that there were potential clusters of items to find. Therefore, the remaining nine items were subjected to a PCA to examine the dimensionality of generalised conspiracy beliefs, with the prediction that these items would form a single dimension.

Bartlett's test of sphericity, $\chi^2(36) = 779.78, p < .001$, and the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (KMO = .76) were good. In addition, KMO values for individual items were all $> .62$, which falls above the acceptable limit of .50 (Field, 2009). Suppressing factor loadings below .40 (as recommended by Stevens, 2002), the initial unrotated solution revealed two components⁴ with eigenvalues over Kaiser's criterion of 1, explaining a total of 53.78% of the variance. The first component explained a large portion of the variance ($\lambda = 3.04, 33.80\%$). The item loadings did not reveal any meaningful pattern so an orthogonal rotation (varimax) was performed to enhance interpretation⁵. Following rotation, 32.23% ($\lambda = 2.90$) and 21.55% ($\lambda = 1.94$) of the variance was explained by the first and second components respectively. Examination of the item loadings revealed that items were clustering into two factors consistent with the direction of wording. This response set phenomenon has been noted in previous research (e.g., Greenberger, Chen, Dmitrieva, & Farruggia, 2003) and when changing items of the scale to be either fully positively worded or fully negatively worded, the problem was eliminated. For this reason (in addition to the scree plot indicating that one or two factors best explained the data) a one-factor solution was considered most appropriate.

⁴ I will use the terms 'components' and 'factors' interchangeably as I am discussing these on a conceptual level.

⁵ Whilst I expect any potential factors to be correlated – and hence an oblique rotation should technically be performed – I have elected to use orthogonal rotation throughout my analyses. The reasons for this are threefold: Orthogonal varimax rotation is the most commonly used rotation technique in the literature; varimax offers greater ease of interpretation compared to oblique methods; and most importantly, with a large dataset both methods of rotation produce essentially the same solution (Tabachnick & Fidell, 2013). With all solutions, I ran an oblique rotation (direct oblimin) to ensure the obtained patterns were replicated.

The resulting single-factor scale had acceptable internal consistency ($\alpha = .73$; corrected item-total correlations ranging from .18 – .58) but two items did load weakly (*'While conspiracies DO happen, they're not as common as people think'* and *'A lot of things that people call conspiracies are just coincidence'*). See Table 2 for all corrected item-total correlations and component loadings. No significant changes in internal reliability were achieved with deletion of either item however, thus they were retained in the final factor solution. As can be seen in Table 2, seven out of nine of the items had means falling higher than the midpoint of the scale, which is unexpected for a conspiracy belief scale (e.g., Swami et al., 2010). The standard deviations for each item did indicate that the items discriminated well in the sample however. The nine items were summed and averaged to create the final Generalised Conspiracy Belief Scale. Scores ranged from 1.44 – 7.00 with a mean of 4.39 ($SD = .77$). Consideration of statistics for skewness and kurtosis in combination with a visual inspection of the distribution confirmed that the scale distribution did not deviate from normality.

Validity and Test-Retest Reliability. The Generalised Conspiracy Belief Scale demonstrated good convergent validity, correlating positively with anomie, $r(342^6) = .19, p < .001$, and magical thinking, $r(280) = .25, p < .001$, and negatively with interpersonal trust $r(334) = -.27, p < .001$. There was also evidence of discriminant validity, with non-significant relationships between the Generalised Conspiracy Belief Scale and extraversion, $r(117) = .10, p = .30$, conscientiousness, $r(117) = -.05, p = .58$, and neuroticism, $r(113) = -.08, p = .38$. Test-retest reliability was examined by administering the scale to 225 of the original participants approximately five months later. A strong positive correlation was obtained between time 1 and time 2 scores, $r(224) = .69, p < .001$, and a paired samples t-test revealed there was no significant difference between the scale means over time, $t(224) = 1.36, p = .17, 95\% \text{ CI } [-.02, .13]$. Both of these results provide excellent evidence that the scale produced consistent responses over time.

⁶ All discrepancies between degrees of freedom in this thesis can be explained by the fact that some participants did not complete all scales in the studies.

Table 2.

Item wording, component loadings, reliability, and descriptive statistics for the Generalised Conspiracy Belief Scale.

| Items | Component loading | Corrected item-total correlation | Mean (SD) |
|--|-------------------|----------------------------------|-------------|
| 1. Nobody is conspiring to overthrow the traditional authorities. | .47 | .37 | 4.13 (1.50) |
| 2. Governments routinely do things in secret without telling us. | .71 | .50 | 5.05 (1.42) |
| 3. As a general rule, governments and other groups, do NOT have secret plans. ^a | .62 | .55 | 4.68 (1.55) |
| 4. Throughout history people have secretly planned to get their own way. | .68 | .40 | 5.04 (1.30) |
| 5. While conspiracies DO happen, they're not as common as people think. ^a | .13 | .18 | 2.87 (1.32) |
| 6. There is historical evidence that conspiracies do occur. | .64 | .38 | 5.06 (1.24) |
| 7. A lot of the things that people call conspiracies are just coincidence. ^a | .18 | .21 | 3.18 (1.37) |
| 8. There is evidence that conspiracies have changed the course of history. | .68 | .47 | 4.59 (1.23) |
| 9. No doubt, there are people out there secretly planning to change the social order. | .75 | .58 | 4.92 (1.33) |
| Sometimes, things just happen without anyone being behind them. ^{ab} | -- | -- | -- |

n = 350

^a Reversed item.

^b This item was excluded from the final scale.

Specific Conspiracy Belief Scale

Factor Structure. Before subjecting the items to a PCA I examined the responses to gauge participants' familiarity with the conspiracies. At least one-third (33%) of the sample had to indicate that they had heard of the given item for it to be included in further analyses. I elected to use a fairly low criterion here as the sample consisted of predominantly younger participants, most of whom had only just finished secondary school the prior year. I considered it very unlikely that they would have been exposed to as many conspiracy theories as an older, general, population sample, and thus eliminating too many unfamiliar items on this basis could have had an impact on future empirical studies of conspiracy belief using more general samples. In addition, one could argue that the structure of beliefs can still be reasonably assessed given that participants were asked to indicate how likely they believed each conspiracy to be true regardless of their familiarity with a given theory. Evidence showing that participants can endorse entirely fictitious conspiracy theories (Swami et al., 2011) supports this argument. On this basis, seventeen of the 49 items were deleted (see Table 3 for these items).

The correlation matrix of the remaining 32 items was then examined to ensure relationships among the variables. To be included for further analysis a given item had to correlate above .20 with a third or more of the other items. A low criterion was used here because if the structure of belief in real world conspiracy theories is multidimensional it could be argued that an item may correlate well with a small group of items and not at all with others belonging to a different cluster of conspiracy beliefs. Four items correlated poorly using this criterion and were thus eliminated (see Table 3). Of the remaining items, three pairs of statements were considered to be very similar: 1) *'HIV is a manmade virus, designed to eliminate minority groups'* and *'The HIV virus has been deliberately spread amongst groups such as homosexuals and African Americans'*; 2) *'The police are deliberately allowing drugs into poorer communities'* and *'Illicit drugs such as heroin are deliberately spread through ethnic minority communities'*; and 3) *'The global elite hold regular secret meetings in a top-secret location to determine the course of world politics'* and *'Members of an elite secret society have infiltrated governments in*

an attempt to direct worldwide events in their favour'. I elected to delete one of each pair (selected on the lowest corrected item-total correlations – see Table 3) to further shorten the scale and to avoid 'bloated specifics' (whereby two items cluster together by themselves in a PCA due to similar wording; Giles, 2002). This left a total of 25 items, which were then subjected to a PCA in order to determine the dimensionality of specific conspiracy theory beliefs.

The significance of Bartlett's test of sphericity indicated that the correlations among the items were sufficient, $\chi^2(300) = 2891.64, p < .001$, and the magnitude of the KMO measure of sampling adequacy was excellent (KMO = .91). In addition, KMO values for individual items were all $> .86$, which falls above the acceptable limit of .50 (Field, 2009). The initial unrotated solution revealed five components with eigenvalues over Kaiser's criterion of 1, explaining 52.91% of the variance. However, the scree plot showed that one or two components may best describe the data, and a parallel analysis (O'Connor, 2000) corroborated this, suggesting a maximum of two components for extraction. Suppressing factor loadings below .40 (Stevens, 2002) the unrotated two-factor solution explained 38.85% of the variance, with the first factor accounting for a large chunk of this ($\lambda = 7.72, 30.86\%$). Indeed, in all subsequent tables of factor loadings, loadings below .40 are suppressed. Once again, an orthogonal rotation (varimax) was performed to enhance interpretation. Following rotation, 20.58% ($\lambda = 5.15$) and 18.27% ($\lambda = 4.57$) of the variance was explained by the first and second components respectively. Examination of the item loadings again showed no meaningful pattern, with a number of cross-loading items. For this reason, a one-factor solution was deemed most appropriate, with good item loadings ranging between .42 and .72 (see Table 4). This component displayed excellent internal reliability with corrected item-total correlations ranging between .37 and .67 and a Cronbach's alpha of .90, though this high value is not surprising given the high number of items. The means of each item were fairly low but this is not unexpected given the nature of the scale. Total Specific Conspiracy Belief Scale scores for the sample ranged from 1.08 – 6.20 with a mean of 3.10 ($SD = .88$). Again, skewness and kurtosis statistics in combination

with a visual inspection of the distribution confirmed that the scale distribution did not deviate from normality.

The majority of research to date (e.g., Goertzel, 1994; Imhoff & Bruder, 2014; Swami et al., 2010) has established conspiracist ideation to be unidimensional in the sense that these beliefs tend to hang together – if you believe in one conspiracy you are more likely to believe in others. Such a position is not inconsistent with the analysis presented above. However, as indicated in Chapter 1, there are hints in the literature of a more complex pattern to conspiracy beliefs. This, combined with the fact that five components were initially extracted in this EFA (based on Kaiser’s criterion of eigenvalues greater than 1), led me to believe that groups of conspiracy belief were potentially being overlooked. Thus, I elected to examine the factor structure of the specific conspiracy belief items in more depth, in an attempt to identify whether distinct groups of conspiracy beliefs were being masked by the one-factor solution.

Delving deeper into the factor structure of the Specific Conspiracy Belief Scale

To begin with, I experimented with a forced five, four, and three-factor PCA with a varimax rotation. The five-factor solution revealed some conceptually meaningful patterns of items (e.g., items relating to extra-terrestrial life), but others appeared less meaningful and there were several overlapping items. The three-factor solution suggested three distinct themes – items that appeared to represent belief in conspiracies regarding ‘big business’ industry misdeeds (e.g., *‘Drug companies conspire to keep people sick to reap profits’*); items that reflected threats to personal safety and autonomy (e.g., *‘HIV is a manmade virus, designed to eliminate minority groups’*), and items of a ‘classic’ or pop conspiracy nature (e.g., *‘NASA faked the moon landings’*). The items relating to extra-terrestrial life were intermixed in this solution however, and I considered it likely that this was an important factor that was being masked. Examining the four-factor solution, this seemed to be the case – in addition to the three factors noted above, three items loaded onto an additional factor representing extra-terrestrial conspiracy theories.

Table 3.

Original items for the Specific Conspiracy Belief Scale: Wording, sample familiarity with items, and percentage of inter-item correlations equal or greater than .2.

| Items | % of respondents familiar with the conspiracy theory | % of items correlating at $\geq .2$ |
|---|--|-------------------------------------|
| Items retained for principal components analysis | | |
| 1. Lee Harvey Oswald did not act alone in the assassination of President John F. Kennedy – an institution such as the FBI, CIA or the Mafia likely played a role. | 65.3 | 54.84 |
| 2. Computer companies deliberately release programs with errors in order to sell future upgrades. | 58.0 | 51.61 |
| 3. Cures for cancer have been identified; however drug companies have suppressed these. | 45.4 | 61.29 |
| 4. NASA faked the moon landings. | 92.2 | 45.16 |
| 5. Individuals within the US government knew of the impending September 11 terrorist attacks, and purposely failed to act on that knowledge. | 77.3 | 83.87 |
| 6. The British Secret Service was involved in the death of Diana, Princess of Wales. | 75.3 | 70.97 |
| 7. World governments are hiding evidence that earth has been visited by aliens. | 69.8 | 83.87 |
| 8. The war in Iraq has less to do with promoting democracy than it does with controlling oil production in the East. | 76.7 | 45.16 |
| 9. Pharmaceutical companies and various government agencies conspire to maintain profits by ensuring that the general public uses only conventional medicine. | 39.0 | 80.65 |
| 10. Car manufacturers and oil producers collude to suppress the development of environmentally friendly alternatives to the internal-combustion engine. | 42.7 | 41.94 |
| 11. Members of an elite secret society have infiltrated governments in an attempt to direct worldwide events in their favour. | 39.6 | 93.55 |
| 12. Asian countries are deliberately conspiring to destroy the Western economy. | 38.9 | 80.65 |
| 13. An institution such as the CIA was involved in the assassination of Martin Luther King Jr. | 54.4 | 87.10 |
| 14. The police are deliberately allowing drugs into poorer communities. | 45.2 | 67.74 |
| 15. A UFO crashed in New Mexico in 1947 and technology and alien bodies were recovered. The US military has been trying to cover this up ever since. | 54.9 | 90.32 |

| Items | % of respondents familiar with the conspiracy theory | % of items correlating at $\geq .2$ |
|---|--|-------------------------------------|
| 16. United States President Barack Obama's birth certificate, stating that he was born in Hawaii, is a forgery. | 62.6 | 80.65 |
| 17. The mass suicide of Jonestown was actually a CIA-backed exercise in mind control and brainwashing. | 71.4 | 64.52 |
| 18. Drug companies conspire to keep people sick to reap profits. | 49.6 | 83.87 |
| 19. The United States uses a secret military base known as Area 51 to investigate aliens. | 69.9 | 77.42 |
| 20. Scientologists control Hollywood. | 37.9 | 58.06 |
| 21. There have been many forms of free energy around for decades, but the corporations that rule oil and gas are snuffing them out. | 40.0 | 87.10 |
| 22. Social networking sites, such as Facebook and Twitter, have been created or financed by governments in order to spy on users. | 42.4 | 67.74 |
| 23. HIV is a manmade virus, designed to eliminate minority groups. | 36.9 | 74.19 |
| 24. In spite of evidence that fluoride is extremely toxic, authorities continue to add fluoride to our water supplies, because to do otherwise would be to admit liability. | 41.6 | 83.87 |
| 25. There is a deliberate government conspiracy to suppress the rights and prospects of Māori in New Zealand. | 38.8 | 61.29 |
| Items eliminated prior to principal components analysis | | |
| 26. The New Zealand government has covered up evidence that genetically modified crops have contaminated our agricultural system. | 24.9 ^a | -- |
| 27. The Holocaust did not occur or has been grossly exaggerated. | 77.0 ^b | 19.35 |
| 28. The bird flu virus in East Asia was a manmade virus designed to disrupt the economy of the region. | 29.0 ^a | -- |
| 29. A secret group of the European and American elite meets on an annual basis to choose presidents, prime ministers and direct the course of history. | 28.5 ^a | -- |
| 30. The CIA and the US Department of Defence spent millions of dollars on developing a psychic surveillance program. | 31.7 ^a | -- |
| 31. There is a deliberate plan to advantage Māori, and other minorities, at the expense of mainstream New Zealanders. | 58.8 ^b | 22.58 |
| 32. Somebody or something is injuring or killing cattle around the world with surgical precision and world governments are trying to cover this up. | 15.3 ^a | -- |

| Items | % of respondents familiar with the conspiracy theory | % of items correlating at $\geq .2$ |
|---|--|-------------------------------------|
| 33. Worldwide governments and the military have been spraying mysterious substances into the atmosphere under the cover of normal aircraft contrails. | 17.3 ^a | -- |
| 34. Elvis Presley is still alive. | 70.0 ^b | 9.68 |
| 35. Barcodes on everyday products are used by the government to track and spy on its citizens. | 29.8 ^a | -- |
| 36. U.S. and Indian militaries deliberately caused the Indian Ocean tsunamis with electromagnetic pulse technology. | 11.8 ^a | -- |
| 37. The Kentucky Fried Chicken franchise is owned by the Ku Klux Klan. | 13.8 ^a | -- |
| 38. There is a Jewish plot for worldwide domination. | 23.6 ^a | -- |
| 39. Microsoft sends antisemitic messages through the Wingdings font. | 21.9 ^a | -- |
| 40. Pharmaceutical companies are in league with some medical practitioners to invent new diseases. | 30.9 ^a | -- |
| 41. The New Zealand government uses any means possible to spy on its citizens. | 27.0 ^a | -- |
| 42. The Bali bombing was carried out by the CIA in order to encourage support for the Iraq war. | 22.4 ^a | -- |
| 43. The All Blacks were deliberately poisoned before the 1995 rugby world cup final. | 53.9 ^b | 9.68 |
| 44. Many of the major events in recent world history have been caused by a Jewish conspiracy. | 23.3 ^a | -- |
| 45. Big business has deliberately suppressed evidence that Aspartame (a chemical sweetener) is an extremely potent poison. | 21.1 ^a | -- |
| 46. At least some of the apparent killings of kidnapped Westerners in Iraq were faked by the American military. | 31.1 ^a | -- |
| 47. The HIV virus has been deliberately spread amongst groups such as homosexuals and African Americans. | 48.9 ^c | 67.74 |
| 48. Illicit drugs such as heroin are deliberately spread through ethnic minority communities. | 36.3 ^c | 70.97 |
| 49. The global elite hold regular secret meetings in a top-secret location to determine the course of world politics. | 35.5 ^c | 80.65 |

$n = 350$

^a eliminated as less than 33.3% of the sample had heard of this conspiracy theory.

^b eliminated as item failed to correlate .2 or higher with a third or more of the items.

^c eliminated due to similarity with another item.

Table 4.

Final items for the Specific Conspiracy Belief Scale: Component loadings, reliability information, and descriptive statistics.

| Items | Component loading | Corrected item-total correlation | Mean (SD) |
|---|-------------------|----------------------------------|-------------|
| 1. Members of an elite secret society have infiltrated governments in an attempt to direct worldwide events in their favour. | .72 | .67 | 2.95 (1.58) |
| 2. Drug companies conspire to keep people sick to reap profits. | .67 | .63 | 3.08 (1.69) |
| 3. A UFO crashed in New Mexico in 1947 and technology and alien bodies were recovered. The US military has been trying to cover this up ever since. | .67 | .63 | 2.97 (1.64) |
| 4. An institution such as the CIA was involved in the assassination of Martin Luther King Jr. | .65 | .60 | 3.22 (1.56) |
| 5. There have been many forms of free energy around for decades, but the corporations that rule oil and gas are snuffing them out. | .63 | .58 | 3.66 (1.77) |
| 6. Individuals within the US government knew of the impending September 11 terrorist attacks, and purposely failed to act on that knowledge. | .62 | .57 | 3.27 (1.85) |
| 7. The United States uses a secret military base known as Area 51 to investigate aliens. | .62 | .56 | 3.52 (1.66) |
| 8. HIV is a manmade virus, designed to eliminate minority groups. | .61 | .55 | 1.99 (1.32) |
| 9. Pharmaceutical companies and various government agencies conspire to maintain profits by ensuring that the general public uses only conventional medicine. | .61 | .56 | 3.96 (1.64) |
| 10. World governments are hiding evidence that earth has been visited by aliens. | .59 | .53 | 2.78 (1.75) |
| 11. Asian countries are deliberately conspiring to destroy the Western economy. | .58 | .51 | 2.73 (1.50) |
| 12. In spite of evidence that fluoride is extremely toxic, authorities continue to add fluoride to our water supplies, because to do otherwise would be to admit liability. | .56 | .50 | 3.00 (1.60) |
| 13. The police are deliberately allowing drugs into poorer communities. | .54 | .47 | 2.30 (1.36) |
| 14. The British Secret Service was involved in the death of Diana, Princess of Wales. | .53 | .48 | 2.85 (1.53) |
| 15. Social networking sites, such as Facebook and Twitter, have been created or financed by governments in order to spy on users. | .52 | .46 | 2.77 (1.61) |
| 16. United States President Barack Obama's birth certificate, stating that he was born in Hawaii, is a forgery. | .51 | .45 | 2.06 (1.38) |
| 17. Cures for cancer have been identified; however drug companies have suppressed these. | .51 | .47 | 2.67 (1.60) |

| Items | Component loading | Corrected item-total correlation | Mean (<i>SD</i>) |
|--|-------------------|----------------------------------|--------------------|
| 18. The mass suicide of Jonestown was actually a CIA-backed exercise in mind control and brainwashing. | .48 | .43 | 2.89 (1.69) |
| 19. Lee Harvey Oswald did not act alone in the assassination of President John F. Kennedy – an institution such as the FBI, CIA or the Mafia likely played a role. | .47 | .42 | 3.74 (1.63) |
| 20. Scientologists control Hollywood. | .46 | .40 | 2.48 (1.43) |
| 21. Car manufacturers and oil producers collude to suppress the development of environmentally friendly alternatives to the internal-combustion engine. | .46 | .41 | 3.95 (1.78) |
| 22. There is a deliberate government conspiracy to suppress the rights and prospects of Māori in New Zealand. | .45 | .39 | 2.19 (1.34) |
| 23. The war in Iraq has less to do with promoting democracy than it does with controlling oil production in the East. | .44 | .41 | 4.95 (1.61) |
| 24. Computer companies deliberately release programs with errors in order to sell future upgrades. | .43 | .39 | 4.37 (1.61) |
| 25. NASA faked the moon landings. | .42 | .37 | 3.11 (1.64) |

n = 350

This four-factor solution described the data well, accounting for 48.75% of the variance. Factor loadings and reliability information for all items can be seen in Table 5. The first component (henceforth referred to as ‘Harm and Control’) contained nine items depicting conspiracy theories surrounding threats to personal safety (e.g., *‘HIV is a manmade virus, designed to eliminate minority groups’*) and autonomy (e.g., *‘Members of an elite secret society have infiltrated governments in an attempt to direct worldwide events in their favour’*). This factor accounted for 15.20% ($\lambda = 3.8$) of the variance and had good internal consistency.

The second factor (‘Industry Ill Will’) contained a group of seven conspiracy theories regarding industry or “big business” matters (e.g., *‘Car manufacturers and oil producers collude to suppress the development of environmentally friendly alternatives to the internal-combustion engine’*). This cluster explained 14.36% ($\lambda = 3.59$) of the variance and again showed good internal consistency. The remaining two factors explained a similar amount of the variance.

The third factor, explaining 9.87% ($\lambda = 2.47$) of the variance, may be interpreted in more than one way. This cluster contains six items that could represent classic well-known “pop” conspiracy theories – for example, conspiracy theories regarding JFK and the NASA moon landings are extremely well-known (Goertzel, 1994; Simpson, 2004). On the other hand, all but one of these items contain the theme of death (e.g., *‘An institution such as the CIA was involved in the assassination of Martin Luther King Jr’*) and so could be clustering together for this reason. I am inclined to give the former interpretation more weight for two reasons. First, the Harm and Control and Industry Ill Will components both contain items that allude to death (e.g., *‘HIV is a manmade virus, designed to eliminate minority groups’* and *‘Cures for cancer have been identified; however drug companies have suppressed these’*) yet these loaded separately and clearly onto different factors. Secondly, the component in question contains an item regarding the mass suicide of Jonestown. This item is interesting because the sample was exposed to a documentary referring to the Jonestown conspiracy in the social psychology section of their laboratory program. I suspect that these items are loading together not because they are united by the theme of death, but rather because they are easily recognised

and familiar conspiracy theories. This is supported by the fact that the items belonging to this cluster were some of the most recognised conspiracies of the sample (see Table 3). In further support, I note a particular study where an item intended to measure belief in the Jonestown massacre conspiracy theory had to be dropped from further analysis due to a combination of missing responses and a lack of familiarity with the item (Brotherton & French, 2014). This study used a general population sample with a mean age of approximately 35 years, so one would expect a higher level of familiarity with this conspiracy compared to the present university sample, yet the sample in this study recognised the conspiracy at a higher rate. I have thus elected to interpret and describe the factor as 'Pop Conspiracies'. This factor displayed acceptable internal reliability.

The fourth factor contained three items related to extra-terrestrial life (e.g., '*World governments are hiding evidence that earth has been visited by aliens*') and explained 9.33% ($\lambda = 2.33$) of the variance. This factor demonstrated good internal reliability. Unsurprisingly, moderate to strong positive intercorrelations were obtained among these subfactors of conspiracy belief (see Table 6). This indicates that although there are different types of conspiracy belief, they appear to share common ground.

Validity and Test-Retest Reliability. The Specific Conspiracy Belief Scale demonstrated excellent convergent validity: specific conspiracy belief correlated positively with both anomie, $r(346) = .35, p < .001$, and magical thinking, $r(282) = .29, p < .001$, and negatively with interpersonal trust, $r(338) = -.22, p < .001$. Similar to the Generalised Conspiracy Belief Scale, evidence for discriminant validity was obtained, with no significant relationship found between specific conspiracy belief scores and that of extraversion, $r(117) = .02, p = .83$, conscientiousness, $r(117) = .05, p = .59$, or neuroticism, $r(113) = -.10, p = .29$. A subset of the original sample completed the Specific Conspiracy Belief scale again approximately five months later, and these scores were highly consistent over time, $r(212) = .72, p < .001$. It must be noted however that there was a significant difference in mean scores at time 1 and time 2, $t(212) = 2.58, p = .01$, but the actual change in these means was negligible (mean difference = .12, $SE = .05$, 95% CI = .03 - .22, Cohen's $d = 0.19$). Of note, scores on the Specific Conspiracy Belief

Scale correlated strongly and positively with scores on the Generalised Conspiracy Belief Scale, $r(345) = .50$, $p < .001$, suggesting the two scales share similarities.

Table 5.

Subfactors of the Specific Conspiracy Belief Scale: Component loadings, reliability information, and descriptive statistics.

| Items | Harm and Control $\alpha = .81$ | Industry Ill Will $\alpha = .80$ | Pop Conspiracies $\alpha = .73$ | ET Conspiracies $\alpha = .80$ | Corrected item-total correlation |
|--|--|--|---------------------------------------|--------------------------------------|--|
| 1. HIV is a manmade virus, designed to eliminate minority groups. | .69 | .11 | .13 | .20 | .61 |
| 2. There is a deliberate government conspiracy to suppress the rights and prospects of Māori in New Zealand. | .66 | .00 | .11 | .02 | .49 |
| 3. The police are deliberately allowing drugs into poorer communities. | .58 | .08 | .21 | .15 | .52 |
| 4. United States President Barack Obama's birth certificate, stating that he was born in Hawaii, is a forgery. | .58 | .04 | .23 | .13 | .49 |
| 5. Social networking sites, such as Facebook and Twitter, have been created or financed by governments in order to spy on users. | .57 | .16 | .14 | .09 | .48 |
| 6. Scientologists control Hollywood. | .57 | .18 | -.07 | .14 | .44 |
| 7. In spite of evidence that fluoride is extremely toxic, authorities continue to add fluoride to our water supplies, because to do otherwise would be to admit liability. | .50 | .25 | .17 | .13 | .48 |
| 8. Asian countries are deliberately conspiring to destroy the Western economy. | .48 | .14 | .23 | .29 | .52 |
| 9. Members of an elite secret society have infiltrated governments in an attempt to direct worldwide events in their favour. | .44 | .25 | .41 | .37 | .58 |
| 10. Pharmaceutical companies and various government agencies conspire to maintain profits by ensuring that the general public uses only conventional medicine. | .24 | .68 | .18 | .04 | .60 |
| 11. Car manufacturers and oil producers collude to suppress the development of environmentally friendly alternatives to the internal-combustion engine. | .07 | .67 | -.06 | .18 | .53 |
| 12. The war in Iraq has less to do with promoting democracy than it does with controlling oil production in the East. | -.15 | .66 | .25 | .15 | .48 |
| 13. Drug companies conspire to keep people sick to reap profits. | .36 | .64 | .04 | .23 | .60 |

| Items | Harm and Control $\alpha = .81$ | Industry Ill Will $\alpha = .80$ | Pop Conspiracies $\alpha = .73$ | ET Conspiracies $\alpha = .80$ | Corrected item-total correlation |
|--|--|--|---------------------------------------|--------------------------------------|--|
| 14. Computer companies deliberately release programs with errors in order to sell future upgrades. | .00 | .57 | .17 | .09 | .45 |
| 15. There have been many forms of free energy around for decades, but the corporations that rule oil and gas are snuffing them out. | .28 | .62 | .08 | .21 | .58 |
| 16. Cures for cancer have been identified; however drug companies have suppressed these. | .18 | .57 | .17 | .05 | .50 |
| 17. Lee Harvey Oswald did not act alone in the assassination of President John F. Kennedy – an institution such as the FBI, CIA or the Mafia likely played a role. | .02 | .16 | .70 | .18 | .46 |
| 18. The British Secret Service was involved in the death of Diana, Princess of Wales. | .42 | .04 | .63 | -.02 | .50 |
| 19. An institution such as the CIA was involved in the assassination of Martin Luther King Jr. | .29 | .34 | .56 | .14 | .59 |
| 20. The mass suicide of Jonestown was actually a CIA-backed exercise in mind control and brainwashing. | .16 | .07 | .50 | .32 | .40 |
| 21. Individuals within the US government knew of the impending September 11 terrorist attacks, and purposely failed to act on that knowledge. | .22 | .41 | .42 | .21 | .47 |
| 22. NASA faked the moon landings. | .28 | .25 | .46 | -.20 | .37 |
| 23. A UFO crashed in New Mexico in 1947 and technology and alien bodies were recovered. The US military has been trying to cover this up ever since. | .28 | .19 | .21 | .78 | .72 |
| 24. World governments are hiding evidence that earth has been visited by aliens. | .21 | .21 | .13 | .72 | .63 |
| 25. The United States uses a secret military base known as Area 51 to investigate aliens. | .22 | .35 | .04 | .68 | .60 |
| Mean (<i>SD</i>) | 2.50 (.92) | 3.81 (1.14) | 3.18 (1.08) | 3.09 (1.42) | |

Note. Item loadings for each component are highlighted in bold.
350

$n =$

Table 6.

Intercorrelations for the Specific Conspiracy Belief Scale.

| Scale | 2. | 3. | 4. |
|----------------------|-----|-----|-----|
| 1. Harm and Control | .49 | .63 | .55 |
| 2. Industry Ill Will | -- | .54 | .52 |
| 3. Pop Conspiracies | | -- | .47 |
| 4. ET Conspiracies | | | -- |

Note. All correlations are significant at the .001 level.

n = 346 – 356

Discussion

The results of this initial study tentatively indicate two psychometrically sound measures of conspiracy belief. Initial EFA of the Generalised Conspiracy Belief Scale suggests that it is measuring a single construct and subsequent reliability analyses show the scale is internally consistent, and produces consistent responses over time. The inter-item correlations and Cronbach's alphas were lower than would be expected with a nine-item scale however, so this must be taken into account in the studies that follow. This measure did show good convergent and discriminant validity, indicating the single dimension extracted from the data correlates in a similar way to previous measures of conspiracy thinking. One concern related to the Generalised Conspiracy Belief Scale is that the means for seven out of the nine items were higher than the midpoint of the scale – this is unexpected given that, although more common in the population than one would expect, beliefs in conspiracies are still relatively low. Analysing the specific items, there are some statements that, in hindsight, may not be all that difficult to endorse even with low levels of conspiracy thinking (e.g., '*Governments routinely do things in secret without telling us*' and '*There is historical evidence that conspiracies do occur*'). One does not need to be "a believer" to agree with these statements. Nevertheless, the results of the validity analyses still suggest that generalised conspiracy thinking was successfully captured by this measure.

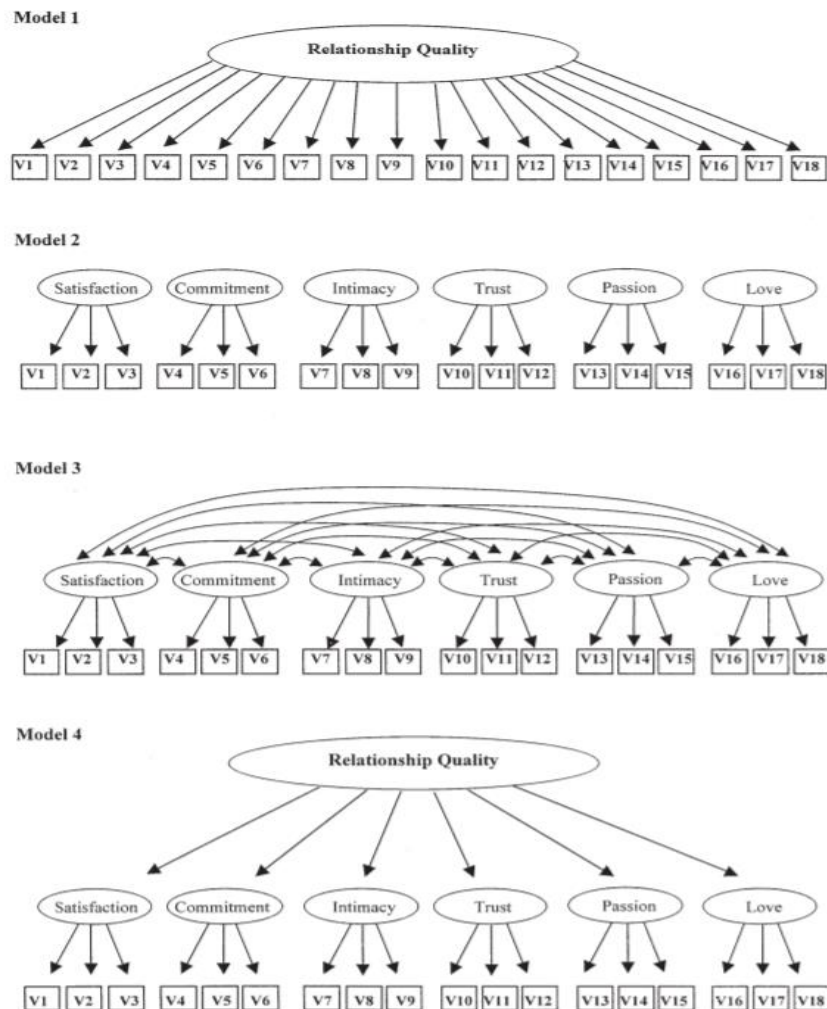
Results for the Specific Conspiracy Belief Scale suggest this is a strong scale, with excellent validity, internal consistency, and test-retest reliability. In contrast to the Generalised Conspiracy Belief Scale, the mean level of specific conspiracy belief was more consistent with expectations. (i.e., towards the low end). The results of this psychometric analysis show that beliefs in specific conspiracies can be treated as a unitary construct, but that this umbrella construct comprises related clusters of beliefs. In this case, these beliefs separated into four categories representing extra-terrestrial conspiracies, threats to personal wellbeing and autonomy, classic pop conspiracies, and industry maleficence. Because the majority of research to date did not report forced factor analyses (instead automatically treating these beliefs as unidimensional) it is hard to know if these groupings of belief are consistent with most previous findings. I very much suspect that had further factor analyses been performed on these previous scales, meaningful clusters of conspiracy beliefs would have been apparent. The conspiracy theories sampled here are very similar to those used in other scales and comparable results were obtained in the sense that although grouping into coherent categories, these conspiracy beliefs can be treated as unidimensional in nature.

After Brotherton and colleagues (Brotherton et al., 2013) reported their creation of the Generic Conspiracist Beliefs Scale I was able to compare the results of my study to theirs. Using a wide-ranging sample of generic conspiracies, they demonstrated that conspiracy beliefs tended to cluster together according to five themes: malevolent global, extra-terrestrial cover-up, government malevolence, personal wellbeing, and control of information conspiracy beliefs. Only the extra-terrestrial factor obtained in my study closely aligned to their extra-terrestrial cover-up dimension. The items in the Harm and Control, Industry Ill Will, and Pop Conspiracy factors appeared as if they could be grouped into any of the remaining categories in the Generic Conspiracist Beliefs Scale. There are several potential reasons for these conflicting results. First, Brotherton et al. included a higher number of conspiracy theories (75, compared to the 49 used in the present study). It is possible that they were better able to capture the entire spectrum of conspiracy beliefs, although this is improbable because closer inspection of their items reveals several instances of similar statements that could

easily be measuring the same conspiracy theory. Another possibility is that removing contextual factors such as geography and protagonists changes the way in which conspiracy belief manifests. The fact that beliefs in well-known or famous conspiracy theories formed a distinct factor in my Specific Conspiracy Belief Scale, yet similar items loaded onto a mixture of factors in the generic measure lends support to this notion. Most importantly, however, is the fact that a data-driven approach such as EFA relies on the subjective interpretation of extracted components (Field, 2009; Giles, 2002). For example, what presents to one researcher as beliefs in conspiracy theories surrounding threats to autonomy may be conceived of as control and suppression of information by another.

Because ultimately conspiracy thinking can be treated as a unidimensional construct and if any scale measuring as such displays good validity, it is unlikely to matter from an empirical point of view what sub-dimensions it contains. From a theoretical point of view though, it is important to understand how these beliefs are organised at a cognitive level. The structure of conspiracy beliefs that I have argued for here can be tested using CFA. By replicating an approach that Fletcher, Simpson, and Thomas (2000) used to test how intimate relationship evaluations are structured and cognitively represented, one can statistically compare competing models of beliefs. Fletcher et al. argued that perceptions of relationship quality could be represented and stored cognitively in one of the four ways depicted in Figure 1. Model 1 depicts a 'true' unidimensional belief system, whereby perceived relationship quality forms a global evaluative attitude on a good – bad spectrum, which in turn dictates individual judgements about one's partner. This is akin to claiming that conspiracy beliefs form one generalised dimension that range from weak to strong beliefs. Model 2 depicts the theoretical possibility that relationship evaluations are stored independently across different domains, which in terms of specific conspiracy beliefs would be to say that the identified subfactors are independent of one another. We already know from the observed correlations between the extracted factors in the Specific Conspiracy Belief Scale that this is not the case. Model 3 depicts a multidimensional belief system where each factor correlates with all other factors. Model 4 expands on this to depict

relationship evaluations as domain-specific and quasi-independent, but dictated by an overall global perception of relationship quality – a second-order factorial structure. The argument I make for the organisation of conspiracy beliefs is analogous to this last model. I expected that further analysis of the Specific Conspiracy Belief Scale with CFA would reveal a second-order factor structure, with the subfactors of Harm and Control, Industry Ill-Will, Pop Conspiracies, and Extra-terrestrial Conspiracies being subsumed by a global ‘conspiracy belief’ factor. Study 1B was designed to address this hypothesis as well as confirming the factor structure, validity, and reliability of the Generalised Conspiracy Belief Scale.



*Figure 1. Four competing models of perceived relationship quality. From “The Measurement of Perceived Relationship Quality Components: A Confirmatory Factor Analytic Approach,” by G. J. O. Fletcher, J. A. Simpson, and G. Thomas, 2000, *Personality and Social Psychology Bulletin*, 26, p. 342. Copyright 2000 by the Society for Personality and Social Psychology, Inc.*

Study 1B

Method

Participants and Procedure

Prospective participants in Study 1B were ineligible if they had previously participated in Study 1A. The total sample included 305 participants, comprising 185 females and 120 males. Ages ranged from 17 to 50 years, with a mean age of 19.61 years ($SD = 3.94$), with missing values for three participants. The majority of the sample identified as New Zealand European (75.7%) with 7.2% identifying as NZ Māori. Most of the participants were studying towards an arts degree (53.8%) or a science degree (42.3%). Again, participation occurred online, and contributed to a mandatory course research participation requirement.

Measures

Generalised Conspiracy Belief Scale. The final nine-item Generalised Conspiracy Belief Scale from Study 1A was administered here. Refer to Table 2 for these items.

Specific Conspiracy Belief Scale. The resultant 25 specific conspiracy items from the PCA in Study 1A were administered here (refer to Table 4 for the full list of these items).

The same measures from Study 1A were used in this study to test again for convergent and discriminant validity. Please refer to the method of Study 1A for details of these and reliability information using this sample can be found in Table 1.

Results

Model evaluation

Unlike EFA, CFA allows the researcher to specify the expected relationships between variables, allowing for assessment of the extent to which the data fit the theoretical or comparison models. As widely recommended (e.g., Byrne, 2010; Cheung & Rensvold, 2002), a number of goodness-of-fit indices have been selected to evaluate model fit. The first of these is the Chi-squared (χ^2) test. A non-significant χ^2 value at the conventional 0.05 threshold is a hard criterion for good model fit. This measure is well recognised as being extremely sensitive to sample size (whereby even properly specified models are rejected when using large samples), so sole reliance on this test is unwise (e.g., Fletcher et al., 2000). Despite the problems associated with this test, it is still recommended that the χ^2 value, degrees of freedom, and p -value be reported for CFA (e.g., Hayduk, Cummings, Boadu, Pazderka-Robinson, & Boulianne, 2007), hence the inclusion of this index here. In an attempt to correct for the problems associated with the χ^2 test, Wheaton, Muthén, Alwin, and Summers (1977; as cited in Byrne, 2010) recommend consideration of the χ^2 per degrees of freedom ratio (χ^2/df), which will be reported in addition to the χ^2 test. Suggestions for acceptable ratio values have varied from as low as 2 to as high as 5, and thus should be assessed in combination with other measures of fit (Marsh & Hocevar, 1985). The remaining three measures of fit used will be the root mean square error of approximation (RMSEA), standardised root mean square residual (SRMR), and the comparative fit index (CFI). These measures were chosen based on the recommendations of Hu and Bentler (1999) and Kline (2005). RMSEA values of .06 or less indicate good fit, values ranging from .08 to .10 indicate mediocre fit, and any value above .10 indicates poor fit (Byrne, 2010). A SRMR value of approximately .08 or less indicates good fit (Schreiber, Nora, Stage, Barlow, & King, 2006), and in the case of the CFI, a value equal to or exceeding .95 suggests a well-fitting model (Byrne, 2010; Hu & Bentler, 1999). A CFI value as low as .90 has been deemed acceptable however (Byrne, 2010). As is extensively cautioned (e.g., Byrne, 2010; Hu & Bentler, 1999; Schreiber et al., 2006), model fit will be assessed with reference to both theory and all of the selected fit indices, rather than sole reliance on one given measure.

Generalised Conspiracy Belief Scale

CFA. CFA of the single-factor Generalised Conspiracy Belief Scale revealed a poor fit, with all fit indices falling outside cut-offs: $\chi^2(27) = 280.49, p < .001$; $\chi^2/df = 10.39$; CFI = .56; SRMR = .12; and RMSEA = .18 [CI = .16 - .20]. Examination of modification indices showed that there would be no significant improvements in model fit with any alterations. Factor loadings ranged from .24 to .70, and Cronbach's alpha just met the minimum acceptable level ($\alpha = .70$). Exact values are displayed in Table 7. As can be seen in Table 7, mean endorsement of the majority of the items again were higher than the midpoint of the scale. To be certain that the correct model was being tested, an EFA was undertaken on this data to ensure a single-factor solution was viable. This analysis showed that one factor best explained the data, but the contrait items did load weakly.

Validity. The Generalised Conspiracy Belief Scale in this sample did still demonstrate largely satisfactory validity. There was evidence of convergent validity, with conspiracy belief scores correlating positively with magical thinking, $r(298) = .20, p < .001$, and negatively with interpersonal trust, $r(210) = -.35, p < .001$. However in contrast to Study 1A, conspiracy belief scores did not correlate with anomie, $r(214) = .10, p = .16$. Given that anomie is consistently found to be positively related to conspiracy belief, this failure to replicate the effect represents an issue for convergent validity of the scale in this sample. There was still a significant positive correlation with the Specific Conspiracy Belief Scale, $r(278) = .55, p < .01$, however. Discriminant validity was demonstrated, with non-significant relationships with extraversion, $r(214) = -.04, p = .53$; conscientiousness, $r(213) = .02, p = .78$; and neuroticism, $r(211) = .02, p = .79$.

Table 7.

Confirmatory factor analysis of the Generalised Conspiracy Belief Scale: Component loadings, reliability information, and descriptive statistics.

| Items | Component loading | Corrected item-total correlation | Mean (SD) |
|--|-------------------|----------------------------------|-------------|
| 1. Nobody is conspiring to overthrow the traditional authorities. | .28 | .28 | 3.96 (1.64) |
| 2. Governments routinely do things in secret without telling us. | .70 | .50 | 5.17 (1.40) |
| 3. As a general rule, governments and other groups, do NOT have secret plans. ^a | .60 | .54 | 4.61 (1.69) |
| 4. Throughout history people have secretly planned to get their own way. | .58 | .39 | 5.33 (1.35) |
| 5. While conspiracies DO happen, they're not as common as people think. ^a | .21 | .27 | 3.07 (1.51) |
| 6. There is historical evidence that conspiracies do occur. | .51 | .38 | 5.13 (1.32) |
| 7. A lot of the things that people call conspiracies are just coincidence. ^a | .24 | .27 | 3.42 (1.44) |
| 8. There is evidence that conspiracies have changed the course of history. | .47 | .37 | 4.53 (1.29) |
| 9. No doubt, there are people out there secretly planning to change the social order. | .47 | .41 | 4.79 (1.43) |
| Total mean (SD) | | | 4.44 (.79) |

n = 301

^a Reversed item.

Specific Conspiracy Belief Scale

CFA. CFA was used to test three competing models of real-world conspiracy belief – Models 1, 3, and 4 as depicted in Figure 1. As significant positive correlations have already been identified between the sub-factors of the Specific Conspiracy Belief Scale, Model 2 need not be tested. Based on the work of Fletcher et al. (2000), Model 1 should provide the poorest fit of the data, while Model 3 acts as the benchmark – if Model 4 is similar in fit (which is expected), then the likely structure of conspiracy beliefs is that of a second-order factor model.

Model 1 demonstrated a mediocre fit of the data, with only the χ^2/df and SRMR indices considered acceptable: $\chi^2 (275) = 1088.84, p < .001$; $\chi^2/df = 3.96$; CFI = .75; SRMR = .08; and RMSEA = .10 [CI = .09 - .11]. As predicted, Model 3 offered a considerably improved fit (bar the commonly problematic χ^2 test), with goodness-of-fit indices falling within or close to acceptable limits: $\chi^2 (269) = 616.38, p < .001$; $\chi^2/df = 2.29$; CFI = .89; SRMR = .06; and RMSEA = .07 [CI = .06 - .07]. This model was a statistically significant better fit than Model 1 using the χ^2 difference test for nested models: $\chi^2_{(diff)} = 472.46, df_{(diff)} = 6, p < .001$. Crucially, Model 4 performed equally as well as Model 3, $\chi^2 (271) = 633.22, p < .001$; $\chi^2/df = 2.34$; CFI = .85; SRMR = .06; and RMSEA = .07 [CI = .06 - .07]. Model 4 was indistinguishable in terms of SRMR and RMSEA and the CFI was only very minimally reduced. As expected, Model 4 also outstrips a simple unidimensional model. Testing for a statistical difference between Model 3 and Model 4 did reveal a significant change, $\chi^2_{(diff)} = 16.84, df_{(diff)} = 2, p < .001$, but Fletcher et al. and Marsh, Balla, and McDonald (1988) argue that examining changes in goodness-of-fit indices is a more liberal measure of model comparison given that small changes in chi-square values can be statistically significant. The first-order factors correlated positively and strongly with the overarching second-order factor at the $p < .001$ level (Harm and Control: .92; Industry Ill Will: .75; Pop Conspiracies: .91; ET Conspiracies: .73). Additionally, as can be seen in Table 8, all items loaded positively and mostly strongly (bar some moderate loadings) at $p < .001$. All items displayed excellent corrected-item total correlations (ranging from .30 to .65), and overall reliability was high ($\alpha = .92$).

Table 8.

Second-order confirmatory factor analysis of the Specific Conspiracy Belief Scale: Factor loadings, reliability information, and descriptive statistics.

| Items | Component loadings | | | | Corrected item-total correlation | Mean (SD) |
|--|--|---|--|---------------------------------------|----------------------------------|-------------|
| | Harm and Control ($\alpha = .87$) | Industry Ill Will ($\alpha = .80$) | Pop Conspiracies ($\alpha = .78$) | ET Conspiracies ($\alpha = .86$) | | |
| 1. HIV is a manmade virus, designed to eliminate minority groups. | .72 | | | | .59 | 1.88 (1.23) |
| 2. There is a deliberate government conspiracy to suppress the rights and prospects of Māori in New Zealand. | .69 | | | | .55 | 2.14 (1.38) |
| 3. The police are deliberately allowing drugs into poorer communities. | .70 | | | | .61 | 2.36 (1.46) |
| 4. United States President Barack Obama's birth certificate, stating that he was born in Hawaii, is a forgery. | .64 | | | | .52 | 2.02 (1.34) |
| 5. Social networking sites, such as Facebook and Twitter, have been created or financed by governments in order to spy on users. | .69 | | | | .64 | 2.77 (1.57) |
| 6. Scientologists control Hollywood. | .54 | | | | .46 | 2.42 (1.49) |
| 7. In spite of evidence that fluoride is extremely toxic, authorities continue to add fluoride to our water supplies, because to do otherwise would be to admit liability. | .64 | | | | .60 | 2.79 (1.56) |
| 8. Asian countries are deliberately conspiring to destroy the Western economy. | .70 | | | | .59 | 2.45 (1.41) |
| 9. Members of an elite secret society have infiltrated governments in an attempt to direct worldwide events in their favour. | .68 | | | | .65 | 2.70 (1.65) |
| 10. Pharmaceutical companies and various government agencies conspire to maintain profits by ensuring that the general public uses only conventional medicine. | | .73 | | | .55 | 3.96 (1.58) |

| Items | Component loadings | | | | Corrected item-total correlation | Mean (<i>SD</i>) |
|--|--|---|--|---------------------------------------|----------------------------------|--------------------|
| | Harm and Control ($\alpha = .87$) | Industry Ill Will ($\alpha = .80$) | Pop Conspiracies ($\alpha = .78$) | ET Conspiracies ($\alpha = .86$) | | |
| 11. Car manufacturers and oil producers collude to suppress the development of environmentally friendly alternatives to the internal-combustion engine. | | .58 | | | .38 | 4.12 (1.70) |
| 12. The war in Iraq has less to do with promoting democracy than it does with controlling oil production in the East. | | .42 | | | .30 | 5.00 (1.56) |
| 13. Drug companies conspire to keep people sick to reap profits. | | .72 | | | .63 | 2.80 (1.68) |
| 14. Computer companies deliberately release programs with errors in order to sell future upgrades. | | .51 | | | .39 | 4.31 (1.54) |
| 15. There have been many forms of free energy around for decades, but the corporations that rule oil and gas are snuffing them out. | | .69 | | | .58 | 3.55 (1.80) |
| 16. Cures for cancer have been identified; however drug companies have suppressed these. | | .60 | | | .51 | 2.79 (1.66) |
| 17. Lee Harvey Oswald did not act alone in the assassination of President John F. Kennedy – an institution such as the FBI, CIA or the Mafia likely played a role. | | | .47 | | .41 | 3.91 (1.69) |
| 18. The British Secret Service was involved in the death of Diana, Princess of Wales. | | | .70 | | .60 | 2.85 (1.69) |
| 19. An institution such as the CIA was involved in the assassination of Martin Luther King Jr. | | | .75 | | .65 | 2.99 (1.62) |
| 20. The mass suicide of Jonestown was actually a CIA-backed exercise in mind control and brainwashing. | | | .65 | | .57 | 2.53 (1.70) |

| Items | Component loadings | | | | Corrected item-total correlation | Mean (<i>SD</i>) |
|--|---|--|---|--|--|--------------------|
| | Harm and Control ($\alpha = .87$) | Industry Ill Will ($\alpha = .80$) | Pop Conspiracies ($\alpha = .78$) | ET Conspiracies ($\alpha = .86$) | | |
| 21. Individuals within the US government knew of the impending September 11 terrorist attacks, and purposely failed to act on that knowledge. | | | .66 | | .62 | 3.29 (1.88) |
| 22. NASA faked the moon landings. | | | .44 | | .39 | 3.00 (1.76) |
| 23. A UFO crashed in New Mexico in 1947 and technology and alien bodies were recovered. The US military has been trying to cover this up ever since. | | | | .89 | .61 | 2.66 (1.74) |
| 24. World governments are hiding evidence that earth has been visited by aliens. | | | | .87 | .60 | 2.72 (1.82) |
| 25. The United States uses a secret military base known as Area 51 to investigate aliens. | | | | .74 | .59 | 3.24 (1.78) |
| Mean (<i>SD</i>) | 2.39 (1.02) | 3.79 (1.11) | 3.09 (1.19) | 2.87 (1.58) | | |

n = 287

Taken together, the results support the hypothesis that a second-order factor structure is the best representation of real-world conspiracy belief. The second-order factor structure fit the data without a considerable loss of fit when comparing this to the basic multidimensional four-factor solution. These four first-order factors correlated positively and strongly with the higher-order factor, and each item loaded positively, ranging from moderate to strong in strength. Scores for the total scale ranged from 1.24 to 5.56 with a mean of 3.01 ($SD = .95$).

Validity. Again, good evidence for the validity of the Specific Conspiracy Belief Scale was obtained. The total scale score correlated positively with anomie, $r(216) = .32, p < .001$, and magical thinking, $r(286) = .14, p < .01$, and negatively with interpersonal trust, $r(212) = -.26, p < .001$, indicating good convergent validity. Discriminant validity was also demonstrated, with no relationship found between the total scale score of the Specific Conspiracy Belief Scale and extraversion, $r(218) = .06, p = .37$, conscientiousness, $r(217) = .02, p = .72$, or neuroticism, $r(215) = .06, p = .41$. A very similar pattern of results was obtained when examining the same correlations with the subscales (as opposed to total scale score) of the Specific Conspiracy Belief Scale.

Discussion

CFA results for the Specific Conspiracy Belief Scale not only show that the scale as a whole is an acceptable measure to be used for future studies, but provides a unique contribution to our theoretical understanding of how conspiracy beliefs are cognitively stored and represented. The finding that specific conspiracy beliefs at least are dictated by an overarching factor suggests that there is an overall ‘conspiracist mind-set’ that impacts beliefs in a variety of semi-distinct groupings of conspiracy theories. This is not inconsistent with results showing that conspiracy belief comprises multiple facets (e.g., Brotherton et al., 2013) or indeed that it is encompassed by higher order beliefs about the world such as a belief in regular cover-ups (e.g., Wood et al., 2012). Rather, it takes these results one step further and expands on how these beliefs may be structured. From a pragmatic point of view, the second-order factorial structure of conspiracy

beliefs allows for a researcher to make a decision regarding the use of the full scale or its subscales depending on their research question.

In contrast, the CFA results and validity testing cast doubt on the psychometric properties of the Generalised Conspiracy Belief Scale in this sample. The CFA revealed that the scale was a poor fit and the null correlation with anomie was inconsistent with previous findings. Again, the means for belief in each item were typically above the midpoint of the scale, which is higher than one would expect for a conspiracy belief measure. This is cause for concern because, without confidence in the validity and reliability of the generalised conspiracy belief measure, I would not be able to successfully test one of my next research questions of whether it matters whether general or specific conspiracy belief scales are used. I therefore elected to create a new generalised conspiracy belief measure and describe this process in the last two studies of this chapter.

Study 1C

Method

Participants and Procedure

A total of 269 participants took part in this study, with 151 females, 117 males, and one participant not indicating their gender. Ages in the sample ranged from 17 to 45 years, with a mean age of 19.21 years ($SD = 2.32$). Four participants did not indicate their age. Of note, 118 of these participants also took part in Study 1A. In this specific sample, 79.2% identified as New Zealand European and 8.6% identified as New Zealand Māori. The majority of participants were studying towards their arts degree (62.1%) while 29% were studying towards a science degree. Again, participation occurred online, and contributed to a mandatory course research participation requirement.

Measures

Generalised Conspiracy Belief Scale: Revised. This new measure contained nine items intended to capture ideas such as the belief that groups conspire in secret to achieve sinister goals and that many events in the world have occurred as a result of a

conspiracy. See Table 9 for a complete list of these items. Participants rated their agreement with each of these statements on a 1 (*strongly disagree*) to 7 (*strongly agree*) Likert scale. After recoding contrait items, higher scores indicated stronger generalised conspiracy belief.

The same measures from Studies 1A and 1B were used again to test for convergent and discriminant validity. Details of each measure can be found in the method of Study 1A. Reliability information from the current study can be found in Table 1.

Results

Factor Structure. Intercorrelations among the nine new generalised conspiracy items were first examined to ensure adequate relationships between them. One item (*Sometimes, bad things just happen without anyone being behind them*) correlated (weakly) with only four out of the eight items and so was removed prior to PCA. Of note, this item had also been used in my first attempt to create a generalised conspiracy belief scale where it had performed equally as poorly. All of the remaining items correlated with at least seven other items in the scale and so were retained for further analysis. The majority of these items correlated at .30 or higher (correlations in this study ranged from .04 to .65, average $r = .36$, although note that this lowest correlation was a one-off occurrence, with the next highest being .16). These eight items were subjected to a PCA to examine the dimensionality of the new generalised conspiracy belief scale. A single dimension was expected to best represent the data.

Bartlett's test of sphericity indicated that the correlations among the variables were sufficient for PCA, $\chi^2 (28) = 727.34, p < .001$, and the size of the KMO measure of sampling adequacy was good (KMO = .85). KMO values for individual items were all > .73, falling well above the acceptable limit of .50 (Field, 2009). Again, supressing factor loadings below .40 (Stevens, 2002), the initial unrotated solution revealed two components with eigenvalues over Kaiser's criterion of 1, explaining a total of 61.12% of the variance (with the first component explaining 46.02%, $\lambda = 3.68$). Even without rotation, these two components clearly represented clusters based on the direction of

the items – those worded in a positive and those worded in a negative direction. No other meaningful pattern was apparent and the scree plot also indicated that one factor best explained the data. As can be seen in Table 9, all of the items loaded positively on the single factor, with only the two contrait items loading in the moderate range (all other items loaded strongly). Therefore, a single factor was deemed the most appropriate fit of the data and a single scale was created.

This eight-item scale had good internal consistency ($\alpha = .82$; corrected item-total correlations ranging from .29 – .71). As can be seen in Table 9, the means for the majority of the items fell close to the midpoint of the scale and the standard deviations for each item indicated that the items discriminated well in the sample. Scores in the sample for this new Generalised Conspiracy Belief Scale ranged from 1.00 to 6.00, with a mean of 3.54 ($SD = 1.02$).

Validity and Test-Retest Reliability. The Generalised Conspiracy Belief Scale demonstrated good convergent and discriminant validity, mimicking the pattern of results obtained with the Specific Conspiracy Belief Scale. There was a positive correlation with anomie, $r(119) = .33, p < .001$, and magical thinking, $r(182) = .36, p < .001$, and a negative correlation with interpersonal trust $r(119) = -.46, p < .001$. In addition to this, the new Generalised Conspiracy Belief scale correlated strongly and positively with the Specific Conspiracy Belief Scale, $r(218) = .50, p < .001$, again demonstrating good convergent validity. Non-significant relationships were obtained between the new Generalised Conspiracy Belief Scale and extraversion, $r(268) = -.02, p = .76$, conscientiousness, $r(267) = -.01, p = .88$, and neuroticism, $r(262) = .11, p = .09$, demonstrating discriminant validity.

Using a different sample from another study, test-retest reliability of the new Generalised Conspiracy Belief Scale was examined. A strong positive correlation was obtained between time 1 and time 2 scores, $r(321) = .64, p < .001$, however a paired samples t-test revealed there was a significant difference between the scale means over time, $t(321) = 5.06, p < .001, 95\% \text{ CI } [.14, .32]$. The actual difference in means was only

.23 ($SD = .81$, Cohen's $d = .28$) however, and given that approximately five months separated the collection of time 1 and time 2 responses, this is not a surprising result.

Discussion

This new measure of generalised conspiracy belief appears to be a stronger scale. The scale had very good reliability and validity, and the means for each individual item were centred around the midpoint of the response scale. This suggests that the items in this new measure elicit less endorsement than the previous scale, which given the nature of the construct, increases my confidence that the scale measures conspiracy thinking. In further support of this, scores on new Generalised Conspiracy Belief Scale correlated with interpersonal trust more strongly than the first attempt to measure generalised conspiracy belief ($p = .01$). Comparing the items between the two scales, one possibility is that the first scale appears to capture the acknowledgement that conspiracies *can* happen (e.g., '*There is historical evidence that conspiracies do occur*'), while this new scale seems to better capture the actual tendency to engage in conspiratorial thinking (e.g., '*One needs to be on guard for the various groups secretly aiming to achieve their dark goals*'). One does not necessarily need such low levels of interpersonal trust to accept that conspiracies sometimes do occur in the world, but for conspiracy theories to be the default explanation for significant events one would assume requires stronger mistrust.

Like the first attempt to capture general conspiracy beliefs, one factor best explained the data for this new measure. This is a finding that should be treated as preliminary given that only nine items were sampled, but if CFA reveals a sound model the scale will be fit for the purposes of future research. The next and last study of this chapter outlines the CFA results of the second attempt at creating a general conspiracy belief measure.

Table 9.

Item wording, component loadings, reliability, and descriptive statistics for the Generalised Conspiracy Belief Scale.

| Items | Component loading | Corrected item-total correlation | Mean (SD) |
|--|-------------------|----------------------------------|-------------|
| Sometimes, bad things just happen without anyone being behind them. ^{ab} | -- | -- | -- |
| 1. Despite what the authorities say, large businesses and/or the government routinely engage in sinister, secret activities in the name of profit. | .65 | .52 | 4.13 (1.69) |
| 2. In general, nobody is conspiring to dupe or fool the average citizen. ^a | .35 | .29 | 3.95 (1.63) |
| 3. When one looks at the bigger picture, it is easy to see that many seemingly unrelated events form part of a larger plan, orchestrated by powerful others acting in secrecy. | .78 | .64 | 3.37 (1.52) |
| 4. Many significant world events have occurred as a result of a conspiracy. | .83 | .71 | 3.45 (1.55) |
| 5. Seeing a conspiracy behind many events is the result of an overly active imagination – explanations offered by the authorities are much more likely. ^a | .38 | .32 | 3.98 (1.46) |
| 6. One needs to be on guard for the various groups secretly aiming to achieve their dark goals. | .79 | .65 | 3.14 (1.44) |
| 7. People who dismiss conspiracies without further thought are blind to the truth. | .80 | .68 | 3.58 (1.50) |
| 8. People who say that conspiracies don't happen are probably part of the conspiracy. | .67 | .50 | 2.74 (1.54) |
| <i>n</i> = 269 | | | |

^a Reversed item.

^b This item was excluded from the final scale.

Study 1D

Method

Participants

The total sample comprised of 504 participants, with 364 females and 140 males. Ages ranged from 17 to 47 years, with a mean age of 19.35 years ($SD = 3.24$). The majority of the sample identified as New Zealand European (76.2%) with 6.2% identifying as NZ Māori. Most of the participants were studying towards an arts degree (54.2%) or a science degree (42.9%). Again, participation occurred online, and contributed to a mandatory course research participation requirement.

Measures

Generalised Conspiracy Belief Scale. The final eight-item Generalised Conspiracy Belief Scale from Study 1C was administered here (these items are listed in Tables 9 and 10).

To test convergent validity, the same measures from the previous three studies were used. Details of each measure can be found in the method of Study 1A. In the interests of brevity, only three items were used to measure the constructs of anomie and interpersonal trust in this study. These items were selected based on highest factor loadings from previous work. Reliability information in the current study is provided for each measure in Table 1. Unfortunately, discriminant validity could not be tested in the current study as the Big Five Personality items were not administered in this sample.

Results

CFA. CFA of this new one-factor scale revealed a near-acceptable fit of the data, $\chi^2 (20) = 102.54, p < .001; \chi^2/df = 5.13; CFI = .93; SRMR = .06; \text{ and } RMSEA = .09 [CI = .07 - .11]$. Examining the modification indices showed that allowing the errors of items 2 and 5 (see Table 10 for these items) to correlate would result in a large change of 41.92 to the χ^2 value. No other modifications would have resulted in such a reduction to the χ^2 . This correlation is not unreasonable – it likely represents some overlap of the two items

(Byrne, 2010). After allowing this correlation, the model explained the data extremely well, $\chi^2(19) = 58.91, p < .001$; $\chi^2/df = 3.10$; CFI = .97; SRMR = .04; and RMSEA = .07 [CI = .05 - .08]. All of the items loaded significantly and positively, with only the two reverse items loading in the weak to moderate range. In addition to this, the items showed a good range of corrected item-total correlations (see Table 10 for all values) and overall reliability of the scale was high ($\alpha = .81$). Means for each item fell around the low end to middle of the scale, and the standard deviations indicated good variability in responding. Therefore the items were summed and averaged, with scores ranging from 1.00 to 6.63 with a mean of 3.72 ($SD = .97$). Examination of skew and kurtosis revealed a fairly normal distribution.

Validity. The Generalised Conspiracy Belief Scale demonstrated good convergent validity once again. It correlated positively with anomie, $r(318) = .38, p < .001$, and magical thinking, $r(138) = .28, p < .01$, and negatively with interpersonal trust, $r(496) = -.16, p < .001$. Generalised conspiracy belief scores also correlated strongly and positively with the Specific Conspiracy Belief Scale, $r(482) = .63, p < .001$.

Overall Discussion of Study 1

The overarching goal of Studies 1A, B, C, and D was to create two psychometrically sound measures of specific and generalised conspiracy belief. This goal is important both in the context of the current thesis and for the conspiracy literature in general. The literature in this area has reached a point that although the predominant approach has been to use specific, and idiosyncratic, conspiracy belief measures, it appears very likely that these scales tap into a more generalized belief construct. Thus, the establishment of a single generalised measure is a potentially valuable tool for enabling comparability across future studies. Before doing this however, empirical comparisons between a generalised and specific conspiracy belief measure need to be made. Study 1 has addressed this first step in this process.

Table 10.

Second-order confirmatory factor analysis of the Generalised Conspiracy Belief Scale: Factor loadings, reliability information, and descriptive statistics.

| Items | Component loading | Corrected item-total correlation | Mean (SD) |
|--|-------------------|----------------------------------|-------------|
| 1. Despite what the authorities say, large businesses and/or the government routinely engage in sinister, secret activities in the name of profit. | .54 | .50 | 4.41 (1.54) |
| 2. In general, nobody is conspiring to dupe or fool the average citizen. ^a | .32 | .35 | 4.09 (1.53) |
| 3. When one looks at the bigger picture, it is easy to see that many seemingly unrelated events form part of a larger plan, orchestrated by powerful others acting in secrecy. | .75 | .64 | 3.51 (1.47) |
| 4. Many significant world events have occurred as a result of a conspiracy. | .75 | .64 | 3.74 (1.53) |
| 5. Seeing a conspiracy behind many events is the result of an overly active imagination – explanations offered by the authorities are much more likely. ^a | .25 | .29 | 3.91 (1.35) |
| 6. One needs to be on guard for the various groups secretly aiming to achieve their dark goals. | .73 | .63 | 3.46 (1.44) |
| 7. People who dismiss conspiracies without further thought are blind to the truth. | .70 | .62 | 3.85 (1.42) |
| 8. People who say that conspiracies don't happen are probably part of the conspiracy. | .62 | .53 | 2.82 (1.51) |

n = 504

^a Reversed item

Study 1A outlined an EFA of both a specific and general conspiracy belief measure, an assessment of the convergent and discriminant validity of the resultant scales, and reliability analyses. This initial study established that both approaches produced psychometrically sound measures of conspiracy belief. Initial EFA of the Generalised Conspiracy Belief Scale suggested that it was measuring a single construct and subsequent reliability analyses showed both scales were internally consistent, and produced consistent responses over time. Study 1B presented a CFA of both scales. The CFA results for the Specific Conspiracy Belief Scale not only show that the scale as a whole is an acceptable measure to be used for future studies, but that it provides a unique contribution to our theoretical understanding of how conspiracy beliefs are cognitively stored and represented. The finding that specific conspiracy beliefs at least are dictated by an overarching factor suggest that there is an overall conspiracy construct that impacts beliefs in a variety of semi-distinct groupings of conspiracy theories. This is consistent with a view that conspiracy beliefs comprise multiple facets (e.g., Brotherton et al., 2013) or that conspiracy belief is encompassed by higher order beliefs about the world such as a belief in regular cover-ups (e.g., Wood et al., 2012).

Studies 1C and 1D addressed issues identified with the first attempt to create a generalised measure of conspiracy thinking by examining a more refined scale. This new measure of generalised conspiracy belief was a stronger scale than originally presented in Study 1A and B. The refined scale had very good reliability and validity (Study 1C), performed well in a CFA (Study 1D), and the means for each individual item were centred around the midpoint of the response scale. This suggests that the items in this new measure elicit less endorsement than the previous scale, which given the nature of the construct, increases confidence in the conclusion that the final scale measures conspiracy thinking. Thus, overall Study 1 was successful in establishing both a sound generalised conspiracy belief measure (the *Generalised Conspiracy Belief Scale*) and a measure of real-world conspiracy beliefs (the *Specific Conspiracy Belief Scale*).

Some limitations to Study 1 do need to be acknowledged however. First, these measures were developed based on a student sample, and thus, generalizing the results

to the broader population should be undertaken with caution. Although the generalised measure of conspiracy helps to eliminate issues such as familiarity with a given conspiracy theory, the specific conspiracy measure is still subject to this concern. Hence, using homogenous university samples such as in Study 1 carries the risk that belief in specific conspiracies may manifest differently compared to had it been measured in a more diverse population. Similar to this, although the sample of specific conspiracy theories used in Study 1 was broad, it is possible that conspiracy beliefs would cluster together in a different way if a larger number of items had been included. This would be unlikely to affect the overall second-order factorial structure identified in Study 1C, however that possibility cannot be ruled out until it is tested empirically. This issue most certainly applies to the Generalised Conspiracy Belief Scale. Here, less than ten items were used for both versions of generalised conspiracy belief scales. Although there is no concern with having a final scale containing nine items, starting with an initially low sample of items may mean that individual dimensions of generalised conspiracy thinking have been overlooked. This is something to keep in mind if inconsistencies are found between potential predictors and the Specific versus Generalised Conspiracy Belief Scales in future studies.

Despite the publication of the Generic Conspiracist Beliefs Scale (Brotherton et al., 2013), the creation of the Generalised Conspiracy Belief Scale still allows for an investigation of predictors of conspiracy thinking and the evaluation of differences between specific and general measures. Indeed, Abalakina-Paap et al. (1999) have shown that specific and general conspiracy belief may be associated with different predictors. In addition to this, the items in the Generalised Conspiracy Belief Scale developed in Study 1 were aimed at capturing the general tendency to engage in conspiratorial thinking as opposed to measuring endorsement in specific types of conspiracy theory. Although the Generic Conspiracist Beliefs Scale is neutral in the sense that geographical labels, names of organisations, famous faces, and so on, have been eliminated, the individual items still reference specific instances of conspiracy (e.g., government involvement in the assassination of celebrities). The newly created Generalised Conspiracy Belief Scale comprises items that reflect the belief that

conspiracies routinely occur and explain significant events, and this perhaps precedes beliefs in generic conspiracies as measured by Brotherton and colleagues.

Now that two psychometrically sound scales have been created, the question still remains as to whether it matters whether we use a general or specific measure of conspiracy thinking, and this is addressed in Study 2. By examining the relationships between potential predictors of conspiracy belief using both the Specific and the Generalised Conspiracy Belief Scales, I intended to answer two questions – first, does the form of conspiracy survey make a difference when used in the prediction of conspiracy belief, and secondly, when apparent commonalities between individual predictor variables are controlled for, what psychological constructs actually predict conspiracy thinking?

Chapter 3

Predicting conspiracy beliefs

Following the establishment of psychometrically sound conspiracy belief scales in Chapter 2, Chapter 3 will examine the potential correlates of conspiracy thinking. Chapter 1 reviewed a number of potential personality/interpersonal, socio-political, psychopathological, and cognitive predictors of conspiracy belief. The identification of these potential predictors was guided by a combination of previous empirical findings and several theoretical explanations for why people may engage in conspiracy thinking, but these factors may not necessarily be mutually exclusive. As a whole, conspiracies appear to appeal to those who feel disconnected from society, those who feel marginalised in some way, those who are dissatisfied and disgruntled with their circumstances, those with a subjective worldview and/or unusual beliefs and experiences, and those who perceive less control over their environment. The literature to date has been informative in terms of revealing individual correlates of conspiracy belief, but underlying these individual relationships and variables involved there may be common elements. One gets the impression that there are many factors involved that may lead to increased conspiracy thinking, however, it is possible that it is the commonality that some of these factors share that provides the foundation for beliefs about conspiracies. A way of assessing this possibility is to simultaneously analyse the relationship between conspiracy belief and these potential predictors, rather than examine the predictors in isolation from each other across individual studies. This will enable a more comprehensive understanding of what leads to conspiracy thinking, and forms the primary aim of Study 2.

The current investigation of multiple conspiracy correlates simultaneously provides an opportunity to test pragmatically whether it matters if a generalised or specific measure of conspiracy thinking is used to assess these beliefs. Comparing the psychometric properties of these two measurements suggests they are similar, however, a more conclusive test of this proposition lies in the comparison of these across a greater breadth of potential predictor variables. If the same patterns of

relationships are revealed across both conspiracy belief measures we can be more confident that the different measures are capturing the same construct and can be used interchangeably. To address this, I elected to examine the relationship between potential predictors and conspiracy belief using both the Specific and the Generalised Conspiracy Belief Scales. This was the second aim of Study 2.

Individual predictors of conspiracy belief

For this second study I selected a broad range of potential variables that were expected to predict conspiracy thinking. Selection was made based on previously identified correlates with the addition of new variables not previously examined in relation to conspiracy beliefs, but for which there is good reason to predict a role in predicting this construct. Variables needed to be grouped together into manageable packages because the approach taken involved conducting multiple regression analyses to factor out shared variance of the predictor variables. This is because, first, it is desirable to have at least ten cases per predictor variable in multiple regression (Field, 2009), and sample size was a limiting factor in some cases. More importantly, however, including a high number of predictor variables in a multiple regression at one time may produce uninterpretable results (e.g., Field, 2009; Swami, Weis, et al., 2016). For this reason, I elected to group the variables into four more manageable categories: 1) personality and interpersonal factors; 2) cognitive styles; 3) socio-political factors; and 4) psychopathological factors.

One may note that these categories do not perfectly align with the four general clusters of causes for conspiracy belief outlined in Chapter 1. This is purely because many of the potential predictor variables can be grouped together in a number of ways, and what appears in Study 2 represents the most pragmatic approach for the purposes of this particular investigation. For instance, individual differences in schizotypy could also defensibly be classified as a personality variable; powerlessness may be viewed as a personality factor or representative of a socio-political element; and so on. These constructs do not exist in isolation from one another and thus any particular method of grouping these variables, to a certain extent, is not important. Below, I outline the

selected potential correlates of conspiracy belief and specific relationships I expected them to display with this construct.

Personality and interpersonal factors. This group contains five variables: aggression, collective self-esteem interpersonal trust, powerlessness, and the Big Five personality traits. Consistent with the argument that conspiracy beliefs act as an outlet for hostility and provides a scapegoat to blame, aggression should positively predict conspiracy belief, while the personality factor of agreeableness should be a negative predictor. A positive relationship between hostility and conspiracy belief has previously been identified by Abalakina-Paap et al. (1999) while Swami and colleagues have reported negative associations between agreeableness and conspiracy thinking (e.g., Swami et al., 2010). For the same reasons, there should be a negative relationship between interpersonal trust and conspiracy thinking, which could also provide support for the suggestion that conspiracy thinking appeals to those with a generally negative and cynical worldview. This relationship has been identified previously (e.g., Abalakina-Paap et al., 1999; Goertzel, 1994). If conspiracies act to provide explanations for undesirable predicaments then a sense of powerlessness (Abalakina-Paap et al., 1999; Imhoff & Bruder, 2014; Moulding et al., 2016) and lower scores on a measure of collective self-esteem (which captures favourable perceptions of one's social groups) should predict higher conspiracy belief scores (Crocker et al., 1999). Lastly, if conspiracy theories appeal to those with an idiosyncratic or non-conforming worldview, the personality trait of openness may positively predict conspiracy belief, because of greater acceptance of unique or unusual ideas in those with higher levels of openness. The remaining Big Five personality factors of neuroticism, extraversion, and conscientiousness were also included in the interests of completeness and replication (e.g., Swami et al., 2010).

Cognitive styles. This category comprises seven variables: intuitive-experiential thinking style, analytical-rational thinking style, fantasy proneness, need for cognitive closure, dogmatism, perceived control, and desire for control. If conspiracy beliefs are indeed more common among those with an unusual or more intuitive and subjective worldview, then an intuitive-experiential thinking style and fantasy proneness (which

is notably associated with the paranormal belief; Irwin, 1993, a very similar construct to conspiracy thinking) should positively predict conspiracy belief scores. Complementary to this, an analytical-rational thinking style should display a negative relationship with conspiracy thinking, consistent with that found by Swami et al. (2014). If conspiracies act to provide a sense of structure, providing explanations for otherwise inexplicable events, then a need for cognitive closure should positively predict scores on the conspiracy measures (Moulding et al., 2016; Swami et al., 2014). Similarly, a measure of dogmatism should be positively associated with conspiracy thinking if conspiracies appeal to those who require black-and-white, rigid explanations for events. This would be consistent with the finding of van Prooijen et al. (2015), who found that belief in simple political solutions predicted conspiracy thinking. Conspiracy belief should be negatively associated with perceived control and positively associated with a desire for control if believing in conspiracies acts to provide a sense of order and perception of control.

As discussed in Chapter 1, it may be that a need for control and need for structure or definitive answers may not relate to conspiracy belief when they are treated as dispositional in nature (as opposed to a situational need). Nevertheless, these variables were still included here (using as explicit measures of control as possible) because of the relative infancy of research in this area. There have only been one or two studies (e.g., Abalakina-Paap et al., 1999; Imhoff & Bruder, 2014; Leman & Cinnirella, 2013) investigating the role that these particular dispositional variables may play in conspiracy thinking so it is important to more thoroughly investigate them before drawing firm conclusions.

Socio-political factors. Five variables were assigned to this category: anomie, competitive and dangerous worldviews, RWA, and SDO. Consistent with the argument that conspiracies provide an outlet for hostility and appeal to those with a generalised negative and cynical worldview, the variables of anomie, competitive and dangerous worldviews, SDO, and RWA should all positively predict scores on the conspiracy belief measures. These relationships would be consistent with results reported by others (e.g.,

Brotherton et al., 2013; Goertzel, 1994; Grzesiak-Feldman & Irzycka, 2009; Moulding et al., 2016; Wilson & Rose, 2014).

Psychopathological factors. This category comprised five variables: anxiety, depression, delusional ideation, paranoid ideation, and schizotypal personality. If conspiracy beliefs are associated with unusual beliefs and experiences, there should be a positive relationship between scores on the conspiracy belief measures and scores on measures of delusional ideation and schizotypal personality (e.g., Barron et al., 2014; Brotherton et al., 2013; Bruder et al., 2013; Dagnall et al., 2015; Darwin et al., 2011; Swami, Weis, et al., 2016). If believing in conspiracy theories helps to provide explanations for undesirable predicaments then there should be a positive association between measures of depression and anxiety and the conspiracy belief scales (Grzesiak-Feldman, 2007, 2013; Swami, Weis, et al., 2016). Lastly, if conspiracy theories appeal because they are consistent with a negative and cynical worldview, there should be a positive correlation between paranoid ideation and conspiracy thinking (e.g., Cichocka et al., 2016; Darwin et al., 2011; Swami, Weis, et al., 2016; Wilson & Rose, 2014).

Study 2

Method

Participants and Procedure

This sample comprised 665 participants, recruited at three time points over approximately eight months. All participants completed the surveys as part of their mandatory research participation requirement for an introductory psychology course at Victoria University of Wellington. Some participants completed two (38.6%) or all three (14.3%) of the survey packages, but the majority (47.1%) only participated in one study. Because some participants completed more than one batch of measures, I was able to match their responses to the surveys administered previously, increasing the number of variables that could be examined in relation to conspiracy belief. For this reason the sample sizes are provided for all relevant statistical tests to show how many participants contributed data.

Two of the three survey packages involved completing the survey online, at a time and location chosen by the respondent. The third survey package involved completing the surveys online in the participants' first laboratory of the teaching trimester. These laboratories contain eighteen desktop computers arranged along the perimeter of the room, with partitions to ensure privacy. All survey responses were collected using the online survey program, SurveyMonkey®. There was no time limit for survey completion, however the package completed in the laboratories took approximately 45-60 minutes to complete (due to additional measures being included for unrelated research purposes), while the at-leisure versions took a maximum of thirty minutes to finish. In all cases, participants were presented with an information page that provided details of the study and what participation would entail, as well as a debriefing page at study completion. Details of the researcher were provided in the instance participants had any questions or concerns regarding the research. Ethical approval was granted for this study by the Victoria University of Wellington School of Psychology Human Ethics Committee.

Overall, the three samples combined contained 421 females and 244 males, ranging in age from 17 to 50 years ($M = 19.41$, $SD = 3.66$). Most participants identified as New Zealand European (75.8%), while 6% of the sample identified as Māori. Nearly 56% of the sample was studying towards an arts degree and 32% were studying towards a science degree (32%).

Measures

Specific Conspiracy Belief. The full 25-item Specific Conspiracy Belief Scale developed and validated in Study 1 was administered in Study 2. Internal reliability of the scale was excellent ($\alpha = .90$). Total scale scores ranged from 1.08 – 6.20, with a mean of 3.10 ($SD = .88$), indicating relatively low levels of conspiracist ideation in the sample.

Generalised Conspiracy Belief. The eight-item Generalised Conspiracy Belief Scale developed in Study 1D was also used. The scale demonstrated good internal

reliability ($\alpha = .82$). Scores on the scale ranged from 1.00 – 6.00, with neutral levels of generalised conspiracy belief in the sample ($M = 3.53$, $SD = 1.02$).

To measure the selection of potential predictors of conspiracy belief, scales were chosen either because they have been used in studies investigating conspiracy thinking previously (e.g., Buss & Perry, 1992; Pearlin, Menaghan, Lieberman, & Mullan, 1981; Raine, 1991) or because they are well-recognised and commonly used scales (e.g., Altemeyer, 2002; Duckitt, 2001). These are described next.

Personality and interpersonal factors

Aggression. This was measured using the Aggression Questionnaire (Buss & Perry, 1992). The survey contains 29 items measuring four sub-factors of aggression: physical aggression (e.g., *‘Once in a while I can’t control the urge to strike another person’*); verbal aggression (e.g., *‘My friends say I am somewhat argumentative’*); anger (e.g., *‘I have trouble controlling my temper’*); and hostility (e.g., *‘I am sometimes eaten up with jealousy’*). Participants are asked to rate how characteristic each item is of them, ranging from 1 (*extremely uncharacteristic of me*) to 7 (*extremely characteristic of me*), with higher scores indicating higher levels of aggression. Buss and Perry report excellent reliability for each subscale and the total scale among university samples, and internal consistency was likewise excellent in the current study (subscale alphas ranging from .81 to .88, total scale $\alpha = .92$). Scores on the total scale ranged from 1.17 - 6.59 with a mean of 3.09 ($SD = .91$), demonstrating low levels of aggression in the sample.

Collective Self-Esteem. This was measured using the Collective Self-Esteem Scale (Luhtanen & Crocker, 1992). This scale contains sixteen items measuring four facets of one’s self-concept in relation to others: 1) membership esteem (how worthy a group member perceives themselves to be, e.g., *‘I am a worthy member of the social groups I belong to’*); 2) private esteem (one’s private judgement about how their social groups are perceived, e.g., *‘In general, I’m glad to be a member of the social groups I belong to’*); 3) public esteem (one’s perceptions of how others evaluate their social groups, e.g., *‘Overall, my social groups are considered good by others’*); and 4) identity

(the importance of group memberships to one's self-concept, e.g., '*The social groups I belong to are an important reflection of who I am*'). Participants rate their level of agreement with each statement ranging from 1 (*strongly disagree*) to 7 (*strongly agree*), with high scores representing higher levels of esteem. Good reliability was demonstrated in the creation of the scale using undergraduate samples, and internal reliability was acceptable in the current study (subscale alphas ranging from .73 – .80, total scale $\alpha = .88$). Scores on the total scale ranged from 3.13 – 6.94, with a mean of 5.08 ($SD = .81$), showing high overall levels of collective self-esteem in this sample.

Interpersonal Trust. The same measure of interpersonal trust used in Study 1 was administered here (Wrightsman, 1964). Internal consistency was acceptable in the present study ($\alpha = .76$). Responses ranged from 1.43 – 5.71 with a mean of 4.01 ($SD = .65$), suggesting average levels of trust in the sample.

Personality. The Big Five personality traits were again measured with the Ten-Item Personality Inventory designed by Gosling et al. (2003). For this study, all five personality domains were assessed – openness, conscientiousness, extraversion, agreeableness, and neuroticism. Each personality domain is assessed with two items and participants are asked to rate the extent to which each trait applies to them, ranging from 1 (*disagree strongly*) to 7 (*agree strongly*). Higher numbers indicate higher levels of the trait in question. Correlations among the pairs of items were indicative of acceptable internal consistency in the current study (r s ranging from .15 - .48, $ps < .05$). The means for each personality trait were moderate, with only openness to experience approaching higher levels in the sample (M s = 4.45 – 5.13, SD s = 1.05 – 1.34).

Powerlessness. The Mastery Scale was used to measure powerlessness (Pearlin et al., 1981). Mastery is defined as the level of one's perception of control over important life events – low levels of mastery equate to high feelings of powerlessness. The scale contains items such as '*There is really no way I can solve some of the problems I have*' and '*There is little I can do to change many of the important things in my life*'. Responses are made on a 1 (*strongly disagree*) to 7 (*strongly agree*) scale and higher scores represent higher levels of powerlessness. Pearlin et al. do not provide internal

consistency information for their scale, but do state that the items were subjected to CFA – thus presumably the model was acceptable. Supporting this, internal reliability was acceptable in the present study ($\alpha = .78$). Responses ranged from 1.00 – 6.29, with low perceptions of powerlessness in the current sample ($M = 2.91, SD = .10$).

Cognitive styles

Analytical-Rational and Intuitive-Experiential Thinking Styles. This was measured with the Rational-Experiential Inventory (Epstein, Pacini, Denes-Raj, & Heier, 1996). This scale comprises two subscales: nineteen items measuring an analytical style of processing (e.g., *'I prefer my life to be filled with puzzles that I must solve'*) and twelve items measuring an intuitive processing style (e.g., *'I believe in trusting my hunches'*). Responses range from 1 (*strongly disagree*) to 6 (*strongly agree*). These subscales are independent and thus two scores are calculated, with higher scores indicating greater levels of the given processing style. Epstein et al. report good internal reliability of the two subscales, and this was excellent in the present study (Intuitive-Experiential $\alpha = .87$, Analytical-Rational $\alpha = .82$). Scores for the Intuitive-Experiential Scale ranged from 1.00 – 5.83 with a mean of 4.01 ($SD = .65$), while scores for the Analytical-Rational Scale ranged from 2.58 – 5.95 with a mean of 4.00 ($SD = .64$). This indicates relatively moderate levels of both thinking styles in the sample, however the lowest levels of analytical-rational thinking in this sample were close to the midpoint of the scale.

Desirability of Control. Motivation to control the events in one's life was measured using the Desirability of Control Scale (Burger & Cooper, 1979). This is a twenty-item scale comprising five subscales: a general desire for control (e.g., *'I enjoy being able to influence the actions of others'*); decisiveness (e.g., *'I wish I could push many of life's daily decisions off on someone else'*); a tendency for preparation-prevention (e.g., *'I am careful to check everything on a car before I leave for a long trip'*); avoidance of dependence (e.g., *'I try to avoid situations where someone else tells me what to do'*); and leadership (e.g., *'I would prefer to be a leader rather than a follower'*). Each statement is rated from 1 (*this statement doesn't apply to me at all*) to 7 (*this statement always applies to me*) with high scores representing a high desirability for control in the given

domain. Burger and Cooper report good reliability for the total scale, but failed to mention analyses for the individual subscales. The internal reliability of the total scale in the present study was less than ideal considering the large number of items ($\alpha = .70$), however the corrected item-total correlations for each subscale suggested reasonable consistency in the subscales (following removal of one problematic item for the leadership subscale). These correlations ranged from .25 to .50. Means across the subscales ranged from 4.12 – 4.93 ($SDs = .76 - 1.00$) demonstrating relatively average levels of desirability of control across each domain.

Dogmatism. The twenty-item DOG Scale (Altemeyer, 2002) was used to assess levels of dogmatism. This scale contains items such as *'My opinions are right and will stand the test of time'* and *'The things I believe in are so completely true, I could never doubt them'*, with responses ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Higher scores indicate higher levels of dogmatism. Altemeyer reports strong reliability for the scale, and internal reliability was likewise excellent in the current study ($\alpha = .96$). The level of dogmatism in this sample ranged from 1.05 – 7.00, and was moderate in nature ($M = 4.63, SD = 1.32$).

Fantasy Proneness. This was assessed using the Creative Experiences Questionnaire (Merckelbach, Horselenberg, & Muris, 2001). The scale contains 25 items (e.g., *'I often confuse fantasies with real memories'* and *'Many of my fantasies are often just as lively as a good movie'*) and participants are asked to indicate whether they agree (coded as 1) or disagree (coded as 0) with each statement. Scores thus range from 0 to 25, with higher scores indicating greater fantasy proneness. Merckelbach et al. report acceptable reliability of the scale using predominantly university samples, and internal consistency was good in the present study ($\alpha = .81$). Responses ranged from 0.00 – 22.00, with low levels of fantasy proneness in this sample ($M = 8.90, SD = 4.89$).

Need for Cognitive Closure. The 42-item Need for Closure Scale (Kruglanski, Webster, & Klem, 1993) was used here. This scale captures five sub-factors of the need for cognitive closure: 1) preference for order (e.g., *'I enjoy having a clear and structured mode of life'*); 2) preference for predictability (e.g., *'I don't like to go into a situation*

without knowing what I can expect from it’); 3) decisiveness (e.g., ‘I usually make important decisions quickly and confidently’); 4) discomfort with ambiguity (e.g., ‘I feel uncomfortable when I don’t understand the reason why an event occurred in my life’); and 5) closed-mindedness (e.g., ‘I feel irritated when one person disagrees with what everyone else in a group believes’). Responses are made on a 1 (*strongly disagree*) to 7 (*strongly agree*) scale, with high scores indicating a greater need for cognitive closure. The individual subscales and total scale have displayed good reliability in the past (Webster & Kruglanski, 1994) and likewise acceptable internal reliability was achieved in the present study (α s ranging from .61 - .74). Although the closed-mindedness subscale yielded a Cronbach’s alpha of only .61, corrected item-total correlations ranged between .15 and .36, with no improvement in the overall alpha with deletion of any items. Means for the subscales overall fell between 3.70 and 4.12 (*SDs* ranging from .57 - .78), indicating average levels of the need for cognitive closure across each domain in the sample.

Sense of Control. This was measured using the Spheres of Control Scale (Paulhus & Van Selst, 1990). This scale contains thirty items measuring three dimensions of control: personal control (e.g., ‘I can usually achieve what I want when I work hard for it’); interpersonal control (e.g., ‘I can usually steer a conversation toward the topics I want to talk about’); and socio-political control (e.g., ‘The average citizen can have an influence on government decisions’). Responses range from 1 (*strongly disagree*) to 7 (*strongly agree*), with higher scores representing more sense of control in each domain. Paulhus and van Selst report acceptable reliability across a large range of predominantly undergraduate samples. In the current study, the socio-political control subscale did not fare so well ($\alpha = .64$), however the corrected item-total correlations still fell within an acceptable range ($r_s = .15 - .44$). The personal control ($\alpha = .72$) and interpersonal control ($\alpha = .77$) subscales showed good reliability. The sample displayed high levels of personal ($M = 4.87$, $SD = .75$) and interpersonal control ($M = 4.59$, $SD = .83$), and lower levels of socio-political control ($M = 3.84$, $SD = .66$).

Socio-political factors

Anomie. The same five-item measure of anomie used in Study 1 was used for Study 2 (Srole, 1956). Internal reliability was acceptable in the current study ($\alpha = .63$, range of corrected item-total correlations = .30 - .52). Although the Cronbach's alpha was below the accepted criterion of .70 - .80, the range of corrected item-total correlations provide evidence for good internal consistency of the scale. Additionally, the Cronbach's alpha obtained here is consistent with previous research (Brotherton et al., 2013; Goertzel, 1994). Responses ranged from 1.20 - 6.40, with fairly low levels of anomie in the sample ($M = 3.62$, $SD = .96$).

Competitive and Dangerous Worldviews. For reasons of brevity, two shortened scales containing eight items each were used to measure Competitive and Dangerous Worldviews (Sibley, Wilson, & Duckitt, 2007; adapted from Duckitt, 2001). Items measuring a dangerous worldview include '*There are many dangerous people in our society who will attack someone out of pure meanness, for no reason at all*' and '*Every day, as our society becomes more lawless and bestial, a person's chances of being robbed, assaulted, and even murdered go up*'. Competitive worldview is measured using items such as '*It's a dog-eat-dog world where you have to be ruthless at times*' and '*Winning is not the best thing; it's the only thing*'. Responses to both scales are made on a 1 (*strongly disagree*) to 7 (*strongly agree*) scale. Higher scores on these scales indicate greater levels of the construct in question.

Duckitt (2001) reports strong reliability for these measures, and in the case of measurement of competitive worldview, internal consistency was acceptable in the current study ($\alpha = .79$). An initial Cronbach's alpha of .68 was obtained for the eight-item dangerous worldview scale, however a problem item was identified ('*The "end" is not near. People who think that earthquakes, wars and famines mean God might be about to destroy the world are being foolish*') with a corrected item-total correlation of .07. A potential reason for this could be the religious overtones of this particular item. In any case, the item was not included in the scale total, and reliability improved to an acceptable level in its absence ($\alpha = .72$). Competitive worldview responses ranged from 1.00 - 5.63, with low levels in this sample ($M = 2.69$, $SD = .88$). Dangerous worldview

responses ranged from 1.29 – 6.71, with average levels in the sample ($M = 3.86$, $SD = .92$).

RWA. The full thirty-item Right-Wing Authoritarianism Scale (Altemeyer, 1996) was used in this study. Participants are asked to rate their agreement with statements such as *'What our country really needs is a strong, determined leader who will crush evil, and take us back to our true path'* and *'Obedience and respect for authority are the most important virtues children should learn'*. Responses range from 1 (*strongly disagree*) to 7 (*strongly agree*) with higher scores representing greater levels of RWA. The RWA Scale has had excellent reliability in the past and was likewise strong in the current study ($\alpha = .91$). Levels of RWA were low in this sample, with scores ranging from 1.00 – 5.93 and a mean of 2.78 ($SD = .79$).

SDO. The sixteen-item SDO-6 Scale (Pratto, Sidanius, Stallworth, & Malle, 1994) was used to measure this construct. The survey contains items such as *'Some groups of people are simply inferior to other groups'* and *'To get ahead in life, it is sometimes necessary to step on other groups'*. Participants indicate how they feel about each statement, ranging from 1 (*strongly negative*) to 7 (*strongly positive*), with higher scores indicating higher levels of SDO. The SDO scale has displayed strong reliability in previous work and likewise internal reliability was excellent in the present study ($\alpha = .89$). Levels of SDO were low in this sample, with scores ranging from 1.00 – 5.50 and a mean of 2.58 ($SD = .91$).

Psychopathological factors

Anxiety. This was measured using the Self-Rating Anxiety Scale (Zung, 1971). The measure contains twenty items (e.g., *'I get upset easily or feel panicky'* and *'I feel afraid for no reason at all'*) and participants rate the degree to which they have experienced each over the past several days. Responses range from 1 (*a little of the time*) to 4 (*most or all of the time*), with higher scores indicating higher levels of anxiety. Reliability information was not reported by Zung, however excellent internal consistency was obtained in this study ($\alpha = .86$). Responses ranged from 1.00 – 3.55 in the sample, with a mean of 1.86 ($SD = .48$). Although the mean falls close to the middle

of the rating scale, levels of anxiety in the sample are still deemed to be low, considering a '2' on the scale represented having a given anxiety symptom 'some of the time'.

Depression. This was measured using the twenty-item Self-Rating Depression Scale (Zung, 1965). The scale measures both psychological and physical symptoms of depression, including items such as '*I feel down-hearted and blue*' and '*I have trouble sleeping at night*'. Participants are asked to indicate how often they have experienced each statement in the past several days ranging from 1 (*a little of the time*) to 4 (*most of the time*). Higher scores indicate greater levels of depression. Although Zung reports no reliability information in the creation of the measure, internal consistency was very good in the current study ($\alpha = .82$). Responses ranged from 1.15 – 3.35, with low levels of depression in the sample ($M = 2.05, SD = .43$) considering that a '2' on this scale indicates experiencing a depressive symptom 'some of the time'.

Delusional Ideation. The 21-item Delusions Inventory (Peters et al., 2004) was used to measure individual differences in delusional ideation. Participants are presented with statements such as '*I feel as if things in magazines or on TV were written especially for me*' and '*I am a very special or unusual person*' and are asked to rate how often they have experienced the experience/belief described in the statement (*rarely to at least once a day*); how true they believe the statement to be (*do not believe it to absolutely believe it*); and the degree to which they have found this belief/experience distressing (*not distressing to very distressing*); Responses are scored on a 1 – 5 Likert scale, with higher scores indicating greater levels of delusional preoccupation, delusional conviction, and delusional distress respectively. For reasons of parsimony, I report results only using delusional belief subscale, however the same pattern of results were obtained for all subscales. Peters et al. report good reliability of the total scale using both normal and clinical samples, and internal consistency in the present study was excellent ($\alpha = .93$). Levels of delusional belief in the sample were expectedly low ($M = 1.60, SD = .64, \text{range} = 1.00 - 5.00$).

Paranoia. The Paranoia Checklist (Freeman et al., 2005) was used to measure individual differences in paranoid ideation. Participants are presented with eighteen

statements such as *'I might be being observed or followed'* and *'I am under threat from others'*. They are asked to rate how often they have experienced the experience/belief described in the statement (*rarely to at least once a day*); how true they believe the statement to be (*do not believe it to absolutely believe it*); and the degree to which they have found this belief/experience distressing (*not distressing to very distressing*). Responses are scored on a 1 – 5 Likert scale, with higher scores indicating greater levels of paranoid frequency, paranoid conviction, and paranoid distress respectively. Freeman et al. report excellent reliability with Cronbach's alphas above .90 for each of the three subscales. Like the Delusions Inventory, only results of the belief subscale are reported. Internal consistency for this scale was excellent in the present study ($\alpha = .92$). Responses ranged from 1.00 – 4.94, with low levels of paranoid belief in the sample ($M = 1.68, SD = .65$).

Schizotypal Personality. Individual differences in schizotypal personality were measured using the Schizotypal Personality Questionnaire (Raine, 1991). The scale contains 74 items with nine subscales covering all nine schizotypal traits: 1) ideas of reference (contains nine items: e.g., *'I am aware that people notice me when I go out for a meal or to see a film'*); 2) excessive social anxiety (eight items: e.g., *'I get very nervous when I have to make polite conversation'*); 3) odd beliefs or magical thinking (seven items: e.g., *'Can other people feel your feelings when they are not there?'*); 4) unusual perceptual experiences (nine items: e.g., *'I often hear a voice speaking my thoughts aloud'*); 5) odd or eccentric behaviour (seven items: e.g., *'People sometimes comment on my unusual mannerisms and habits'*); 6) absence of close friends (nine items: e.g., *'I prefer to keep to myself'*); 7) odd speech (nine items: e.g., *'I often ramble on too much when speaking'*); 8) constricted affect (eight items: e.g., *'People sometimes find me aloof and distant'*); and 9) suspiciousness (eight items: e.g., *'I often feel that others have it in for me'*). Participants respond on a yes (coded as 1)/no (coded as 0) scale, with higher scores representing higher levels of schizotypal personality.

Raine (1991) reports good reliability using student samples, and internal reliability was acceptable in the current study (Cronbach's alphas ranging from .58 – .81, corrected item-total correlations ranging from .18 – .66). One item that had a poor

corrected item-total correlation of .09 (*'Writing letters to friends is more trouble than it is worth'*) was removed from the absence of close friends scale, improving the Cronbach's alpha from .69 to .72. Given the greatly decreased nature of written letters in the modern day, it is hardly surprising that this item lacked reliability. As previously mentioned, it is also worth noting that the Cronbach's alpha is not ideal for assessing the reliability of scales with binary responses (Sijtsma, 2009). Levels of schizotypy were low across the sample (*Ms* ranging from 1.21 – 3.80, *SDs* = 1.40 – 2.42). The standard deviations for several of the subscales indicated relatively high variance in responding.

Results

Specific or Generalised Conspiracy Belief Scale?

Patterns of correlations between each predictor variable and the Specific and Generalised Conspiracy Belief Scales were examined to determine whether the same variables were consistently related to both conspiracy measures. These correlation coefficients, sample sizes, and *p*-values are presented in Table 11. In Table 11, 'ns*' denotes a non-significant 'trend' ($p < .10$) while, asterisks denote significance (* $p < .05$, ** $p < .01$, and *** $p < .001$); values in bold indicate significant or marginally significant correlations; and highlighted rows indicate significant correlations for both the Specific Conspiracy Belief and Generalised Conspiracy Belief Scales.

A result was determined to be consistent when a significant ($p < .05$) or marginally significant ($p < .10$) correlation was obtained between both the Specific and Generalised Conspiracy Belief Scale for a specific predictor variable. As can be seen in Table 11, consistent results were obtained between the two conspiracy scales for forty out of the fifty individual variables. Of the ten remaining pairs where the results were not consistent, six cases included one non-significant correlation and one only marginally significant correlation. In addition to this, the magnitude of correlations between the two conspiracy scales and the predictor variables were very similar, and in virtually all cases, the direction of the correlations was the same. As a whole, these results provide preliminary evidence that at least in terms of identifying predictors of

conspiracy belief, it matters not whether a scale assesses endorsement of specific real-world conspiracies versus the existence of conspiracies in general.

Although examining a pattern of correlations such as this is useful for providing an overview of consistencies between the two scales, comparing fifty correlations per scale inflates the family-wise error risk. A way of combatting this is to adjust the alpha level for each of these correlations to maintain the family-wise error level at 0.05. Applying a Sidak correction to preserve the overall alpha at 0.05 means that an individual alpha of $p < .001$ should be applied to each correlation. After doing this, constructs in relation to conspiracy belief still remained significant. For the Generalised Conspiracy Belief Scale these were discomfort with ambiguity; all of the socio-political factors barring RWA; delusional and paranoid ideation; and odd beliefs/magical thinking. For the Specific Conspiracy Belief Scale these were: anomie; dangerous worldview; SDO; and three facets of schizotypal personality – ideas of reference; odd beliefs/magical thinking; and unusual perceptual experiences.

To definitively answer the question of whether using a general versus specific conspiracy belief scale can produce different results, the shared variance of the two scales being compared needs to be removed. The shared variance between the Generalised and Specific Conspiracy Belief Scales may be driving the similar pattern of correlations with the predictor variables. That is, there is a common factor underlying conspiracy beliefs, whether they are specific or more general in nature. If this is the case, treating each predictor variable as a dependent variable in a multiple regression and regressing it onto the Generalised and the Specific Conspiracy Belief Scale scores simultaneously will result in only one significant regression coefficient of the pair. This is because, assuming the two conspiracy scales predict the same portion of variance in the outcome variable, they will not combine to additively predict unique variance in the dependent variable. In instances where there is a non-significant relationship between the variable and both conspiracy scales (i.e., cases with two non-significant correlations in Table 11), the regression should result in two non-significant regression coefficients. If the Generalised and Specific Conspiracy Belief Scales are *not* equivalent however, this

will result in significant regression coefficients for both scales, because both explain unique variance in the predictor variable.

With this in mind, separate multiple regression analyses were conducted for all the identified predictors in Table 11, treating the Generalised and Specific Conspiracy Belief Scales as the independent variables and the predictor variable as the dependent measure. Out of fifty regressions, only one showed that both conspiracy scales were explaining unique variance in the dependent variable. This was the case for a dangerous worldview ($\beta_s = .27, p < .01$ and $.21, p < .05$ for the Specific and Generalised measures respectively, $n = 116$). Although the correlation identified a stronger relationship between generalised versus specific conspiracy belief and a dangerous worldview, the regression analysis necessarily only includes those cases where both conspiracy scales were completed by the same participant. With this decrease in sample size, the beta weight for generalised conspiracy belief was very slightly weaker than that for specific conspiracy belief. Comparing the magnitude of the correlations, it appears that there is more of an overlap between a dangerous worldview and the generalised conspiracy belief measure. Considering items such as *'One needs to be on guard for the various groups secretly aiming to achieve their dark goals'* form part of the Generalised Conspiracy Belief Scale, this is not surprising. Regardless, one instance of two significant regression coefficients for the Specific and Generalised Conspiracy Belief Scales with a predictor variable provides indicative evidence that, at least in this case, the two conspiracy belief scales are measuring the same construct and can be used interchangeably.

Table 11.

Correlations between potential predictors and the Specific Conspiracy Belief and Generalised Conspiracy Belief Scales.

| Scales and subscales | <u>Specific Conspiracy Belief Scale</u> | | | <u>Generalised Conspiracy Belief Scale</u> | | |
|--|---|----------|-----------------|--|----------|-----------------|
| | <i>r</i> | <i>n</i> | <i>p</i> -value | <i>r</i> | <i>n</i> | <i>p</i> -value |
| Personality and interpersonal factors | | | | | | |
| Aggression | | | | | | |
| Physical | .24 | 350 | *** | .33 | 116 | *** |
| Verbal | .07 | 347 | ns | .12 | 113 | ns |
| Anger | .14 | 348 | * | .30 | 115 | ** |
| Hostility | .26 | 350 | *** | .28 | 118 | ** |
| Collective self-esteem | | | | | | |
| Membership | -.07 | 350 | ns | -.16 | 116 | ns* |
| Private | -.15 | 352 | ** | -.24 | 118 | ** |
| Public | -.20 | 351 | *** | -.27 | 115 | ** |
| Identity | -.09 | 352 | ns | -.14 | 116 | ns |
| Personality | | | | | | |
| Extraversion | .06 | 219 | ns | .10 | 110 | ns |
| Openness | -.14 | 219 | * | .05 | 112 | ns |
| Conscientiousness | .02 | 218 | ns | .07 | 112 | ns |
| Neuroticism | .06 | 216 | ns | .08 | 110 | ns |
| Agreeableness | -.04 | 218 | ns | -.05 | 111 | ns |
| Powerlessness | .13 | 350 | * | .27 | 116 | ** |
| Interpersonal trust | -.22 | 339 | *** | -.21 | 110 | * |
| Cognitive styles | | | | | | |
| Dogmatism | -.11 | 472 | * | -.12 | 213 | ns* |
| Fantasy proneness | .18 | 232 | ** | .15 | 251 | * |
| Analytical-rational thinking style | -.18 | 459 | *** | -.13 | 204 | ns* |
| Intuitive-experiential thinking style | .15 | 485 | ** | .10 | 217 | ns |
| Desirability of control | | | | | | |
| General | .06 | 233 | ns | .11 | 254 | ns* |
| Decisiveness | -.21 | 232 | ** | -.16 | 251 | * |
| Preparation-prevention | -.07 | 235 | ns | .06 | 255 | ns |
| Avoidance of dependence | .12 | 239 | ns* | .15 | 259 | * |
| Leadership | .01 | 239 | ns | .01 | 260 | ns |

| Scales and subscales | <u>Specific Conspiracy Belief Scale</u> | | | <u>Generalised Conspiracy Belief Scale</u> | | |
|-----------------------------------|---|----------|-----------------|--|----------|-----------------|
| | <i>r</i> | <i>n</i> | <i>p</i> -value | <i>r</i> | <i>n</i> | <i>p</i> -value |
| Need for cognitive closure | | | | | | |
| Preference for order | .05 | 236 | ns | .12 | 254 | ns* |
| Preference for predictability | .03 | 214 | ns | .12 | 252 | ns* |
| Decisiveness | -.05 | 231 | ns | -.09 | 253 | ns |
| Discomfort with ambiguity | .15 | 231 | ** | .23 | 248 | *** |
| Closed-mindedness | .12 | 231 | ns | .05 | 252 | ns |
| Sense of control | | | | | | |
| Personal | -.13 | 345 | * | -.19 | 116 | ** |
| Interpersonal | -.00 | 336 | ns | -.02 | 112 | ns |
| Socio-political | -.14 | 338 | * | -.10 | 114 | ns |
| Socio-political factors | | | | | | |
| Anomie | .31 | 353 | *** | .35 | 111 | *** |
| Competitive worldview | .17 | 352 | ** | .34 | 116 | *** |
| Dangerous worldview | .19 | 355 | *** | .33 | 118 | *** |
| Right-wing authoritarianism | .18 | 489 | ** | .18 | 212 | ** |
| Social dominance orientation | .26 | 361 | *** | .29 | 168 | *** |
| Psychopathological factors | | | | | | |
| Anxiety | .19 | 221 | ** | .15 | 243 | * |
| Delusional ideation | .21 | 227 | ** | .31 | 246 | *** |
| Depression | .20 | 222 | ** | .18 | 243 | ** |
| Paranoia | .16 | 232 | * | .22 | 253 | *** |
| Schizotypal personality | | | | | | |
| Ideas of reference | .28 | 440 | *** | .19 | 180 | * |
| Excessive social anxiety | -.02 | 441 | ns | -.22 | 179 | ** |
| Odd beliefs/magical thinking | .24 | 440 | *** | .38 | 178 | *** |
| Unusual perceptual experiences | .28 | 440 | *** | .17 | 177 | * |
| Odd or eccentric behaviour | .11 | 440 | * | -.11 | 179 | ns |
| Absence of close friends | .06 | 445 | ns | -.12 | 180 | ns |
| Odd speech | .13 | 442 | ** | .08 | 178 | ns |
| Constricted affect | .01 | 444 | ns | -.11 | 180 | ns |
| Suspiciousness | .17 | 442 | ** | .14 | 180 | ns* |

Predictors of conspiracy beliefs

Next, to address the question of what predicts conspiracy belief I used the pattern of correlations identified in Table 11 as a guide for choosing potential predictors to include in targeted multiple regression analyses. Two multiple regressions were performed for each domain – one regressing Specific Conspiracy Belief Scale scores and one regressing Generalised Conspiracy Belief Scale scores, respectively, on to scores of the potential predictors. Although the results mentioned above strongly suggest that it does not matter which conspiracy belief scale is used, this is still a preliminary finding and thus it is prudent to still use both measures. Similarly, because this is the first time that potential predictor variables have been examined in relation to the new conspiracy measures, a predictor only needed to significantly correlate with one of these conspiracy scales in order to qualify for inclusion in planned multiple regressions. The predictors selected on this basis are summarized in Table 12.

A series of specific regression analyses were conducted because entering every individual predictor variable into a single overall multiple regression at once was unlikely to produce interpretable results (due to the large number of predictor variables and limited sample sizes involved). In the cases where multiple subscales predicted conspiracy belief, I created a new total scale comprising these factors with one exception. In the case of schizotypal personality factors, I chose to leave these as separate subscales until further investigation because I suspected that some features (e.g., magical thinking) were more important in the prediction of conspiracist ideation than others (e.g., odd speech and behaviour). The results of the regression analyses are reported next.

Table 12.

Significant correlations with the Specific and/or Generalised Conspiracy Belief Scale.

| Personality and interpersonal factors | Cognitive styles | Socio-political factors | Psychopathological factors |
|---------------------------------------|---------------------------------|------------------------------|----------------------------------|
| Aggression: | Dogmatism | Anomie | Anxiety |
| - Physical | Fantasy proneness | Competitive worldview | Depression |
| - Anger | Analytical-rational thinking | Dangerous worldview | Delusional ideation |
| - Hostility | Intuitive-experiential thinking | Right-wing authoritarianism | Paranoid belief |
| Collective self-esteem: | Desirability of control: | Social dominance orientation | Schizotypal personality: |
| - Membership | - General | | - Ideas of reference |
| - Private | - Decisiveness | | - Excessive social anxiety |
| - Public | - Avoidance of dependence | | - Odd beliefs/magical thinking |
| Openness | Need for cognitive closure: | | - Unusual perceptual experiences |
| Neuroticism | - Preference for order | | - Odd or eccentric behaviour |
| Interpersonal trust | - Preference for predictability | | - Odd speech |
| Powerlessness | - Discomfort with ambiguity | | - Suspiciousness |
| | Sense of control: | | |
| | - Personal | | |
| | - Socio-political | | |

Personality and interpersonal factors. Significant regressions for both the Specific and the Generalised Conspiracy Belief Scales were obtained. For specific conspiracy belief, nearly 20.8% ($R^2 = .21$) of the variance was explained by the personality factors combined, $F(5, 104) = 5.46, p < .001$. However, only aggression ($\beta = .26, p < .05$) and interpersonal trust ($\beta = -.20, p < .05$) were significant unique predictors of belief in real-world conspiracies. A similar result was obtained with generalised conspiracy belief. Nearly 29% ($R^2 = .29$) of the variance in generalised conspiracy belief was explained by the personality variables, $F(5, 102) = 8.28, p < .001$, with aggression ($\beta = .18, p = .09$) as a marginally significant predictor and interpersonal trust ($\beta = -.34, p < .001$) as a significant unique predictor.

Cognitive styles. A significant regression was obtained for the Specific Conspiracy Belief Scale, $F(7, 66) = 4.15, p < .01$. The cognitive variables explained 31% ($R^2 = .31$) of the variance in specific conspiracy belief, with perceived control ($\beta = -.31, p < .01$), dogmatism ($\beta = -.32, p < .01$), and fantasy proneness ($\beta = .24, p < .05$) emerging as significant predictors. Using the Generalised Conspiracy Belief Scale, a significant regression, $F(7, 64) = 2.69, p < .05$ was obtained, explaining 23% of the variance ($R^2 = .23$). The only significant predictor here, however, was dogmatism ($\beta = -.25, p < .05$). The sample sizes are notably low for these regressions, but this only attests to the strength of some of these relationships given the still significant results. Notably, of the ten inconsistent patterns identified among the fifty correlations, five of these fell under the cognitive domain. This may help to explain the inconsistencies between the two regressions here.

Socio-political factors. The regressions for both the Specific and the Generalised Conspiracy Belief Scales were significant. For belief in real-world conspiracies, 15% ($R^2 = .15$) of the variance was explained by the socio-political factors, $F(5, 263) = 9.55, p < .001$. Significant predictors here were anomie ($\beta = .26, p < .001$); competitive worldview ($\beta = .15, p < .05$); and (approaching significant) dangerous worldview ($\beta = .13, p = .06$). Generalised conspiracy belief demonstrated a similar result – 27% ($R^2 = .27$) of the variance was explained by the socio-political variables, $F(5, 98) = 7.07, p < .001$.

.001, with anomie ($\beta = .27, p < .01$) and competitive worldview ($\beta = .23, p < .05$) emerging as significant predictors.

Psychopathological factors. Significant regressions were obtained for both conspiracy scales. The psychopathological variables accounted for 18% ($R^2 = .18$) in specific conspiracy belief, $F(11, 134) = 2.75, p < .01$, however only one variable (the excessive social anxiety subscale of the SPQ) was a unique predictor ($\beta = -.21, p < .05$), and was in an unexpected direction. For the Generalised Conspiracy Belief Scale, the psychopathological variables explained 30% ($R^2 = .30$) of the variance, $F(11, 140) = 5.51, p < .001$. Excessive social anxiety again uniquely predicted conspiracy belief in an unexpected direction ($\beta = -.27, p < .01$). Both the magical thinking ($\beta = .32, p < .001$) and the suspiciousness ($\beta = .18, p < .05$) subscales of the Schizotypal Personality Questionnaire also uniquely predicted generalised conspiracy belief. Lastly, delusional belief was a marginally significant unique predictor ($\beta = .26, p = .06$).

Considering the relatively low sample size for the psychopathological factors in relation to the Specific Conspiracy Belief Scale and the fact that a suppression effect was potentially occurring for the excessive social anxiety SPQ subscale (hence the unexpected direction of the relationship), I chose to regress the conspiracy measures onto just the SPQ subscales to identify any potential significant relationships that could have been masked. The regression was significant for the Specific Conspiracy Belief Scale, $F(7, 417) = 8.12, p < .001$ and explained 12% of the variance in specific conspiracy belief ($R^2 = .12$). In this regression, ideas of reference ($\beta = .16, p < .01$); excessive social anxiety ($\beta = -.11, p < .05$); odd beliefs or magical thinking ($\beta = .10, p < .05$); and unusual perceptual experiences ($\beta = .15, p < .05$) all uniquely predicted belief in specific conspiracies. The regression using the Generalised Conspiracy Belief Scale was also significant, $F(7, 166) = 7.43, p < .001$, with 24% of the variance explained in general conspiracy belief ($R^2 = .24$). Excessive social anxiety ($\beta = -.27, p < .001$) and odd beliefs or magical thinking ($\beta = .35, p < .001$) were significant predictors, while odd or eccentric behaviour ($\beta = -.14, p = .06$) and suspiciousness ($\beta = .15, p = .08$) were approaching significance. The only clear pattern to emerge for schizotypal personality in relation to specific and generalised conspiracy belief then, was that of a positive

association with odd beliefs or magical thinking and a negative relationship with excessive social anxiety.

Lastly, because of the less clear-cut associations between conspiracy thinking and the schizotypal personality traits, I ran multiple regressions removing schizotypy from the cluster of psychopathological variables. The results of these regressions revealed that delusional ideation was the only significant unique predictor of conspiracy beliefs ($\beta = .29, p < .01$ and $\beta = .27, p < .05$ for generalised and specific conspiracy beliefs respectively). Creating a combined scale of the schizotypal personality subscales and including this in the regressions instead again revealed that delusional ideation was the only unique predictor of both specific ($\beta = .27, p = .05$) and generalised ($\beta = .41, p < .01$) conspiracy beliefs. This suggests that it is odd beliefs and experiences associated with the psychopathological factors that predicts conspiracy thinking.

Discussion

As outlined in the Introduction, a number of predictor variables of conspiracy beliefs have been identified in past studies, however the degree to which any of them uniquely predict conspiracy belief has not been examined in a single study. Thus one aim of Study 2 was to explore a number of variables within a single population sample in terms of their ability to predict conspiracy beliefs. The finding that a large number of variables identified in individual studies remain significant in correlational analyses replicates previous findings. However, when clustering these variables together and including them in multiple regression analyses, several of these previously significant predictors fail to explain any unique variance in conspiracy belief. What this indicates is that there is a common element (or several) that underlies conspiracy thinking. Additionally, and importantly, these analyses provided further support for the argument that the scales (and constructs) relating to general and specific conspiracies are strongly related.

Clustering the predictor variables into the four categories of personality/interpersonal; socio-political; cognitive; and psychopathological factors

respectively was undertaken primarily for pragmatic reasons, but also made sense at a conceptual level. Of note, all of the predictor variables significantly correlated with one another within each of these categories barring the cognitive factor. The fact that the regression results were similar for the two conspiracy belief scales for three out of four of these clusters suggests that in these three areas at least, there is a common underlying element to the variables that predicts conspiracy thinking. The less straightforward relationship between conspiracy thinking and psychopathological variables was solved by including a total scale score instead of individual subscales for schizotypy. The multiple subscales and the potential of a suppression effect with excessive social anxiety appeared to mask the effects here. Consistent with the findings of Dagnall et al. (2015), it appears that the delusional features of schizotypy are what predicts conspiracy belief (hence the non-significant regression coefficient for total schizotypy scores in the final multiple regression). In addition, the non-significant result of anxiety in relation to conspiracy thinking is similar to that reported by Swami, Furnham, et al. (2016), who found that it is stress and not anxiety that predicts conspiracy belief.

The results for the cognitive predictors of conspiracy beliefs are less clear-cut. Of the ten inconsistent correlations of the initial fifty, five of these fell within the cognitive domain. Unsurprisingly, the two regressions for this cluster of variables were also inconsistent. Looking back at the correlations between these predictor variables, there were some non-significant relationships. What this shows is that while there are almost certainly cognitive predictors of conspiracy beliefs, the current study likely used too diverse a range of potential predictors in this category to effectively answer the question of whether a common cognitive element helps to explain conspiracy thinking. What the results did show, however, is that there are still important individual predictors such as a weaker preference for analytical thinking, a greater need for control, and a more unusual/subjective worldview (as evidenced by the relationship with fantasy proneness) that may be implicated in conspiracy belief, but further investigation is required in this area to identify common themes.

The fact that the predictors within the cognitive cluster displayed some inconsistent relationships also attests to the more tenuous link between these factors and conspiracy belief. As outlined in Chapter 1, one argument for this is because constructs such as control and a need for order and structure may display a stronger link with conspiracy thinking in situational (as opposed to dispositional) contexts. This may explain why these factors emerge as consistent predictors experimentally, but have generally failed to replicate when using survey designs measuring individual differences in these constructs. One valuable finding from this particular study is that significant relationships emerge between some variables (such as a need for cognitive closure) and conspiracy beliefs only when individual subscales are examined. This may be one factor that can explain why non-significant relationships here have been identified in the past.

Given these observations, the next question is naturally what might these common predictive elements be? Unfortunately, answering this specific question empirically is beyond the scope of the current study, but referring back to the theoretical propositions associated with the selected variables can help form some preliminary ideas. Of the personality and interpersonal factors, it appears that conspiracies appeal to those who feel angry and mistrustful of others. Of the socio-political factors, viewing the world as a negative place (be it a competitive jungle or a dangerous place) and feeling disconnected from prevailing social norms is associated with conspiracy beliefs. From a psychopathological point of view, it is likely that unusual ideas and experiences (as evidenced by the relationship with delusions and some aspects of schizotypy) drives conspiratorial thinking. Taken together, it appears that having a cynical and negative worldview, perceiving threat, and having unusual beliefs and perceptions that involve drawing connections where there are none may predispose some individuals to conspiracy beliefs. Conspiracies likely do appeal because they provide explanations for unpleasant predicaments, provide outgroups to blame, connect events, and almost act as a self-fulfilling prophecy that show suspicious and cynical individuals that no-one can be trusted.

The second main aim of Study 2 was to examine the ability of the predictor variables to predict specific versus generalised conspiracy beliefs. As a whole, there was a high degree of consistency between the two types of measure. In a pragmatic sense this finding supports the conclusion that the specific choice of conspiracy measure may not be critical, assuming it does tap in to conspiracy beliefs. However, such a conclusion may obscure the very real possibility that the driver of specific conspiracy beliefs is attributable to a more generalised belief of conspiracies. This seems more likely than vice versa (i.e., generalised conspiracy belief is driven by specific conspiracy beliefs). This is important theoretically, but is unlikely to impact the measurement of relationships between predictor variables and conspiracy thinking.

Although it does not appear to matter whether we use a generalised or specific conspiracy belief measure, there are still faults with using specific conspiracy theories which have already been raised by others (e.g., Brotherton et al., 2013). Because of the topical nature of conspiracy theories, geographical factors, and cultural familiarity, a generic conspiracy measure such as that created by Brotherton and colleagues, or else a generalised conspiracy measure such as that created in Study 1, appear to be the ideal choice. As already discussed in Chapter 2, in some ways attempting to measure a general propensity for conspiracy belief is preferable over the method chosen by Brotherton et al. Because they converted specific conspiracy theories into generic statements but still retained the general content of a given conspiracy (e.g., *'The government is involved in the murder of innocent citizens and/or well-known public figures, and keeps this a secret'*), one could argue that the items still conjure references to specific conspiracy theories in individuals and essentially end up measuring just that. Regardless, however, using more general measures is still preferable because it at least minimises some of the mentioned problems with using specific conspiracy theories.

In summary, the results of Study 2 have helped to address two important issues and provide unique theoretical contributions to the existing conspiracy belief literature. Results here provide strong evidence that it does not matter whether a generalised or specific conspiracy belief measure is used in the prediction of conspiracy belief, and even that one may predicate the other (although further empirical testing is required to

establish this). In addition, studying several potential predictor variables of conspiracy thinking in one sample shows that there is a common element/s underlying this belief system. These are very important conclusions for the future study of conspiracy beliefs. Having established a psychometrically sound generalised conspiracy belief measure and verifying that this is equivalent to a measure of real-world conspiracy beliefs, my next and last aim was to examine the impact of demographic variables (in addition to several important psychological predictors) on generalised conspiracy belief in the general population. This is discussed in Chapter 4.

Chapter 4

Conspiracy beliefs in the general population

Studies 1 and 2 have offered valuable insight into both the measurement of conspiracy beliefs and its potential antecedents. Study 1 outlined the development of two methods of measuring conspiracy thinking and provided unique evidence to support the argument that conspiracist ideation truly does represent a generalised construct. Study 2 built upon these findings to show that this construct can be captured by measuring endorsement of specific real-world conspiracies *or* by gauging one's attitude towards the frequency and viability of conspiracies in society. In fact, it is possible that the latter predicates the former and this is an appropriate avenue for future research (see Chapter 5). For the purposes of this thesis, however, Study 2 showed that predictors of conspiracy belief can be examined using just one of the scales developed in Study 1. The results of Study 2 also expanded on our current knowledge of the correlates of conspiracy thinking. They showed that when we examine a multitude of previously identified predictors of conspiracy belief in a single sample, these variables boil down to several common elements, which reveals there is no (as yet identified) single powerfully predictive psychological cause of conspiracy thinking. Rather, it is likely that psychopathological, socio-political, personality, and cognitive elements combine to explain individual differences in conspiracy belief.

One criticism that can be levelled at Studies 1 and 2 is the use of exclusively student samples. Although examining conspiracy beliefs in a university population provides a useful starting point, this examination must extend to the general population given the potential that distal factors such as demographics play a role in shaping these beliefs, combined with the need to evaluate the generalisability of any results obtained using student samples. Student samples are more homogenous in terms of demographics (e.g., there is very little variance in education levels in an undergraduate psychology course) and there is evidence to suggest that a typical university sample differs to the general population on some psychological constructs (Henrich, Heine, & Norenzayan, 2010; Sears, 1986). Consistent with this, one cannot simply assume that

the structure of conspiracy beliefs is the same in a more general population without empirical evidence (Sears, 1986). Therefore the aim of Study 3 was to validate the Generalised Conspiracy Belief Scale with a large general population sample, and to investigate some key psychological and demographic predictors of conspiracy beliefs in the general population.

An opportunity arose to administer the new Generalised Conspiracy Belief Scale and several psychological predictors identified in Study 2 in a large nationwide survey (details below). Now confident that this measure was just as reliable and valid as a real-world conspiracy belief survey in samples of undergraduate students, I was able to use this single scale to see if similar patterns with predictors generalised to the wider population. Because of the more diverse nature of the sample I was also able to explore whether these psychological variables still predicted conspiracy thinking while also investigating demographic variables including age, sex, minority ethnicity status, education, and income. There has been evidence in the literature to suggest that minority status is related to conspiracy belief (e.g., Abalakina-Paap et al., 1999; Crocker et al., 1999; Goertzel, 1994) and education has certainly been identified as a negative predictor of conspiracy thinking (Douglas et al., 2016; Goertzel, 1994; Oliver & Wood, 2014; van Elk, 2015), so these same relationships were expected in this study. The majority of evidence suggests that there is no sex difference in conspiracy beliefs (e.g., Bruder et al., 2013; Darwin et al., 2011; Jolley & Douglas, 2014a, 2014b), but I elected to examine it in the interests of replication. Age has typically displayed a negative relationship with conspiracy thinking or else no relationship at all (e.g., Brotherton & Eser, 2015; Goertzel, 1994; Jolley & Douglas, 2014b; Swami, Furnham, et al., 2016; Swami, Weis, et al., 2016). Two studies (Imhoff & Bruder, 2014; van Prooijen & Jostmann, 2013), however, have identified a weak *positive* correlation between age and conspiracy beliefs, therefore the role of age in predicting conspiracy thinking is still inconclusive. Lastly, there has been little investigation of the effects of income on conspiracy thinking, but one could argue that this would be a negative predictor if conspiracies partly appeal because they act to provide explanations for disadvantaged

positions. In support of this, Furnham (2013) did report a negative association between conspiracy belief and self-reported wealth.

Because conspiracy beliefs were not the focus of this nationwide survey, not all of the identified predictors from Study 2 could be included. However, several important variables were still able to be examined: aggression, anomie, anxiety, competitive and dangerous worldviews, paranoid ideation, RWA, SDO, and interpersonal trust. A negative association between interpersonal trust and conspiracy belief scores was expected, while positive associations were expected between all of the remaining predictor variables and conspiracy belief. Given that the results of the multiple regression analyses in Study 2 showed that only one or two variables in a given domain explained unique variance in conspiracy thinking, predictions regarding the findings here remained open.

Study 3

Method

Participants and Procedure

Full demographics for the sample can be seen Table 13. Participants were 1,581 individuals who ranged in age from 16 to 85 years, with a mean age of 53.77 ($SD = 14.41$). Given that the typical mean age of the samples for Studies 1 and 2 was approximately 19.5 years with a maximum standard deviation of 4, this current sample is older and more diverse in terms of age. However, of the total sample, only 418 provided responses for age, so this particular demographic will not be used in multiple regression analyses (as including this variable would substantially decrease the degrees of freedom for all of the included predictor variables). The median education level for the sample was a completed tertiary qualification, and the most common tertiary qualification was an arts/humanities degree. The sample comprised of predominantly professional or managerial workers, with a median income level of \$40,001 to \$60,000 per annum. The majority of the sample (80%) identified as New Zealand European. The sample was more diverse than that found in a typical university sample, however

participants in this study were highly educated and more highly paid than the general broader New Zealand population (Statistics NZ, 2013a, 2013b). Participants completed the measures as part of a broader nationwide survey investigating politics and psychology, called the Brainscan survey (Wilson, 2011). This survey was administered online using the SurveyMonkey® program and was advertised via the Sunday Star Times – a national newspaper and news website (see Milfont, Richter, Sibley, Wilson, & Fischer, 2013; Study 4 of Ruffman et al., 2016 for further detail about recruitment of participants). Overall, approximately 5,900 individuals participated in the survey, of whom 1,581 were presented with the Conspiracy Belief measure relevant to this research. Participants were able to read an information sheet prior to completing the survey, and summary statistics were presented to the public through a Sunday Star Times article and a publicly accessible document. Ethical approval was granted for this study by the Victoria University of Wellington School of Psychology Human Ethics Committee.

Table 13.

Demographics of the sample used in Study 3.

| Demographics | Percentage |
|---|------------|
| Gender | |
| Male | 40.1 |
| Female | 57.3 |
| Other | .3 |
| Ethnicity | |
| New Zealand European | 80.0 |
| Māori | 4.0 |
| Other | 13.7 |
| Employment status | |
| Employed | 79.8 |
| Unemployed | 20.1 |
| Nature of employment | |
| Professional or managerial | 51.9 |
| Clerical/sales/service worker | 13.0 |
| Technical, craftsman, or skilled trades | 6.1 |

| Demographics | Percentage |
|---|------------|
| Manual worker/semi-skilled/labourer | 3.0 |
| Income | |
| Up to \$20,000 a year (\$384 a week) | 18.0 |
| \$20,001 to \$40,000 a year (\$385 - \$769 a week) | 18.2 |
| \$40,001 to \$60,000 a year (\$770 - \$1,153 a week) | 18.2 |
| \$60,001 to \$100,000 a year (\$1,154 - \$1,923 a week) | 26.0 |
| \$100,001 to \$150,000 a year (\$1,924 - \$2,884 a week) | 7.8 |
| More than \$150,000 a year (\$2,885 or more a week) | 5.6 |
| Education | |
| Left school before or during 5 th form ^a | 3.9 |
| Completed 5 th form, then left school | 7.5 |
| Left school before or during 7 th form ^b | 6.9 |
| Completed 7 th form | 3.7 |
| One or more years of study towards a qualification at a polytechnic or university | 20.3 |
| Completed Bachelors degree/Trade Certificate /Advanced Trade Certificate | 32.5 |
| Completed a Postgraduate degree | 22.3 |
| Area of tertiary study | |
| Arts/Humanities | 26.5 |
| Science/Engineering | 16.3 |
| Medicine | 6.5 |
| Law | 5.9 |
| Commerce | 15.1 |
| Education | 10.9 |
| Other | 12.4 |

Note. In cases where percentages do not add up to 100 this was due to missing data.

^a5th form refers to a secondary school year, comprising approximately 15-year old students. Now known as Year 11.

^b7th form is the final year of secondary school, comprising approximately 17-year old students. Now known as Year 13.

Measures

Generalised Conspiracy Belief. The eight-item Generalised Conspiracy Belief Scale developed in Study 1D, and further validated in Study 2, was used here. The eight items were subject to CFA, producing an almost satisfactory fit: $\chi^2 (27) = 369.13, p < .001$; $\chi^2/df = 13.67$; CFI = .92; SRMR = .05; and RMSEA = .09 [CI = .08 - .10]. Modification indices suggested significant improvement in model fit by allowing the error term for reverse-coded item 4 (*'In general, nobody is conspiring to dupe or fool the average citizen'*) to correlate with those for reverse-coded item 7 (*'Seeing a conspiracy behind many events is the result of an overly active imagination – explanations offered by the authorities are much more likely'*) and item 3 (*'Despite what the authorities say, large businesses and/or the government routinely engage in sinister, secret activities in the name of profit'*): $\chi^2 (25) = 194.82, p < .001$; $\chi^2/df = 7.79$; CFI = .96; SRMR = .04; and RMSEA = .07 [CI = .06 - .07]. The scale demonstrated good internal reliability ($\alpha = .85$). Scores on the scale ranged from 1.00 – 7.00, with neutral levels of generalised conspiracy belief in the sample ($M = 3.50, SD = 1.12$). This is very comparable to that obtained using the student samples in Studies 1 and 2.

Predictors. Shortened versions were used for the predictor variables in the interests of enabling a survey of a large variety of psychological constructs and minimising participant fatigue. Unless stated otherwise, items for these shortened scales were selected in one of two ways. In instances where individualised factor loadings or item-total correlations were available in the original scale creation papers, I chose items with the highest loadings or correlations as reported in the paper. When this information was not provided I undertook a PCA using the data collected in Study 2 and chose items with the highest component loadings. In cases where the scale contained a mixture of pro- and contraitem items, I ensured the highest loading negative item was also selected (even if this was not the highest loading item of the overall scale) to maintain a balance in the abbreviated scale. If a scale contained subscales then I selected items from each subscale. The items comprising each scale can be seen in Table 14.

For all scales below barring the paranoia measure, responses were made on a 1 – 7 Likert scale. Paranoid ideation was measured on a 1 – 5 Likert scale. Contrait items were recoded and higher scores indicated higher levels of the construct in question. As can be seen in Table 14, the sample as a whole reported low to average levels of aggression, anomie, anxiety, competitive worldview, paranoia, RWA, and SDO. Dangerous worldview and trust were in the upper limits of the moderate range.

Results

To determine what factors may play a role in predicting conspiracy belief and in order to select variables to include in a regression analysis, I first examined the relationships and group differences associated with Generalised Conspiracy Belief Scale scores. There was a significant difference for conspiracy belief between females ($M = 3.43$, $SD = 1.09$) and males ($M = 3.58$, $SD = 1.16$), $t(1538) = 2.57$, $p = .01$, however this effect was weak (Cohen's $d = 0.13$). For ethnicity I elected to create two groups – one group of NZ Europeans and the other containing all other ethnicities, with the argument that this group could be viewed as representing minority status. Comparing conspiracy beliefs between these two groups is problematic because of unequal group sizes, but a t-test assuming unequal variances revealed a significant difference, $t(424.48) = 2.65$, $p < .01$. NZ Europeans displayed lower levels of conspiracy belief ($M = 3.46$, $SD = 1.13$) than the other ethnic groups ($M = 3.66$, $SD = 1.09$). Again, this effect was weak (Cohen's $d = .18$). The correlation coefficients between the continuous predictor variables and conspiracy belief can be seen in Table 15. All predictor variables correlated significantly and weakly with generalised conspiracy belief except for SDO, which was not related to conspiracy thinking in this sample. As would be expected, education, income, and trust all correlated negatively with conspiracy belief scores, while the remaining variables correlated positively. The positive but weak correlation between age and conspiracy belief was somewhat surprising but not entirely inconsistent with previous results.

Table 14.

Abbreviated scales used in Study 3.

| Scales and items | Range | Reliability |
|---|-------------|---|
| Aggression (Buss & Perry, 1992) | | |
| 1. If I have to resort to violence to protect my rights, I will. | | |
| 2. Given enough provocation, I may hit another person. | | |
| 3. When people are especially nice to me, I wonder what they want. | | |
| 4. At times I feel I have gotten a raw deal out of life. | | |
| 5. I am an even-tempered person. | | |
| 6. Sometimes I fly off the handle for no good reason. | | |
| Scale mean = 3.23 (<i>SD</i> = 1.01) | 1.00 – 6.17 | $\alpha = .63$ (<i>rs</i> = .24 - .45) |
| Anomie (Srole, 1956) | | |
| 1. Most public officials/organisations are not interested in the average person. | | |
| 2. The situation of the average person is getting worse. | | |
| 3. It is hardly fair to bring a child into today's world. | | |
| Scale mean = 3.87 (<i>SD</i> = 1.04) | 1.00 – 7.00 | $\alpha = .37$ (<i>rs</i> = .17 - .27) |
| Anxiety (Zung, 1971) | | |
| 1. I feel afraid for no reason at all. | | |
| 2. I feel like I'm falling apart and going to pieces. | | |
| 3. I get upset easily or feel panicky. | | |
| Scale mean = 2.57 (<i>SD</i> = 1.22) | 1.00 – 7.00 | $\alpha = .71$ |
| Competitive Worldview (Duckitt, 2001) | | |
| 1. It's a dog-eat-dog world where you have to be ruthless at times. | | |
| 2. Life is not governed by the 'survival of the fittest.' We should let compassion and moral laws be our guide. | | |
| Scale mean = 3.30 (1.29) | 1.00 – 7.00 | $r = .35^{**}$ |
| Dangerous Worldview (Duckitt, 2001) | | |
| 1. There are many dangerous people in our society who will attack someone out of pure meanness, for no reason at all. | | |

| Scales and items | Range | Reliability |
|---|-------------|----------------|
| 2. Despite what one hears about "crime in the street," there probably isn't any more now than there ever has been. | | |
| Scale mean = 4.42 (1.50) | 1.00 – 7.00 | $r = .33^{**}$ |
| Paranoid Ideation (Freeman et al., 2005) | | |
| 1. I need to be on my guard against others. | | |
| 2. Negative comments are being circulated about me. | | |
| 3. Strangers and friends look at me critically. | | |
| Scale mean = 2.02 (.79) | 1.00 – 5.00 | $\alpha = .73$ |
| RWA (Altemeyer, 1981) | | |
| 1. What our country really needs is a strong, determined leader who will crush evil, and take us back to our true path. | | |
| 2. Obedience and respect for authority are the most important virtues children should learn. | | |
| 3. Once our government leaders give us the "go ahead", it will be the duty of every patriotic citizen to help stomp out the rot that is poisoning our country from within. | | |
| 4. Everyone should have their own lifestyle, religious beliefs, and sexuality, even if it makes them different from everyone else. | | |
| 5. There is nothing wrong with premarital sexual intercourse. | | |
| 6. Some of the best people in our country are those who are challenging our government, criticising religion, and ignoring the "normal way" things are supposed to be done. | | |
| Scale mean = 2.88 (1.06) | 1.00 – 6.67 | $\alpha = .71$ |
| SDO (Pratto et al., 1994) | | |
| 1. It is OK if some groups have more of a chance in life than others. | | |
| 2. Inferior groups should stay in their place. | | |
| 3. To get ahead in life, it is sometimes okay to step on other groups. | | |
| 4. We should have increased social equality. | | |
| 5. It would be good if groups could be equal. | | |
| 6. We should do what we can to equalise conditions for different groups. | | |
| Scale mean = 2.63 (1.04) | 1.00 – 6.00 | $\alpha = .76$ |
| Trust (adapted from the Trust scale used by Goertzel, 1994) | | |

| Scales and items | Range | Reliability |
|--|-------------|--|
| 1. Generally speaking, I can trust the people around me. | | |
| 2. I feel I can trust the police. | | |
| 3. Generally speaking, I don't trust politicians. | | |
| Scale mean = 4.67 (1.28) | 1.00 – 7.00 | $\alpha = .46$ (corrected item-total r s = .26 - .35) |

** $p < .001$

Table 15.

Correlations between Generalised Conspiracy Belief Scale scores and predictor variables.

| Predictor variable | <i>r</i> |
|-----------------------|----------|
| Age | .21** |
| Education | -.21** |
| Income | -.15** |
| Aggression | .23** |
| Anomie | .32** |
| Anxiety | .16** |
| Competitive Worldview | .10** |
| Dangerous Worldview | .22** |
| Paranoid ideation | .19** |
| RWA | .22** |
| SDO | .04 |
| Trust | -.33** |

Note. ns for the scale variables ranged from 418 - 1581** $p < .01$

Consistent with the results of Study 2, it is likely that there is commonality that underlies some of these identified relationships with conspiracy beliefs, and therefore a multiple regression analysis was performed. I elected to perform a hierarchical multiple regression, entering the significant demographic predictors (education, income, sex, and ethnicity) as the first block and the remaining psychological predictors as the second. This is because, logically, the demographic factors are more likely to exert an effect on the psychological variables rather than vice versa, so it makes sense to account initially for the effects of the demographics. This first block explained 6% of the variance in conspiracy beliefs ($R^2 = .06$), $F(4, 1408) = 21.95$, $p < .001$. All standardised regression coefficients are presented in Table 16. As can be seen, all of the demographic variables were significant predictors of conspiracy belief in the first block, although the magnitude of effects were weak. The second block explained an additional 18% of the variance in conspiracy beliefs, $\Delta R^2 = .18$, $F(8, 1400) = 41.46$, $p < .001$. Here, education remained the only significant demographic predictor, indicating that sex, ethnicity,

income, and even education to an extent, have their effects on conspiracy belief indirectly, via their impact on the psychological predictors. Of these psychological predictors, aggression, anomie, dangerous worldview, paranoid ideation, RWA, and distrust were significant predictors of conspiracy belief.

Table 16.

Standardised regression coefficients for all demographic and psychological predictors of Generalised Conspiracy Belief Scale Scores.

| Predictor variable | β s (Block 1) | β s (Block 2) |
|-----------------------|---------------------|---------------------|
| Education | -.18*** | -.08** |
| Ethnicity | .06* | .004 |
| Income | -.11*** | -.04 |
| Sex | .07* | .04 |
| Aggression | | .06* |
| Anomie | | .17*** |
| Anxiety | | .05 |
| Competitive Worldview | | -.03 |
| Dangerous Worldview | | .07** |
| Paranoid ideation | | .10*** |
| RWA | | .15*** |
| Trust | | -.23*** |

* $p < .05$, ** $p < .01$, *** $p < .001$

Excluding the non-significant predictors of conspiracy thinking, one last hierarchical multiple regression was performed, regressing conspiracy belief onto a first block containing education and a second block of psychological predictors (aggression, anomie, dangerous worldview, paranoid ideation, RWA, and trust). The first block explained 4% of the variance in conspiracy beliefs ($R^2 = .04$), $F(1, 1478) = 66.82$, $p < .001$, and adding the second block of psychological predictors explained an additional 20% of the variance, $\Delta R^2 = .20$, $F(7, 1471) = 55.33$, $p < .001$. Overall, the

variables explained 24% of the variance in conspiracy belief. As can be seen in Table 17, education and trust were significant negative predictors of belief in conspiracies. Aggression, anomie, dangerous worldview, paranoid ideation, and RWA all positively predicted general conspiracy belief.

Table 17.

Standardised regression coefficients for significant demographic and psychological predictors of Generalised Conspiracy Belief Scale Scores.

| Predictor variable | β s (Block 1) | β s (Block 2) |
|---------------------|---------------------|---------------------|
| Education | -.21*** | -.09*** |
| Aggression | | .09** |
| Anomie | | .18*** |
| Dangerous Worldview | | .07** |
| Paranoid ideation | | .10*** |
| RWA | | .16*** |
| Trust | | -.23** |

* $p < .05$, ** $p < .01$, *** $p < .001$

Discussion

The aim of Study 3 was to examine several demographic and psychological predictors of conspiracy belief in a more diverse, general population sample. This provided an opportunity to study the effects of demographics upon conspiracy thinking as well as a chance to confirm that the results obtained in Study 2 would generalise to the wider population. Although the sample in Study 3 was more highly educated and highly paid than New Zealanders as a whole, it still provided more diversity than an undergraduate student sample to warrant this investigation. There are two main results to take away from this study. First, the structure of generalised conspiracy belief identified using student samples generalises to a more representative, general population sample, as evidenced by the CFA results. This shows that the Generalised Conspiracy Belief Scale is a valid and reliable measure that can be widely used.

Secondly, demographic variables explain a small portion of variance in conspiracy thinking on their own, but mostly exert their effects on this construct via their impact on other, more proximal, psychological predictors of conspiracy belief.

Consistent with predictions, when analysed in isolation, demographic variables of education and income were negatively related to conspiracy belief. This is consistent with three theoretical propositions regarding the potential causes of conspiracy belief: 1) those who are in disadvantaged positions are more likely to endorse conspiracies because they provide explanations for undesirable predicaments; 2) conspiracies provide a scapegoat to blame; and 3) conspiracy theories appeal more to those with lower levels of critical thinking or intelligence (if one is to accept that education is an acceptable proxy for these constructs). The effects of sex and ethnicity identified here were very weak and could be considered negligible. The near null effect of sex is consistent with previous literature, while the weak ethnicity effect could be explained in one of three ways. First, ethnic disparities in a New Zealand context may not be as extreme as that found in other countries such as the U.S. (where many investigations of conspiracy belief have taken place) and thus do not manifest in differing levels of conspiracy thinking (compare to Bird & Bogart, 2005; Crocker et al., 1999; Goertzel, 1994 for instance). Second, the sample in the present study comprised too small and unequal a comparison of minority status to reveal significant differences in conspiracy belief. Third, higher levels of conspiracy theory endorsement among minorities have typically been identified in studies using real-world conspiracy belief measures. Several of these reference conspiracy theories pertaining to minorities (e.g., *'The government deliberately spread the AIDS virus in the black community'* and *'Family planning policies are part of a plot to control and limit certain populations'*). It is likely that minorities are more likely to believe in conspiracy theories targeting them, so this could inflate conspiracy belief scores amongst these individuals. It may be that using a generalised conspiracy belief measure such as the one used in this study weakens this effect. This provides another reason why a generalised measure of conspiracy belief is preferable real-world conspiracy belief scales.

Also consistent with Study 2, all of the psychological variables barring SDO predicted conspiracy belief in the expected direction. This shows that the identified psychological predictors of conspiracy thinking generalise to a broader population. The null relationship between SDO and conspiracy beliefs is not consistent with the results of Study 2, but this may simply be due to an issue such as the use of a significantly shortened measure of SDO. Previous literature certainly suggests that this is a one-off finding, with conspiracy beliefs correlating with a full-scale measure of SDO (Wilson & Rose, 2014).

Combining the demographic and psychological variables together in a hierarchical multiple regression revealed that nearly a quarter of variance in conspiracy belief was explained by these factors. When removing the shared variance of these predictors, income, sex, ethnicity, anxiety, and a competitive worldview no longer uniquely predicted conspiracy beliefs. Aggression, anomie, a dangerous worldview, paranoid ideation, and education remained significant predictors but were all weak. These results tell us several things. First, the finding that several variables become non-significant predictors of conspiracy thinking when surveying a broad range of factors again shows that there are common elements to these that predict conspiracy belief. Second, the remaining unique predictors of conspiracy thinking confirm that one of these common elements, at least, represents a hostile, suspicious, cynical, and threat-based worldview. Third, demographic variables do impact conspiracy beliefs, but their unique effect is very small, and their effect works indirectly by impacting psychological predictors of conspiracy thinking. Lastly, using a large and more representative sample, the results demonstrate that the effects of individual predictors on conspiracy belief are weak at best, and there is no single explanatory construct for this belief system. One additional message to take away from Study 3 is that the Generalised Conspiracy Belief Scale yet again proved to be a reliable and valid scale, this time demonstrated with a more general population.

Of course there are limitations with the current study that need to be considered. Confirming that these effects occur with a fully representative sample would be ideal. Given previous findings indicating that minority status plays a direct

role in conspiracy belief above and beyond psychological factors suggests that the impact of this demographic factor may not have been adequately measured. At the very least, it would be important to know whether minority status differences exist when comparing equal group sizes and using a more general measure of conspiracy thinking. In addition, the role of education could usefully be elucidated by including more cognitive constructs such as hypersensitive agency detection or analytical thinking. Preliminary results from Douglas et al. (2016) suggest that factors such as these may help to explain the relationship between low levels of education and greater endorsement of conspiracy beliefs and thus a more complete analysis is required. Related to this, it must be acknowledged that a limited selection of predictor variables were used in this study and thus a fully comprehensive account of conspiracy thinking in a large general population sample was not possible. This would form the ideal next step for future research.

Despite these limitations, Study 3 provided useful insights into the prediction of conspiracy belief. Yet again the importance of analysing a range of variables in relation to conspiracy thinking simultaneously was demonstrated. This allows for a more accurate understanding of the common features that can lead to greater conspiracy belief. The importance of taking demographic factors into account was also established, and the need for more complex model testing is indicated given the indirect impact of some of these variables. Lastly, Study 3 showed that the use of the Generalised Conspiracy Belief Scale in measuring conspiracy thinking generalised to a more diverse population and gives promise to the use of this measure in future research.

Chapter 5

Conspiracy beliefs: Conclusions, implications, limitations, and future directions

When I began my research investigating conspiracy beliefs I was motivated by the simple desire to understand why people could come to believe in “strange” things. I began with an interest in understanding the psychological foundations of paranormal beliefs (Irwin, 2009), including religion (Tobacyk & Milford, 1983). To me, I could understand why some individuals may hold these beliefs – they offered not only explanations for otherwise inexplicable events and predicaments, but also a degree of comfort. To believe that there is a greater purpose and that everything happens for a reason is a comforting thought. Going down this path of research led to what was at the time, a very small body of psychological research focusing on the causes of conspiracy thinking. Like paranormal beliefs, believing in conspiracies was viewed by many as eccentric or non-normative. Similarly, conspiracy theories also provided explanations for significant events and situations. But the striking difference to me was that I could not see how believing in conspiracies could provide comfort. Gods can be petitioned for miracles, clairvoyants offer the hope of picking this week’s lottery numbers, but no-one conspires to do good. There are no conspiracy theories carrying messages of hope or stories of good deeds. So why would some individuals believe these alternative versions of events in the face of more benign explanations? My interest was piqued and I commenced my research with the aim of understanding what psychological factors contributed to conspiracy beliefs.

Overview of studies, conclusions, and contributions

Ironically, perhaps the most interesting findings of my research program have been less about the foundations of conspiracy belief, and more about the tools we should use in addressing these questions. At the time of commencing this research, and still to a large extent even now, the psychological predictors of conspiracy thinking have overwhelmingly been investigated in the context of specific conspiracy beliefs, assuming that because these beliefs cluster together they must form a single generalised belief system. By far the most common way to measure conspiracy thinking

has been to gauge participants' endorsement of a number of specific real-world conspiracies (e.g., Dagnall et al., 2015; Darwin et al., 2011; Goertzel, 1994; Swami et al., 2010) and these have overwhelmingly been treated as unidimensional measures. Another, less common, approach to measuring conspiracy beliefs has been to attempt to measure the general attitude towards the existence and viability of conspiracies as common explanations for events (e.g., Abalakina-Paap et al., 1999). There was no widely adopted scale to measure conspiracy thinking and there were hints in the literature that there may be a more complex structure to these beliefs than purely a unidimensional explanation.

Thus, before beginning an investigation of the psychological predictors of conspiracy thinking an adequate analysis of the structure of these beliefs needed to be undertaken and a suitable measure developed. This formed the aim of Study 1 (Chapter 2). I chose to develop two scales: one measuring belief in specific real-world conspiracies and another measuring the generalised propensity to engage in conspiracy thinking. There was a possibility (see Abalakina-Paap et al., 1999) that specific conspiracy beliefs and a generalised tendency to believe in conspiracies were separate constructs and this possibility needed to be tested empirically. In addition, I have discussed issues with assessing endorsement of idiosyncratic, situation, and time-specific conspiracy theories to measure conspiracy belief. To address these issues Study 1 examined the establishment, reliability and validity of both a Specific and a Generalised Conspiracy Belief Scale.

The results of this study provided preliminary evidence that both approaches produced psychometrically sound measures of conspiracy belief. The EFA results for the Specific Conspiracy Belief Scale showed that while these beliefs can be used to form a unidimensional reliable factor encompassing belief in all of the conspiracy theories, this masks a more complex picture, with multidimensional clusters of quasi-independent conspiracy beliefs. Taking an existing approach to testing theoretical models of the belief structure of intimate relationship evaluations (Fletcher et al., 2000) and applying these to specific conspiracy beliefs, I was able to show via CFA that a higher-order factorial structure best represented conspiracy thinking. That is, instead

of being uncontestably unidimensional in nature, specific conspiracy beliefs, at least, cluster into semi-distinct groupings which are dictated by an overarching and all-encompassing 'conspiracy belief' factor. While this finding has practical utility for research on conspiracy belief, it is also a significant theoretical contribution to the existing conspiracy belief literature because it advances our knowledge of how conspiracy beliefs are cognitively stored and represented. It is also consistent with a view that conspiracy beliefs comprise multiple facets (Brotherton et al., 2013) or that conspiracy belief is encompassed by higher-order beliefs about the world such as a belief in regular cover-ups (Wood et al., 2012). Pragmatically, this result is important because it shows that we as researchers can choose between using an overall scale of real-world conspiracy beliefs, or else individual subscales if that more appropriately addresses a given research question. Lastly, Study 1 addressed issues identified with the first attempt to create a generalised measure of conspiracy thinking by examining a more robust measure. EFA and CFA results suggested that this new Generalised Conspiracy Belief Scale was a psychometrically sound measure. Scores on the Specific and Generalised Conspiracy Belief Scale correlated strongly and positively, but the question remained as to whether these scales could be used interchangeably to measure conspiracy thinking.

Demonstrating that these scales measure the same, or different, constructs has important implications for the understanding of what predicts conspiracy belief. If two scales do indeed measure the same underlying construct, they should correlate in similar ways with other variables. Although the limited range of convergent and discriminant validity analyses in Study 1 were suggestive, this possibility needed to be addressed more comprehensively. Therefore, a comparison of the relationships between various conspiracy predictor variables and the Generalised Conspiracy Belief Scale versus the Specific Conspiracy Belief Scale was conducted in Study 2 (Chapter 3). Concurrent with this, I began my research investigating potential psychological predictors of conspiracy thinking. In the critical analysis of the literature (Chapter 1) I argued that a number of empirically demonstrated predictors of conspiracy belief can be categorised in to four main clusters or groups: socio-

political/personality/interpersonal factors; psychopathological factors; cognitive factors; and uncertainty and control. However, these categories and associated theoretical propositions are not necessarily mutually exclusive and represent the diversity of variables that have been identified as predicting conspiracy thinking. Because previous studies have tended to explore these variables piecemeal, in isolation and to different degrees, the relative importance of domains, and indeed individual variables, had not yet been fully explored. Such an approach is to be expected in the infancy of a new area of research. Therefore, a comprehensive analysis of the role played by a broad selection of potential predictor variables on their own and as part of domain groupings needed to be performed within the context of a single population study. This issue formed the second aim of Study 2.

The results of Study 2 contributed interesting and unique insights into conspiracy beliefs as a psychological construct. The finding that a large number of variables identified in individual studies remained significant in correlational analyses replicated previous findings. In addition, some new predictive constructs such as dogmatism and fantasy proneness were identified. Multiple regression analyses with the Generalised and Specific Conspiracy Belief Scales predicting each of these individual variables demonstrated unequivocally that it is the common variance these two scales share that drives these relationships. This is an important contribution to the literature, because up until now, the question remained open as to whether these two approaches of measurement were equivalent. From a practical point of view, the results of Study 2 show that the specific choice of conspiracy measure may not be critical, assuming it does tap in to conspiracy beliefs. However, such a conclusion may obscure the very real possibility that some psychological drivers of specific conspiracy beliefs are predicated upon a more generalised belief of conspiracies. This is important theoretically, but is unlikely to impact the measurement of relationships between predictor variables and conspiracy thinking. Nevertheless, this will be an important future direction for research, best tested with longitudinal survey methods. A second major contribution to the literature, therefore, is the development of a single generalized conspiracy belief measurement scale that can be utilized across different studies, with the knowledge

that this functions as a broad-brush instrument that in most circumstances is equivalent to more situation-specific conspiracy measures.

Examining how conspiracy beliefs related to clusters of significant predictors (personality and interpersonal; socio-political; cognitive; and psychopathological factors) provided another valuable insight in to our understanding of the causes of conspiracy thinking. When grouping these variables together, several previously significant correlates of conspiracy belief failed to uniquely predict scores on the conspiracy belief scales. Importantly, this showed that it is a common element (or several elements) among these variables that explains conspiracy thinking, rather than any one single factor. The fact that the effect of any individual predictor was weak at best attests to this finding. The commonality among each group of variables is consistent with several theoretical propositions regarding the causes of conspiracy thinking. These include the view that conspiracy theories provide explanations for undesirable situations; act as an outlet for hostility and provide a scapegoat to blame; result from a worldview that is mistrustful, cynical, and receptive to threat; and are predicated by unusual ideas and experiences.

Finally, the validity of the Generalised Conspiracy Belief Scale and the relationships between a subset of key predictor variables (identified in Study 2) and conspiracy beliefs in the context of a wider population sample was a focus of Study 3 (Chapter 4). By using a large New Zealand-wide sample, Study 3 also broadened the scope of the thesis to examine the potential influence of key demographic variables in addition to psychological variables in the establishment of conspiracy beliefs. This last study also represents one of the few, and certainly the largest, New Zealand-based investigations of the psychological predictors of conspiracy thinking, and is among the largest investigations internationally. Results of this study revealed that demographic variables play a relatively small part in predicting conspiracy beliefs on their own, and work mostly through indirect relationships with the key psychological predictors of conspiracy beliefs. The analysis of several important variables in relation to conspiracy thinking again showed that it is the commonality underlying these that explains this construct rather than any one single factor. Lastly, and importantly, Study 3 showed

that the findings from Studies 1 and 2 generalise to a broader, more representative, sample.

Implications

The results of this thesis highlight a number of broader theoretical implications. The most fundamental of these pertains to the structure of conspiracy beliefs. Now that we have established that beliefs in specific conspiracy theories are encompassed by a broader, overarching ‘conspiracy belief’ factor, several issues remain to be addressed in more detail. Wood et al. (2012) argued that belief in any given conspiracy theory is generated by an overarching conspiracist worldview that is comprised of general higher-order beliefs such as the notion that officials routinely engage in cover-ups. It is likely that both the higher-order factor encompassing the semi-independent groups of real-world conspiracy beliefs and the Generalised Conspiracy Belief Scale both measure this worldview. But this possibility still requires further evidence. A comprehensive investigation of how both of these factors relate to beliefs about the world such as routine cover-ups and deception by authorities will help to elucidate this. It is also likely that conspiracist ideation comprises other higher-order beliefs (Wood et al., 2012), and a similar examination of a large sample of general (as opposed to specific) conspiracy items using EFA and second-order CFA could help to reveal any potential clusters of these beliefs. Lastly, a CFA of the second-order factorial structure of specific conspiracy beliefs is worth replicating using a general population sample to be certain this belief structure extends beyond a student sample. Regardless, the results indicate that belief in any given conspiracy theory is generated by an overarching conspiracist worldview, rather than an accumulation of scenario-specific conspiracy beliefs.

Another broader implication of the results of this thesis lies in the groupings of predictor variables in relation to conspiracy beliefs. The critical review of psychological studies in the conspiracy belief area in Chapter 1 revealed that the predictors of conspiracy beliefs can be assigned to several clusters or groupings. These were categorised into personality and interpersonal factors; socio-political factors; cognitive factors; and psychopathological factors for the purposes of Study 2. Results from this

study showed that many of the predictive variables are individually correlated with conspiracy beliefs when examined in a single population. However, when examined using regression analyses the general conclusion was that there is a commonality of variance between many of these predictors, suggesting a common construct underlying them. However, these analyses in Study 2 (using a student population) and Study 3 (with a general population) also illustrated that at least one variable from each grouping remained uniquely predictive of conspiracist ideation. This is a finding consistent with the possibility that although there is commonality between the predictive variables, that commonality sits within several groupings rather than across *all* individual variables. Therefore, working towards understanding the causes of conspiracy beliefs from a number of psychological domains is still a valid and necessary approach, but that attention should focus on identifying the common elements within these groupings rather than treating predictors in isolation as has more commonly been the case.

The weak effects of individual predictor variables combined with Study 3 showing that demographic variables affect conspiracy thinking indirectly indicates that the interactions and mediating effects of variables need to be taken into account when predicting conspiracy beliefs. This is not to say that steps in this direction have not already been undertaken (e.g., see Douglas & Sutton, 2011; Swami et al., 2010; van Prooijen, 2016; Wood et al., 2012). However, because of the relative infancy of the conspiracy belief research, such studies have generally been conducted within a single given domain (e.g., the effects of control and perspective-taking upon conspiracy beliefs). Comprehensive examinations selecting variables *across* multiple domains (e.g., cognitive, socio-political, and psychopathological) may prove more elucidating. These are just a few examples of the implications of the results from this thesis, but they show that careful consideration in the measurement of a construct before investigation into its predictors even begins is crucial. The complex relationship between predictor variables also needs to be considered.

Limitations and future directions

As with any research, there are of course limitations associated with the studies comprising this thesis. I will address what I consider to be the three most important concerns. Given the relative youth of the research area, the focus across the three studies has been on understanding the basic relationships between various predictor variables and conspiracy beliefs. The causes or development of conspiracy thinking as a construct have not been examined. Although in a logical sense, one can assume that some variables act causally upon conspiracy beliefs (and other psychological constructs) without experimental or longitudinal designs, the majority of predictors used in this research do not satisfy this argument. For example, it would be safe to assume that level of education or minority ethnic status exert effects upon conspiracist ideation as opposed to the other way around, but the same cannot be said for psychological variables such as aggression or trust. Believing that conspiracies exist might just as easily *lead* to aggressive and mistrustful outlooks on life, vice versa, or a combination of both. A mix of longitudinal and experimental studies to track the development of conspiracy beliefs and the impact of manipulating potential causal variables would be the approaches required to examine this. My studies have pointed to some useful starting points in this regard. For example, based on my findings one might expect that variables related to socio-political views, psychopathology, and personality features all independently do not just predict, but contribute, to the development of conspiracy beliefs. What is not known is the degree to which they may interact when such variables co-occur in a given population – if you are paranoid *and* mistrusting, then one might expect you to be particularly prone to conspiracy belief, for example. Less clear is the contribution of cognitive variables, which have tended to be more inconsistent with respect to establishing a clear relationship between cognitive factors and conspiracy beliefs (e.g., Abalakina-Paap et al., 1999; Moulding et al., 2016) and will be discussed in more detail below.

The second limitation to be considered is the measurement of the cognitive factors in relation to conspiracy belief, and to a certain extent, their classification. The assignment of variables (and associated theoretical propositions) to various domains

was not always clear-cut, but was necessary in order to impose a degree of structure in the prediction of conspiracy beliefs. Some of the “cognitive” variables I identified could have just as easily been treated as personality or even socio-political variables (e.g., spheres of control, desirability of control; need for cognitive closure) and this classification could mistakenly lead to the impression that cognitive factors do not play as important a role in conspiracy beliefs as the other domains. This is because factors such as control and uncertainty were inconsistent and mostly non-significant predictors of the conspiracy belief scale scores. As discussed in Chapter 1, it is very likely that the effects of uncertainty and control act as situational (as opposed to dispositional) predictors of conspiracy belief, and therefore they are best measured in experimental settings instead of in the context of individual differences. Indeed, several experimental studies provide strong evidence to show that, when measured correctly, cognitive variables such as the context in which conspiracy information is framed or the way control and uncertainty is manipulated and amplified, have a real influence on conspiracy beliefs (Laurin et al., 2008; Swami et al., 2013; van Prooijen & Acker, 2015). This observation raises a more general and crucial consideration for the future study of predictors of conspiracy beliefs: potential predictors need to be identified as either dispositional or situational, and the appropriate use of correlational, experimental, and longitudinal methods to study them is required.

The third important caveat to acknowledge regarding my thesis is the dimensional versus categorical conceptualisation of conspiracy belief. Yes, conspiracy thinking varies in the general population, and studying it as such is a valid and useful approach. However, it must be acknowledged that taking a dimensional view of conspiracist ideation may mask the possibility that those with extremely high levels of conspiracy thinking represent a distinct and qualitatively different group of individuals. It may be that these “conspiracy theorists” differ to the rest of the population in ways in which we are not yet aware. Further, such an investigation must be based on large-scale representative samples. Given the suspicious and hostile aspects associated with conspiracy thinking, this may not be an easy task. For example, research noting a link between conspiracist ideation and climate change beliefs (Lewandowsky, Oberauer, et

al., 2013) received an overwhelmingly hostile reaction in the blogosphere from climate change deniers. This sceptical commentary was subsequently analysed by Lewandowsky, Cook, Oberauer, and Marriott (2013), with the conclusion that many of these comments were rife with conspiracist ideation. This resulted in legal threats and complaints, and a subsequent retraction of this article (for further explanation and discussion see Lewandowsky, 2014). Nevertheless, this is an area in need of more attention and different methodologies such as qualitative approaches may be more appropriate to address this research question.

Lastly, the analysis of the literature in Chapter 1 combined with the weak individual effects found for predictors in Study 2 and Study 3 suggests that the way forward for understanding conspiracy thinking lies in further model development and testing. To provide an example, conspiracy belief has already been studied within the dual-process motivational model of intergroup attitudes and prejudice, where we found that the combination of a dangerous worldview and RWA with a competitive worldview, SDO, and paranoia predicted conspiracist ideation (Wilson & Rose, 2014). These results offer two important considerations: 1) a clearer understanding of the causes of conspiracy beliefs can be gained by examining the combinations and interactions of a range of individual predictor variables rather than treating them in isolation, and 2) examining conspiracy beliefs within existing theoretical frameworks explaining similar constructs, such as the dual-process model, can shed light on the more distal predictors of conspiracy beliefs. For example, more distal antecedents of the dangerous worldview/RWA and competitive worldview/SDO pathways in the dual-process model have been identified (strict or unaffectionate socialisation respectively leading to social conformity or tough-mindedness, in turn resulting in dangerous and competitive worldviews, RWA and SDO, and ultimately, prejudice; Duckitt, 2001). Examining conspiracy belief in such a longitudinal framework (while also taking into account existing findings showing conspiracy beliefs are related to prejudice specifically directed towards *high* power groups; Imhoff & Bruder, 2014) can provide a powerful test of the factors associated in the development of conspiracist ideation.

Conclusion

Notwithstanding the caveats identified above, the current series of studies comprising this thesis has extended our knowledge of the cognitive structure of conspiracy beliefs, how to best measure conspiracy thinking and, crucially, the psychological factors underpinning these beliefs. Such research has only relatively recently received attention in psychology. This attention is warranted when evidence suggests that conspiracy beliefs contribute to undesirable social behaviours and consequences, such as nonadherence to crucial medical treatments, disregard for the environment, and ethnic discrimination. Conspiracy theories are nothing new, but what has changed is the potential for the dissemination and exposure to these “alternative explanations”. Given that we know conspiracy theories influence our attitudes even more than we realise (Douglas & Sutton, 2008), understanding the psychological factors contributing to conspiracy belief is vital. Effectively creating behavioural change related to mitigating climate change, reducing discrimination, and improving the uptake of behaviours that meaningfully enhance wellbeing and health may also increasingly rely on our ability to counter-act conspiracy beliefs.

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