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The social consequences of conspiracism: Exposure to conspiracy theories decreases the intention to engage in politics and to reduce one's carbon footprint

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Abstract

The current studies explored the social consequences of exposure to conspiracy theories. In Study 1, participants were exposed to a range of conspiracy theories concerning government involvement in significant events such as the death of Diana, Princess of Wales. Results revealed that exposure to information supporting conspiracy theories reduced participants' intentions to engage in politics, relative to participants who were given information refuting conspiracy theories. This effect was mediated by feelings of political powerlessness. In Study 2, participants were exposed to conspiracy theories concerning the issue of climate change. Results revealed that exposure to information supporting the conspiracy theories reduced participants' intentions to reduce their carbon footprint, relative to participants who were given refuting information, or those in a control condition. This effect was mediated by powerlessness with respect to climate change, uncertainty, and disillusionment. Exposure to climate change conspiracy theories also influenced political intentions, an effect mediated by political powerlessness. The current findings suggest that conspiracy theories may have potentially significant social consequences, and highlight the need for further research on the social psychology of conspiracism.

The social consequences of conspiracism: Exposure to conspiracy theories decreases the intention to engage in politics and to reduce one's carbon footprint

Conspiracy theories can be described as attempts to explain the ultimate causes of events as secret plots by powerful forces rather than as overt activities or accidents (McCauley & Jacques, 1979). For example, conspiracy theories relating to the death of Diana, Princess of Wales often suppose that she was murdered by the British government as opposed to being killed in an unfortunate car accident. These types of conspiracy theories are widespread, and accompany many significant political and social events, such as the death of Princess Diana (Douglas & Sutton, 2008; Douglas & Sutton, 2011), the 9/11 terrorist attacks (Swami, Chamorro-Premuzic & Furnham, 2010) and the assassination of US President John F. Kennedy (McCauley & Jacques, 1979; McHoskey, 1995). Research has shown that conspiracy theories are becoming more popular, with interest in some conspiracy theories even increasing as the events become more distant (Goertzel, 1994). For example, a survey in 1963 found that 29% of respondents believed the official account that Lee Harvey Oswald acted alone in assassinating President Kennedy, but in 2001 only 13% of respondents believed the official account (Carlson, 2001). This finding points to the increasing popularity of conspiracy theories, and their persistence over time (Moore, 1990).

Although public interest in conspiracy theories may be increasing, there has been surprisingly limited empirical research examining the psychological underpinnings of beliefs in conspiracy theories (Abalakina-Paap, Stephan, Craig, & Gregory, 1999; Swami et al., 2011). Further, much of the work that does exist has categorised believers as paranoid individuals whose judgements are somehow “distorted” as a result of an “uncommonly angry mind” (Hofstadter, 1971, pp. 2-3) or as a product of psychopathology, paranoia or delusional ideation (e.g., Groh, 1987; Plomin & Post, 1997). However, this account may be too simplistic and incomplete considering how widespread conspiracy beliefs are in society

(Sunstein & Vermeule, 2009; Swami & Coles, 2010; Waters, 1997). It is difficult to imagine that millions of conspiracy believers all suffer significant psychological symptoms. More recent research has taken a less pathologizing perspective on conspiracy beliefs, demonstrating that there are several key sub-clinical correlates of conspiracy beliefs such as anomie, distrust in authority, political cynicism, powerlessness (Abalakina-Paap et al., 1999; Goertzel, 1994; Swami et al., 2010) and Machiavellianism (Douglas & Sutton, 2011).

Further, research suggests that conspiracy theories may change the way people think about social events. For example, after exposure to conspiracy theories about the death of Princess Diana, Douglas and Sutton (2008) found that participants were more inclined to endorse conspiratorial explanations, even though they perceived that their beliefs had not changed. Also, Butler, Koopman and Zimbardo (1995) found that people who had viewed the film *JFK* – which highlights several prominent conspiracy theories surrounding the assassination of President John F. Kennedy – were more inclined to disbelieve official accounts than those who had not yet viewed the film. These findings demonstrate that conspiracy theories can have a “hidden impact” (Douglas & Sutton, 2008, p. 217) on people’s attitudes and raise an intriguing question – What social consequences might there be for people who are exposed to conspiracy theories?

Scholars have begun to consider what some of these consequences might be. It is argued that there may be both positive and negative consequences of being exposed to non-mainstream explanations. For example, conspiracy theories may allow individuals to question social hierarchies and as such encourage governments to be more transparent (e.g., Clarke, 2002; Fenster, 1999; Swami & Coles, 2010). Conspiracy theories can also reveal anomalies, inconsistencies or ambiguities in official accounts of events (e.g., Clarke, 2002) and may open up possibilities for political debate (Miller, 2002). Indeed, some conspiracy theories reveal actual anomalies in mainstream explanations, such as in the US Department of

Defence's plans to orchestrate acts of terrorism and blame them on Cuba (Swami & Coles, 2010). On the negative side, conspiracy beliefs are associated with negative attitudes toward human rights and civil liberties (Swami et al., 2012), and also racist attitudes (Swami, 2012). One prominent conspiracy theory proposes that birth control and HIV/AIDS are a form of genocide against African Americans (Bird & Bogart, 2003). Research has found that amongst African Americans, endorsement of this theory is associated with negative attitudes towards contraceptive behaviours, which can have potentially negative consequences for the prevention of pregnancy and sexually transmitted illnesses (Bogart & Thorburn, 2006). In the current research, we further explored the potential influence of conspiracy theories on behavioural intentions. To do so, we first focused on the influence of conspiracy theories on political engagement.

Political behaviours consist of actions such as voting, talking to others to persuade them to vote for a certain candidate, donating money to candidates or political groups, and wearing campaign stickers (Jenkins, Andolina, Keeter & Zukin, 2003). Research has shown that such behaviours have decreased across the world over the last decade (Fiorina, 2002; Niemi & Weisberg, 2001; Rosenstone & Hansen, 1993; Putnam, 1995; 2000). For example, people are voting less than they did ten years ago, attending fewer political meetings, and forgoing wearing campaign stickers (Fiorina, 2002; Putnam, 1995; 2000). There can be many reasons for these changes, such as decreasing interest in politics or the election process, time constraints, or even people feeling that their vote would not make a difference (File & Crissey, 2010, Fiorina, 2002, Putnam, 1995; 2000). We argue that another key contributor to decreasing levels of political engagement may be the influence of exposure to conspiracy theories.

In the age of the Internet, people are constantly bombarded with information relating to conspiracy theories, and there is an increasing ease with which information about such

theories can be distributed (Coady, 2006). We already know that exposure to conspiracy theories changes people's attitudes without their awareness (Douglas & Sutton, 2008). It is therefore plausible to propose that the ever-increasing presence of conspiracy theories – particularly about secret and sinister government operations – may influence people's intentions to engage in politics. For example, governmental conspiracy theories may discourage citizens from voting because they persuade people that the government is involved in shady deals and plots and that outcomes are therefore beyond their control. We explored this possibility with a wide range of prominent governmental conspiracy theories, examining the extent to which exposure to conspiracy theories influences political intentions.

For the first time, we also examined the potential factors that may mediate such effects. First, research has linked beliefs in conspiracy theories with low levels of trust (Goertzel, 1994; Abalakina-Paap et al., 1999). In addition, research has suggested that a possible reason for the observed drop in political engagement could be the decline in trust people have for each other and different institutions (e.g., Fiorina, 2002; Putnam, 1995; 2000; Shaffer 1981). It is therefore possible that exposure to conspiracy theories influences political engagement because conspiracy theories negatively influence peoples' levels of trust. Second, feelings of powerlessness – specifically towards the government – were also explored as a potential mediator. As defined in Stern's (2000) Values-Beliefs-Norms theory of behaviour, powerlessness is referred to as the perception of being incapable of affecting an outcome by taking action. Research has demonstrated that powerlessness is associated with conspiracy beliefs (Abalakina-Paap et al., 1999). It is therefore possible that exposure to conspiracy theories increases feelings of powerlessness, which subsequently decreases intentions to engage in politics.

Third, we tested the potential mediating role of uncertainty towards the government, which is viewed as a product of the immediate situation or wider social context (De Cremer

& Sedikides, 2005; Sorrentino & Roney, 2000). It has been argued that a situation may influence the degree of uncertainty a person experiences, and the way that it is expressed, so that uncertainty can change with the environment (Smith, Hogg, Martin & Terry, 2007). It is therefore plausible to suppose that exposure to conspiracy theories increases uncertainty, and indeed uncertainty may be one reason why people endorse a wide range of conspiracy theories, even if they are contradictory (Wood, Douglas & Sutton, in press). This uncertainty may then lead to decreased intentions to become engaged in politics. Finally, we also explored the potential influence of disillusionment, which is the feeling of disappointment that something is not what it was believed or hoped to be. Research has shown that disillusionment after becoming aware of shortcomings may lead to a breakdown in engagement in a particular context (e.g., Niehuis & Bartell, 2006; Waller, 1938). It is therefore reasonable to suppose that exposure to conspiracy theories may increase feelings of disillusionment at being tricked and deceived by the government. This disillusionment may then lead to decreased intentions to become engaged in political processes.

There were therefore two aims of the first study. First, we explored the potential consequences of exposure to governmental conspiracy theories on intentions to engage in politics. To do so, we exposed participants to an article that (a) argued in favour of a series of governmental conspiracy theories, or (b) argued against the same conspiracy theories. Participants exposed to the pro-conspiracy arguments were expected to endorse governmental conspiracy theories more than those who had been exposed to the anti-conspiracy arguments. Further, we hypothesised that exposure to information supporting conspiracy theories should decrease intentions to engage in politics. Finally, the study directly tested four potential mediators of this predicted effect – specifically, feelings of mistrust, powerlessness, uncertainty and disillusionment towards the government.

Study 1

Method

Participants and design

One hundred and sixty eight undergraduate and postgraduate research students (108 women and 60 men, $M_{\text{age}} = 22.87$, $SD = 5.00$) at a British university participated in the study. Participants were recruited via poster advertisements, emails and the use of the social networking site Facebook where they were invited to complete an online questionnaire. They did so voluntarily and without monetary or course credit incentives. The single independent variable was the nature of the article presented to participants (pro-conspiracy versus anti-conspiracy), and was manipulated between-subjects. A manipulation check measured participants' judgements that a series of governmental conspiracy theories are true. Participants also reported feelings of mistrust, powerlessness, uncertainty and disillusionment towards the government, which were measured as potential mediators for the predicted effect. Finally, a scale of intended political behaviour formed the dependent variable.

Materials and procedure

The online questionnaire was designed using the Qualtrics questionnaire design tool and first presented participants with an information page where they were asked to give their consent before beginning the questionnaire. On the following page, participants were presented with the manipulation. Two articles were used to either expose participants to information that supports conspiracy theories (pro-conspiracy condition) or that refutes conspiracy theories (anti-conspiracy condition). The pro-conspiracy article began by arguing that governments are involved in secret plots and schemes. It then continued to provide specific examples of conspiracy theories such as the death of Princess Diana and the London 7/7 terrorist bombing attacks. An extract from the conspiracy article is as follows:

“...To take the example of Princess Diana’s death, it is no secret that the British government were discontented with Princess Diana’s involvement with Dodi Fayed and also with her increasing involvement in politics... one must therefore question the claim that her death was simply a tragic accident...”

The anti-conspiracy article was similar in content to the pro-conspiracy article but differed by using the same broad and specific examples to argue that governments are *not* involved in conspiracy theories. An extract from the anti-conspiracy theory article is as follows:

“...To take the example of Princess Diana’s death, it is no secret that Princess Diana’s popularity made some members of the government uneasy. However, there is no evidence at all to suggest that the British government were involved in her death... her death was simply a tragic accident...”

The term ‘conspiracy theory’ was not mentioned in either of the articles. To check that the manipulation was successful, participants next rated the likelihood that a series of governmental conspiracy theories are true. These were adapted from previous research (Douglas & Sutton, 2008; 2011, $\alpha = .90$). There were 12 statements with a mix of general (e.g., “Governments are often involved in international plots and schemes”, $\alpha = .80$) and specific (e.g., “The British government was involved in the death of Princess Diana”, $\alpha = .90$) government conspiracy theories. In each case, participants were asked to rate the likelihood that each is true on a seven-point scale ($1 = \textit{extremely unlikely}$, $7 = \textit{extremely likely}$).

A scale measuring mistrust towards four institutions ($\alpha = .85$) was used from Van der Meer (2010). Participants indicated the extent to which they trusted each institution (e.g., “I have trust in Parliament”) on a six-point scale ($1 = \textit{strongly disagree}$, $6 = \textit{strongly agree}$). A three-item scale measuring powerlessness towards the government ($\alpha = .82$) was developed from Neal and Groat (1974) and Aarts and Thomasse (2008). Participants were asked to read the statements (e.g., “The world is run by the few people in power, and there is not much the

little person can do about it”) and rate their agreement by answering on a six-point scale ($1 = strongly disagree$, $6 = strongly agree$). A scale measuring a person’s feelings of uncertainty, specifically concerning the government ($\alpha = .83$) was adapted from the Attributional Confidence Scale (Clatterbuck, 1979) and consisted of four items (e.g., “The government is only run for the benefit of those in power”). Participants rated the extent that they agreed they could predict each behaviour on a six-point scale ($1 = strongly disagree$, $6 = strongly agree$). High agreement demonstrates a greater prediction that the government would perform those behaviours, which therefore demonstrates a greater sense of uncertainty about the government as a whole. A scale was included to measure participants’ feelings of disillusionment, specifically about the government ($\alpha = .76$). This scale was adapted from Niehuis and Bartell (2006) and consisted of four statements (e.g., “I am very disappointed with the government”) where participants responded with the extent to which they agreed with each statement on a six-point scale ($1 = strongly disagree$, $6 = strongly agree$).

Finally, the dependent variable measured participants’ intended political engagement. Questions were reworded so that participants’ responses reflected intended rather than previous political engagement (Jenkins, Andolina, Keeter & Zukin, 2003; Pattie, Seyd & Whiteley, 2003). There were seven statements in total asking participants about their intended behaviours over the next 12 months (e.g., “Will you vote in the next election”; “Do you intend to contribute money to a candidate, a political party, or any organization that supports candidates?”, $\alpha = .80$). Participants responded by indicating the extent that they intended to engage in each of the behaviours on a seven-point scale ($1 = definitely no$, $7 = definitely yes$).¹ At the conclusion of the study, the participants were debriefed in writing and were thanked for their participation.

Results

There were no significant effects involving participant gender, so this factor is not mentioned further. Further, participant age was not associated with any of the potential mediating variables or DVs and it is also not mentioned further.

Manipulation check

There was a significant difference between the two article conditions (pro-conspiracy versus anti-conspiracy) for endorsement of both general, $F(1,166) = 16.70, p < .001, \eta^2 = .09$, and specific, $F(1,166) = 16.65, p < .001, \eta^2 = .09$ government conspiracy theories.

Participants who were exposed to information supporting conspiracy theories endorsed general ($M = 4.81, SD = 1.16$) and specific ($M = 2.85, SD = 1.50$) conspiracy theories more than those in the anti-conspiracy condition ($M = 4.04, SD = 1.16; M = 2.07, SD = 1.10$, respectively). The manipulation was therefore successful.

Government conspiracy theories and political engagement

A one-way ANOVA was conducted with article condition (pro- versus anti-conspiracy) as the independent variable, and political engagement as the dependent variable. As predicted, exposure to conspiracy theories influenced political intentions, $F(1,166) = 9.51, p = .002, \eta^2 = .05$. Specifically, participants in the pro-conspiracy condition ($M = 2.67, SD = 1.09$) showed less intention to engage in political behaviours than those in the anti-conspiracy condition ($M = 3.20, SD = 1.22$).

Testing mediation

To test potential mediators of this effect, four separate ANOVAs were first conducted with article condition (pro- versus anti-conspiracy) as the independent variable in each case, and summed scores on all four potential mediators – mistrust, political powerlessness, uncertainty and disillusionment – as dependent variables. Results revealed that out of the four potential mediators, exposure to conspiracy theories only influenced powerlessness,

$F(1,166) = 13.07, p < .001, \eta^2 = .07$, and uncertainty, $F(1,166) = 10.37, p = .002, \eta^2 = .06$.

Participants in the pro-conspiracy condition felt more powerless ($M = 2.94, SD = 1.39$) and uncertain ($M = 4.31, SD = 1.04$) towards the government than those in the anti-conspiracy condition ($M = 2.29, SD = 1.09; M = 3.82, SD = 0.99$, respectively). There were no differences between the two conditions for mistrust, $F(1,166) = 1.670, p = .198, \eta^2 = .01$ or, disillusionment, $F(1,166) = 2.48, p = .117, \eta^2 = .01$.

Each of the candidate mediators – political powerlessness and uncertainty – was then examined in a test of multiple mediation in order to explain the effect of the pro- versus anti-conspiracy information on intended political behaviours. This multiple mediation was carried out using Preacher and Hayes' (2008) bootstrapping method for indirect effects. This method is based on between 5000-10000 bootstrap re-samples used to describe the confidence intervals of indirect effects in a manner that makes no assumptions about the distribution of the indirect effects. As argued by Hayes (2009; Hayes & Preacher, 2012), an indirect effect is estimated as being significant from the confidence intervals not containing a zero, as opposed to significance in the individual paths. This is due to the mediation model not being pertinent to whether the individual paths are either significant or non-significant. Results from the current study are presented in Table 1 and Figure 1.

(Insert Table 1 and Figure 1 here)

First, there was a significant total indirect effect. Importantly, the specific indirect effect in this test indicated that political powerlessness was a significant mediator of the effect of pro- versus anti-conspiracy information on intended political behaviours, when controlling for uncertainty. However the specific indirect effect of uncertainty was not found to be a significant mediator, when controlling for political powerlessness. This provides evidence that political powerlessness was the driving mediator of the effect of exposure to conspiracy theories on intended political behaviours.

Discussion

In Study 1, we found that exposure to conspiracy theories influenced participants' intentions to engage in political processes such as voting. Demonstrating that exposure to conspiracy theories influences intended political engagement gives a hint to the extent to which conspiracy theories may be influential. Voting and other forms of political engagement are decreasing around the world (e.g., Fiorina, 2002), and revealing that intended political behaviours can be influenced by exposure to conspiracy theories suggests that decreased engagement could be due, in part, to how widespread conspiracy theories are in society (Swami & Coles, 2010). This study has also extended previous research investigating the impact of conspiracy theories (Butler et al., 1995; Douglas & Sutton, 2008). Here, it has been demonstrated that while exposure to conspiracy theories can influence the extent to which the theory is endorsed, it can also influence a person's behavioural intentions.

Further, Study 1 demonstrated that feelings of powerlessness towards the government fully mediated the effect of pro- versus anti-conspiracy information on intended political behaviours. This suggests that being exposed to government conspiracy theories may increase feelings that one's actions will have little impact, which may subsequently lower one's intentions to engage in political behaviours. This line of reasoning is consistent with results from a recent American census (File & Crissey, 2010) – when asked why people did not vote, many responded with the reason that their vote would not make a difference.

This study also extends previous research that has revealed an association between powerlessness and endorsement of conspiracy theories. In the current study however, we demonstrated that exposure to conspiracy theories directly influenced participants' feeling of powerlessness towards the government. Previous research has only been able to demonstrate correlations between endorsement of conspiracy theories and powerlessness without indicating the direction of the relationship (e.g., Abalakina-Paap et al., 1999). Whilst some

individuals may endorse conspiracies to reduce their feelings of powerlessness (Swami & Coles, 2010), it can be suggested from the current findings that exposure to conspiracy theories may also bring about feelings of powerlessness.

Although uncertainty was shown not to be a significant mediator of the relationship between exposure to conspiracy theories and political behaviour, participants who were exposed to conspiracy theories felt more uncertain towards the government than those exposed to an anti-conspiracy account. This also extends previous literature by providing evidence of a directional relationship between conspiracy beliefs and uncertainty. There were however no reported effects of exposure to conspiracy theories on mistrust and disillusionment. This was an unexpected finding as previous research suggests that mistrust is associated with conspiracy beliefs (Abalakina-Paap et al., 1999). However, it may be difficult to manipulate mistrust and disillusionment by exposure to a wide variety of governmental conspiracy theories. Using this method, it is difficult to manipulate trust in one particular group because different groups are implicated in different conspiracy theories (e.g., US government, British government, specific politicians). Trust and disillusionment could perhaps be better influenced by exposure to specific conspiracy theories such as those related to climate change, that are associated with a single group of apparently dishonest individuals (i.e., climate scientists) rather than a wider group. We test this possibility in Study 2, which also serves to replicate and extend the findings of Study 1.

Study 2

In Study 2, we focused on the influence of climate change conspiracy theories on intentions to reduce one's carbon footprint. Specifically, we investigated whether conspiracy theories concerning the validity of scientific claims concerning climate change influence people's intentions to purchase energy efficient light bulbs or use other means of transport than driving a motor vehicle. Research has demonstrated that engagement with such

behaviours – in a similar way to political engagement – is not sufficiently high in Western societies (e.g., Leiserowitz, 2003). For example, a recent Gallup Poll found that American respondents ranked the environment 15th (out of 15) of the most important problems today (Gallup, 2011), and another poll found that American respondents ranked climate change as the 12th most important (out of 13) environmental issues facing people today (Dunlap & Saad, 2001). This is intriguing, especially given that climate change is arguably the primary environmental risk confronting the world in the 21st century (Leiserowitz, 2003). Recent research has found an association between conspiracy beliefs in general and rejection of climate science claims (Lewandowsky, Oberauer & Gignac, in press). We argue here that exposure to information that rejects climate science claims will adversely influence people's intentions to engage in climate friendly behaviours.

To test this prediction, we utilised a similar method to Study 1, exposing participants to climate change conspiracy theories (versus anti-conspiracy material), and measuring the extent to which participants intended to engage with efforts to reduce their carbon footprint. We also examined the influence of exposure to conspiracy theories on political intentions, using the same scale as used in Study 1. In doing so, it was possible to examine whether a type of conspiracy theory that does not explicitly accuse the government of any actions can also lead to political disengagement. This is an intriguing possibility because it points to the potential for conspiracy theorizing to form part of a political mindset – a set of beliefs that are associated with political suspicion and disbelief of official explanations. We also included the range of mediators tested in Study 1. Indeed, previous research has linked climate change behaviour to feelings of powerlessness (Aitken, Chapman & McClure, 2011), uncertainty (e.g., de Kwaadsteniet, 2007; Hine & Gifford, 1996), and mistrust (MacGregor, Slovic, Mason & Detweiler, 1994) and we examined here if climate change conspiracy theories influence intentions via these potential mediators.

Further, Study 2 provided a methodological refinement to Study 1 by including a control condition where participants were exposed to no information regarding conspiracy theories. Study 1 demonstrated a difference in political intentions between the pro- and anti-conspiracy conditions but it cannot be known for certain whether the pro-conspiracy condition decreased political intentions or whether the anti-conspiracy condition increased such intentions. A control condition allows us to be certain of the direction of the effect.

Method

Participants and design

Two hundred and fourteen undergraduate students (182 women and 32 men, $M_{\text{age}} = 19.66$, $SD = 3.06$) at a British university participated in an online experimental questionnaire. Participants received course credit in exchange for their participation. A timer was used to identify participants who had spent less than 30 seconds reading the manipulation and who had thus exceeded reading speed capabilities for upper college students (Speed Reading, 2011). Such participants were excluded from the analyses, and in total this was 11 participants from the pro-conspiracy condition and 12 from the anti-conspiracy condition. The final sample size used for data analysis was therefore 191 (164 women and 27 men, $M_{\text{age}} = 19.75$, $SD = 3.21$). There were 63 participants in the pro-conspiracy condition, 59 in the anti-conspiracy condition, and 69 in the control condition.

A single-factor independent variable (pro-conspiracy vs. anti-conspiracy vs. control) between-subject design was employed. A manipulation check measured participants' judgements that a series of climate change conspiracy theories are true. Participants reported feelings of climate powerlessness, uncertainty, disillusionment and trust towards different sources to tell the truth about climate change, which were measured as potential mediators for the predicted effect on climate change intentions. Participants also reported feelings of political powerlessness, which were measured as a possible mediator for the predicted effect

of exposure to climate change conspiracy theories on political intentions. Finally, scales of intended climate change behaviours and intended political behaviours formed the two dependent variables.

Materials and procedure

As in Study 1, the online questionnaire was designed using the Qualtrics questionnaire design tool and first presented participants with an information page where they were asked to give their consent before beginning the questionnaire. On the following page, two articles were used to either expose participants to information that supports conspiracy theories (pro-conspiracy condition) or information that refutes conspiracy theories (anti-conspiracy condition). A control condition was also included, where no further information was given. The pro-conspiracy article began by arguing that climate change is a hoax. It then continued to provide specific examples of conspiracy theories such as that climate change scientists are just chasing funding and not all scientists agree with the climate change findings. An extract from the conspiracy article was as follows:

“...further, the idea of global warming holds little weight. Independent evidence shows that since 1940, global average temperatures fell for four decades. This presents a significant flaw in the official account...”

The anti-conspiracy article was similar in content to the pro-conspiracy article but differed by arguing that climate change is *not* a hoax. An extract from the anti-conspiracy theory article was as follows:

“...further, evidence of global warming is robust. Independent evidence shows that the last two decades of the 20th century were the hottest in 400 years Numerous findings such as this present significant support for the official account...”

The term ‘conspiracy theory’ was not mentioned in either of the articles. To check that the manipulation was successful, participants next rated the likelihood that a series of

climate change conspiracy theories are true. Those in the control condition also completed this manipulation check. These statements were adapted from previous research (Douglas & Sutton, 2011). There were seven statements in total (e.g., “Climate change is a hoax”; “The idea that the world is headed for catastrophic climate change is a fraud”, $\alpha = .93$).

A scale was used to assess a person’s feelings of powerlessness, specifically concerning climate change (Aitken et al., 2011). This scale consisted of three items (e.g., “I feel that my actions will not affect the outcome of climate change”, $\alpha = .71$) where participants indicated the extent to which they agreed to each statement on a six-point scale ($1 = strongly disagree, 6 = strongly agree$). A further scale measuring uncertainty about climate change was used from Aitken et al., (2011). The scale consisted of two items (e.g., “I feel uncertain as to whether climate change is a significant problem”, $\alpha = .60$) where participants indicated the extent to which they agreed to each statement on a six-point scale ($1 = strongly disagree, 6 = strongly agree$).

A scale was also included to measure participants’ feelings of disillusionment, specifically towards climate change scientists. This scale was adapted from Niehuis and Bartell (2006) and consisted of four statements (e.g., “I am very disappointed with the climate change scientists”, $\alpha = .77$) where participants responded with the extent to which they agreed with each statement on a six-point scale ($1 = strongly disagree, 6 = strongly agree$). Further, a scale measuring trust towards a variety of sources to tell the truth about climate change was developed from Leiserowitz (2003). This scale consisted of seven trust sources (e.g., “Climate change scientists”, $\alpha = .65$) where participants indicated the extent they trusted the source to tell the truth about climate change on a six-point scale ($1 = strongly distrust, 6 = strongly trust$). Further, the three-item scale measuring powerlessness, specifically concerning politics, was used as in Study 1 ($\alpha = .68$).

The first dependent variable measured participants' intended climate change behaviours. Questions were adapted from previous research so that participant's responses reflected their intended behaviour (Leiserowitz, 2003). There were seven statements in total asking participants about their intended behaviours over the next 12 months (e.g., "Do you intend to use energy-efficiency as a selection criterion when buying a light bulb or household appliance"; "Do you intend to walk or cycle more than driving or using public transport?", $\alpha = .80$). Participants responded by indicating the extent that they intended to engage in each of the behaviours on a seven-point scale ($1 = \textit{definitely no}$, $7 = \textit{definitely yes}$). The second dependent variable measured participants' intended political behaviours using the same questions as in Study 1 ($\alpha = .77$). At the conclusion of the study, the participants were debriefed in writing and were thanked for their participation.

Results

There were no significant effects involving participant gender, so this factor is not mentioned further. Further, participant age was not associated with any of the potential mediating variables or DVs and it is also not mentioned further.

Manipulation check

There was a significant difference in endorsement of climate change conspiracy theories between conditions, $F(2, 188) = 11.35$, $p < .001$, $\eta^2 = .11$. Endorsement of climate change conspiracies was significantly higher in the pro-conspiracy condition ($M = 3.23$, $SD = 1.69$) than the anti-conspiracy condition ($M = 2.31$, $SD = 1.01$, $p < .001$) and the control condition ($M = 2.57$, $SD = 1.13$, $p = .001$). Endorsement of climate change conspiracy theories was not significantly higher in the anti-conspiracy condition relative to the control condition ($p = .18$). The manipulation was therefore successful.

Climate conspiracy theories and intended climate behaviours

Results revealed a significant difference in climate change intentions between conditions, $F(2, 188) = 3.673, p = .027, \eta^2 = .04$. Specifically, climate change intentions were significantly lower in the pro-conspiracy condition ($M = 3.36, SD = 1.14$) than the anti-conspiracy condition ($M = 3.83, SD = 1.02, p = .019$) and the control condition ($M = 3.81, SD = 1.13, p = .021$). Intentions to engage in climate-friendly behaviours were not significantly different in the anti-conspiracy condition relative to the control ($p = .91$).

Climate conspiracy theories and intended political behaviours

Results also revealed a significant difference in political intentions between conditions, $F(2, 188) = 5.934, p = .003, \eta^2 = .06$. Specifically, political intentions were significantly lower in the pro-conspiracy condition ($M = 2.62, SD = 0.78$) than the anti-conspiracy condition ($M = 3.17, SD = 0.91, p = .003$) and the control condition ($M = 3.14, SD = 1.22, p = .003$). Political intentions were not significantly different in the anti-conspiracy condition relative to the control ($p = .88$).

Testing mediation

Exposure to climate change conspiracy theories therefore influenced intentions to engage in both climate change and political behaviours. To test potential mediators of these two effects, separate ANOVAs were firstly conducted with conspiracy condition (pro-conspiracy versus anti-conspiracy versus control) as the independent variable, and summed scores on all potential mediators for climate change behaviours (climate powerlessness, uncertainty, disillusionment and trust), and summed scores on the one potential mediator for political behaviours (political powerlessness) as dependent variables.

Results revealed a marginally significant difference in climate powerlessness between conditions, $F(2, 188) = 2.711, p = .069, \eta^2 = .03$. Specifically, climate powerlessness was significantly higher in the pro-conspiracy condition ($M = 3.39, SD = 1.20$) than the anti-

conspiracy condition ($M = 2.91$, $SD = 1.08$, $p = .025$) and marginally significantly higher than the control ($M = 3.06$, $SD = 1.16$, $p = .10$). Powerlessness towards climate change was not significantly higher in the anti-conspiracy condition relative to the control condition ($p = .49$).

Results also revealed a marginally significant difference in uncertainty between conditions, $F(2, 188) = 2.610$, $p = .076$, $\eta^2 = .03$. Specifically, uncertainty was significantly higher in the pro-conspiracy condition ($M = 3.42$, $SD = 1.09$) than the anti-conspiracy condition ($M = 3.00$, $SD = 1.05$, $p = .031$) and marginally significantly higher than the control ($M = 3.10$, $SD = 1.06$, $p = .089$). Uncertainty was not significantly higher in the anti-condition relative to the control condition ($p = .59$).

Further, results revealed a significant difference in disillusionment between conditions, $F(2, 188) = 4.411$, $p = .013$, $\eta^2 = .05$. Specifically, disillusionment was significantly higher in the pro-conspiracy condition ($M = 2.72$, $SD = 1.00$) than the anti-conspiracy condition ($M = 2.28$, $SD = 0.87$, $p = .008$) and the control ($M = 2.33$, $SD = 0.92$, $p = .015$). Disillusionment was not significantly lower in the anti-conspiracy condition relative to the control condition ($p = .75$). There were no reported differences in trust across all combined sources between conditions, $F(2, 188) = 0.81$, $p = .448$, $\eta^2 = .00$.

Finally in relation to the mediator for the effect of conspiracy condition on intended political behaviours, results revealed a significant difference in political powerlessness between conditions, $F(2, 188) = 27.60$, $p < .001$, $\eta^2 = .23$. Specifically, powerlessness was significantly higher in the pro-conspiracy condition ($M = 3.59$, $SD = 0.69$) than the anti-conspiracy condition ($M = 2.78$, $SD = 0.75$, $p = .003$) and the control ($M = 2.70$, $SD = 0.81$, $p < .001$). Powerlessness was not significantly higher in the anti-conspiracy condition relative to the control condition ($p = .56$).

Each of the candidate mediators was then examined in a test of mediation in order to explain the effect of the conspiracy conditions (pro-conspiracy versus anti-conspiracy, versus

control) on climate and political intentions separately. The mediators of climate powerlessness, uncertainty and disillusionment were examined in a test of multiple mediation in explaining climate change behavioural intentions. The mediator of political powerlessness was examined in a test of simple mediation in explaining political intentions. These multiple and simple mediations were carried out using Hayes and Preacher's (2012) bootstrapping method for indirect effects. This differed slightly from the method used in Study 1 as it allowed the mediations between the three conspiracy conditions to be tested by the use of indicator coding (see Table 2). The pro-conspiracy condition was coded as the representative condition, whereby controlling for pro-conspiracy condition to control (D2) enabled the effect for pro-conspiracy condition to anti-conspiracy condition (D1) to be explored, and vice versa. This indicator coding was automatically completed using the Hayes and Preacher's (2012) SPSS macro. Results from the current study are presented in Tables 3 and 4 and Figures 2 and 3, for climate change and political behaviours intentions, respectively.

(Insert Tables 2, 3 and 4 here)

(Insert Figures 2 and 3 here)

Climate change behaviours. A multiple mediation analysis of the effect of pro-conspiracy versus anti-conspiracy condition on intended climate change behaviours (D1) (when controlling for pro-conspiracy versus control, D2) indicated that climate powerlessness, uncertainty and disillusionment (controlling for all three other mediators) significantly mediated this effect. Second, the effect for D2 (controlling for D1) concurred, which demonstrated that climate powerlessness, uncertainty and disillusionment were significant mediators of the effect of exposure to conspiracy theories on climate change behaviour (pro- versus anti-conspiracy conditions and pro-conspiracy versus control).

Intended political behaviours. A simple mediation of the effect of pro-conspiracy versus anti-conspiracy condition on intended political behaviours – testing the specific

indirect effect for both D1 (controlling for D2) and D2 (controlling for D1) – indicated that political powerlessness significantly mediated this effect.

Discussion

In Study 2, participants were exposed to either a pro-conspiracy or anti-conspiracy account of events (plus a control condition). We measured participant's intentions to reduce their carbon footprint and to engage in politics, and found that exposure to climate change conspiracy theories reduced participants' intentions to engage in both types of behaviours. The effect of exposure to conspiracy theories on intended climate change behaviours was mediated by climate powerlessness, uncertainty and disillusionment. Supporting the possibility that conspiracy theories in general may be associated with political cynicism, the effect of exposure to conspiracy theories on intended political behaviours was mediated by feelings of political powerlessness. That is, climate change conspiracy theories, that do not explicitly accuse the government, can lead to political disengagement through feelings of political powerlessness.

General discussion

Psychologists are learning more about the individual traits associated with beliefs in conspiracy theories (e.g., Abalakina-Papp et al., 1999; Douglas & Sutton, 2011; Goertzel, 1994; Swami, et al., 2010) and the extent to which conspiracy theories influence people's attitudes about significant social and political events (Butler et al., 1995; Douglas & Sutton, 2008). However, there is a need to understand what these beliefs entail. The current research sought to examine some of the potential consequences associated with exposure to conspiracy theories. Study 1 demonstrated that exposure to governmental conspiracy theories led to heightened feelings of political powerlessness, which reduced intentions to engage in politics. In Study 2, we showed that exposure to climate change conspiracy theories increased feelings of climate powerlessness, uncertainty and disillusionment, which in turn lowered intentions

to reduce ones carbon footprint. Study 2 also demonstrated that exposure to climate change conspiracy theories, like governmental conspiracy theories in Study 1, led to feelings of political powerlessness, which reduced intentions to engage in politics. Overall, these studies demonstrate that exposure to conspiracy theories may have potentially detrimental effects. We know from previous research that engagement with politics and climate change is undesirably low in Western societies (e.g., Fiorina, 2002; Leiserowitz, 2003; Niemi & Weisberg, 2001; Rosenstone & Hansenm, 1993; Putnam, 1995; 2000). Conspiracy theories may be an important source of ongoing disengagement, and may even serve to increase disengagement.

The results of Study 2 suggest a further intriguing possibility. Specifically, we demonstrated that climate change conspiracy theories not only influenced intentions to engage in efforts to reduce one's carbon footprint, but also reduced intentions to engage in politics. That is, climate change conspiracy theories influenced intentions to engage in behaviour in a domain unrelated to the specific conspiracy theories themselves. Perhaps therefore, exposure to conspiracy theories in general is associated with a 'conspiratorial mindset' related to political beliefs and intentions. Potentially, other types of conspiracy theories may be related to feelings of political cynicism and powerlessness. Future research may endeavour to test this possibility, examining for example whether other types of conspiracy theories such as those related to child immunisation, AIDS and specific conspiracy theories about social groups (e.g., anti-Jewish conspiracy theories) influence political beliefs and political engagement rather than simply beliefs and behaviours associated with the specific conspiracy theories themselves. As Wood et al. (2012) have recently demonstrated, people are inclined to believe even contradictory conspiracy theories as long as they are supported by the notion of an overarching 'cover-up'. Likewise, political cynicism may form a fundamental basis of conspiracy theorizing.

The current findings revealed mixed results with respect to mediation. Specifically, climate powerlessness, uncertainty and disillusionment explained the effect of exposure to conspiracy theories on climate change intentions. However, only political powerlessness mediated the relationship between exposure to governmental conspiracy theories and the intention to engage with politics. These are intriguing findings, and point to the possibility that variables such as uncertainty and disillusionment may indeed be manipulated by raising suspicion about the actions of a specific group. On the other hand, mediators such as powerlessness may be associated with more general conspiracism, and political cynicism. Future research may endeavour to examine if different mediational patterns hold for different types of conspiracy theories. It is also important to discuss potential reasons why, in the current research, conspiracy theories were not associated with mistrust. Indeed, this is inconsistent with previous research (e.g., Abalakina-Paap et al., 1999). It is possible that although conspiracy theories may lead to powerlessness, the same directional effect does not apply to mistrust. Perhaps instead, mistrust draws people towards conspiracy theories rather than being a consequence of being exposed to conspiracy theories. Unfortunately the current studies cannot address this possibility but future research may attempt to determine the causal direction of any relationship between mistrust and beliefs in conspiracy theories.

The research had some important limitations that should also be addressed in future research. First, it should be noted that although the effects observed in the current studies were statistically robust, the effect sizes were small ($\eta^2 = .05$ in Study 1; $\eta^2 = .04$ and $\eta^2 = .06$ in Study 2). This means that the proportion of variance in political intentions and climate change intentions explained by exposure to conspiracy theories was quite modest and that there are potentially many other factors that contribute to such intentions. Further, it is important to note that our findings were based on self-report measures of intentions to engage in political and climate change behaviours. As we know, intentions do not always translate

into actual behaviours (e.g., LaPiere, 1934; Linn, 1965; Sheeran, 2002). Therefore, future work should examine how exposure to conspiracy theories influences actual political and climate change behaviours. Future research should also rely less on student samples that may not be representative of the population, and also address the participant gender imbalance in the current studies.

Future research may also examine some of the potential positive consequences of conspiracy theories. For example, conspiracy theories may allow people to challenge existing social hierarchies and encourage government transparency (e.g., Clarke, 2002; Swami & Coles, 2010). More generally, previous research has tended to pathologize conspiracy beliefs, linking them with negative individual characteristics such as mistrust and anomie (e.g., Goertzel, 1994). While not disputing these findings, there are reasons to believe that positively valued individual differences may increase people's willingness to believe conspiracy theories. For example, conspiracy theories posit novel, often elaborate and unconventional explanations for events. Therefore, they may appeal to dispositionally creative (e.g., Carson, Peterson & Higgins, 2005), curious (e.g., Flegg & Hukins, 2007), sensitive (e.g., Guarino, Roger & Olason, 2007) or open-minded (e.g., Haiman, 1964) people. By examining such variables, we hope to achieve a more balanced and nuanced conceptualisation of conspiracy beliefs and begin to consider what some of their positive consequences might be.

Conclusion

Research exploring the consequences of conspiracy theories is timely because despite claims that they are harmful, especially in raising suspicion concerning scientific claims (e.g., Goertzel, 2010; Sunstein & Vermeule, 2008), there is little evidence supporting this claim. The current studies demonstrate that some wariness about conspiracy theories may indeed be warranted. Specifically, the current research provides evidence that exposure to conspiracy

theories may potentially have important social consequences. People who were exposed to conspiracy theories about both shady and suspicious government operations and that climate change is a hoax reported less intention to engage in the political system – an effect that occurred because conspiracy theories led to feelings of political powerlessness. Further, people who were exposed to conspiracy theories about climate change reported less intention to reduce their carbon footprint – an effect that occurred because conspiracy theories led to feelings of powerlessness and uncertainty towards climate change, and also feelings of disappointment in climate scientists. The current research therefore opens up a new line of research investigating the social consequences of an ever-growing climate of conspiracism.

Footnotes

- 1 Copies of all experimental materials for both studies are available from the authors on request.

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Table 1.

Simple Mediation of the Indirect Effects of Information Type (conspiracy versus mainstream) on Political Behaviours through Feelings of Political Powerlessness and Uncertainty (N=168; 5,000 bootstrap samples)

	Point Estimate (s.e.)	BCa ^a 95% confidence interval (CI)	
		Lower	Higher
Multiple indirect effects			
Political Powerlessness	.21 (.08)	0.0831	0.4032
Uncertainty	-.03 (.05)	-0.1512	0.0899
Total mediated effect	.18 (.06)	0.0480	0.3531

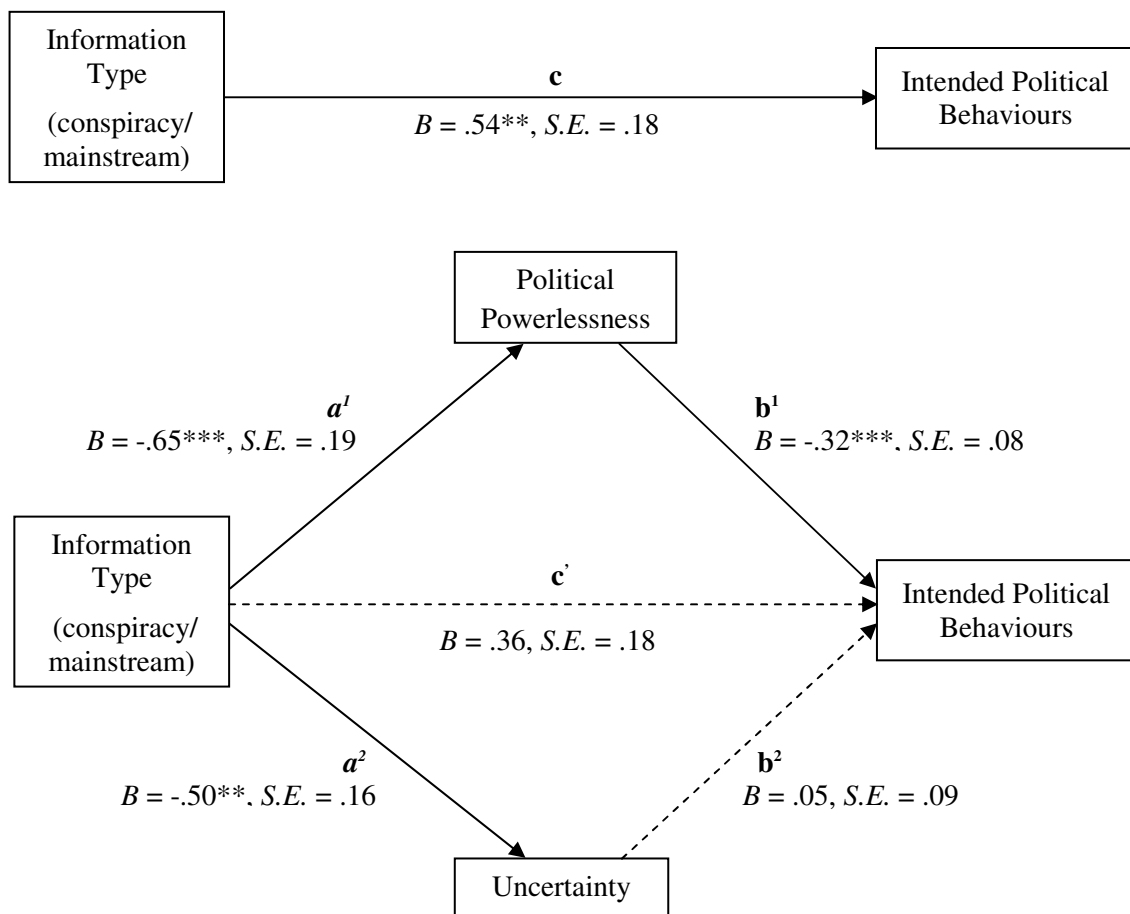
Note. Boldface type highlights a significant effect as determined by the BCa^a 95% confidence interval (CI) which does not contain a zero.

^a Refers to bias corrected and accelerated (BCa) bootstrapping confidence intervals (CI) that include corrections for both median bias and skew (see Efron, 1987).

Figure 1.

Multiple mediation test of the relationship between information type (conspiracy versus mainstream) and intended political behaviors

Note. Dashed lines highlight non-significant relationships and solid lines highlight significant relationships.



Adj $R^2 = .14, F(3,164) = 9.70, p < .001$

Note. $**p < .05.$ $***p < .01.$

Table 2.

A Table of Indicator Coding (Referred to as 'D') used in the Multiple and Simple Hayes' and Preacher (2012) Bootstrapping Indirect Mediations for the Conspiracy Conditions (Pro-conspiracy versus Anti-conspiracy; versus Control) and either Intended Climate Change or Political Behaviours

Indicator Coding	Conspiracy Condition		
	Pro-conspiracy	Anti-conspiracy	Control
D1	0	1	0
D2	0	0	1

Table 3.

Multiple Mediation of the Indirect Effects of Conspiracy Condition (using Indicator Coding; see Table 2) on Intended Climate

Change Behaviors (DV) through Feelings of Climate Powerlessness (a), Uncertainty (b) and Disillusionment (c) (MVs) (N = 191;

10,000 bootstrap samples)

Normal test theory									
Indictor Coding	Mediator (MV)		Dependant (DV)				Bootstrapping for indirect effects		
	Path	Coeff. (s.e.)	Path	Coeff. (s.e.)	Path	Coeff. (s.e.)	Point Estimate (s.e.)	Monte Carlo 90% Confidence Intervals	
								Lower	Upper
D1	a ^{1a}	-.47 (.21)**	c ¹	.47 (.20)**	c ^{1'}	.19 (.18)	.19 (.09)	0.0438	0.3432
	a ^{1b}	-.42 (.20)**					.06 (.08)	0.0409	0.3051
	a ^{1c}	-.45 (.17)***					.04 (.07)	0.0641	0.3068
D2	a ^{2a}	-.33 (.20)*	c ²	.50 (.19)**	c ^{2'}	.24 (.17)	.13 (.08)	0.0012	0.2706
	a ^{2b}	-.32 (.19)*					.04 (.08)	0.0069	0.2605
	a ^{2c}	-.40 (.16)**					.03 (.07)	0.0478	0.2780
	'MV'				b ^a	-.39 (.07)***			
					b ^b	-.14 (.08)*			
					b ^c	-.08 (.09)			

Note. Boldface type highlights a significant effect as determined by the Monte Carlo 90% confidence interval (CI) which does not contain a zero.

* $p < .10$. ** $p < .05$. *** $p < .01$.

Figure 2.

Multiple mediation test of the relationship between conspiracy condition (using indicate coding; see Table 2) and intended climate change behaviors

Note. Dashed straight lines highlight non-significant *path* relationships and solid straight lines highlight significant *path* relationships.

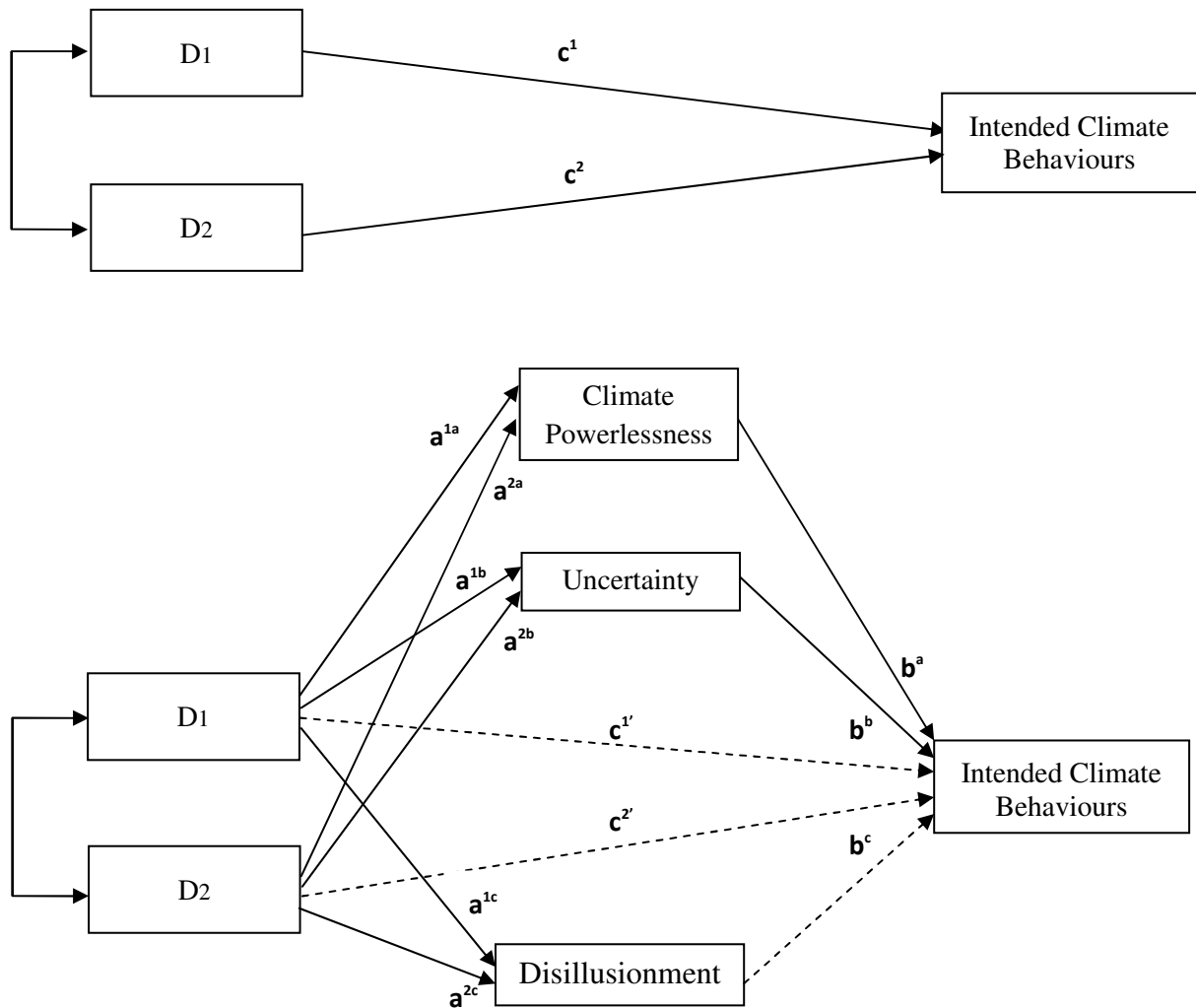


Table 4.

Simple Mediation of the Indirect Effects of Conspiracy Condition (using Indicator Coding; see Table 2) on Political Behaviours (DV) through Feelings of Political Powerlessness (MV) (N= 191; 5,000 bootstrap samples)

Normal test theory											
		Mediator (MV)				Dependant (DV)				Bootstrapping for indirect effects	
										Monte Carlo 95% Conference Intervals	
Indictor		Coeff.		Coeff.		Coeff.		Point Estimate			
Coding	Path	(s.e.)	Path	(s.e.)	Path	(s.e.)	Path	(s.e.)	Lower	Upper	
D1	a ¹	-0.81 (.14)***	c ¹	.54 (.18)**	c ^{1'}	.24 (.19)		.30 (.09)	0.1382	0.4916	
D2	a ²	-0.89 (.13)***	c ²	.52 (.17)**	c ^{2'}	.19 (.19)		.32 (.10)	0.1561	0.5369	
	'MV'				b	-0.37 (.09)***					

Note. Boldface type highlights a significant effect as determined by the Monte Carlo 95% confidence interval (CI) which does not contain a zero.

** $p < .05$. *** $p < .01$.

Figure 3.

Simple mediation test of the relationship between conspiracy condition (using indicate coding; see Table 2) and intended political behaviors

Note. Dashed straight lines highlight non-significant *path* relationships and solid straight lines highlight significant *path* relationships.

