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Anxious attachment and belief in conspiracy theories

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ABSTRACT

This research examined the link between attachment styles and belief in conspiracy theories. It was hypothesized, due to the tendency to exaggerate the intensity of threats, that higher anxiously attached individuals would be more likely to hold conspiracy beliefs, even when accounting for other variables such as right-wing authoritarianism, interpersonal trust, and demographic factors that have been found to predict conspiracy belief in previous research. In Study 1 (N = 246 Amazon Mechanical Turk workers), participants higher in anxious attachment style showed a greater tendency to believe in conspiracy theories. Further, this relationship remained significant when accounting for other known predictors of conspiracy belief. Study 2 (N = 230 Prolific Academic workers) revealed that anxious attachment again predicted the general tendency to believe conspiracy theories, but also belief in specific conspiracy theories and conspiracy theories about groups. These relationships held when controlling for demographic factors. The current studies add to the body of research investigating the individual differences predictors of conspiracy belief, demonstrating that conspiracy belief may, to some degree, have roots in early childhood experiences.

1. Introduction

1.1. Belief in conspiracy theories

Conspiracy theories attribute significant social and political events to the actions of powerful and malicious groups (Douglas & Sutton, 2008; Goertzel, 1994; Uscinski & Parent, 2014). For example, popular conspiracy theories propose that the 9/11 attacks on the Twin Towers were an 'inside job' orchestrated by the Bush administration, and that Diana, Princess of Wales was assassinated by the British Secret Service. Conspiracy theories like these are popular (Oliver & Wood, 2014) and research suggests that if an individual believes in one conspiracy theory they are likely to believe others (Goertzel, 1994; Swami, Chamorro-Premuzic, & Furnham, 2010), even when those theories directly contradict each other (Wood, Douglas, & Sutton, 2012). Belief in conspiracy theories also has important consequences, such as reducing levels of civic engagement (Jolley & Douglas, 2014a), commitment to important preventative health treatments (Jolley & Douglas, 2014b), and loyalty to the workplace (Douglas & Leite, 2017). It is therefore important to understand the factors that draw individuals toward conspiracy theories. To meet this aim, the current research adds to a growing body of literature examining the individual differences predictors of belief in conspiracy theories. Specifically, we focus on the association between conspiracy belief and attachment style, arguing that the tendency to believe in conspiracy theories may originate—to some extent—in early childhood experiences.

Douglas, Sutton, and Cichocka (2017) reason that conspiracy theories are appealing to individuals because they appear to satisfy three types of psychological needs: *social* (e.g., the need to maintain positive image of oneself or one's group), *epistemic* (e.g., the need to be certain, consistent, and accurate), and *existential* (e.g., the need for security and control). For example, conspiracy theories seem to be more appealing to individuals who feel that their personal image is being threatened (Cichocka, Marchlewska, & Golec de Zavala, 2016) and those who have a high personal need for uniqueness (Lantian, Muller, Nurra, & Douglas, 2017), which may appear to satisfy the social need to maintain positive self-esteem. Conspiracy theories also seem to appeal to individuals who seek patterns and order in their environment (van Prooijen, Douglas, & De Inocencio, in press), or those with lower levels of education (Douglas, Sutton, Callan, Dawtry, & Harvey, 2016), which may appear to satisfy the epistemic need for accuracy and certainty. Finally, research suggests that individuals who feel disempowered (Abalakina-Paap, Stephan, Graig, & Gregory, 1999) and anxious (Grzesiak-Feldman, 2013) are more likely to believe in conspiracy theories, which may appear to satisfy the existential need for security and control. Whether conspiracy theories successfully address these needs is unclear, and the research to date suggests that they might not. For instance, some research suggests that conspiracy theories increase (rather than decrease) feelings of powerlessness (Jolley & Douglas, 2014a). Nevertheless, people appear to be attracted to conspiracy theories when

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these needs are unfulfilled (Douglas et al., 2017).

People's existential needs in particular are the focus of the current research. People are motivated to perceive their environment as safe and reassuring (Jost & Hunyady, 2005). Rothbaum, Weisz, and Snyder (1982) proposed that threats to one's security and perceived sense of control over the environment (e.g., terrorist attacks), lead people to attempt to restore compensatory control at a more symbolic level, such as feeling that they possess unique knowledge of the concerning threat (i.e., knowing the 'truth'; see also Deci & Ryan, 1985 for a discussion of compensatory control mechanisms that people might adopt when needs are thwarted). Douglas et al. (2017) argue that belief in conspiracy theories may be one way in which people seek such compensatory control. Experimental research supports this view, showing that when people were reminded of a time when they had no control, endorsement of conspiracy theories increased, whereas belief decreased when a sense of control was induced (van Prooijen & Acker, 2015). Further, Sullivan, Landau, and Rothschild (2010) found that threats to personal control increased the perceived conspiratorial power of an enemy. There is some evidence, therefore, that people turn to conspiracy theories in an attempt to relieve particular concerns related to security and control.

1.2. Attachment style

The origins of such concerns can be considered through the lens of attachment theory. Pioneered by Bowlby, (1969, 1982) attachment theory proposes that infants are biologically driven to seek proximity to a primary caregiver when feeling distressed or threatened—termed the "attachment behavioral system". The primary goal of attachment behavior is to alleviate feelings of anxiety and to elicit a sense of security (Sroufe & Waters, 1977). Bowlby argued that early experiences of threats to security create an internal working model consisting of expectations, emotions, and behavioral strategies elicited by threatening stimuli. He further argued that threatening stimuli later in life activate these working models.

Ainsworth, Blehar, Waters, and Wall (1978) found evidence for three types of working attachment models in infants that result from interactions with primary caregivers. These are *secure* attachment, which is the result of consistent emotional and physical responsiveness, *anxious* attachment, which is the result of inconsistent emotional and physical responsiveness, and *avoidant* attachment, which is the result of consistent emotional and psychical unavailability. Attachment styles are not simply the product of attachment experiences in infancy, but are also relevant during adulthood (Sroufe, Egeland, Carlson, & Collins, 2009). Brennan, Clark, and Shaver (1998) found that adult attachment styles can be understood by two fundamental dimensions. These are attachment anxiety, or a heightened state of arousal and preoccupation with close relationships, and attachment avoidance characterized by discomfort in close relationships, and emotional distancing. Furthermore, low anxiety and low avoidance constitute a secure attachment style, high anxiety and low avoidance constitute an anxious attachment style, and low anxiety and high avoidance constitute an avoidant attachment style.

Integrating the theoretical perspectives of attachment theorists (e.g., Ainsworth, 1991; Bowlby, 1969, 1982; Cassidy & Kobak, 1988; Main, 1995), Mikulincer and Shaver (2003) developed a model of attachment-system functioning in adulthood. They argued that the activation of the attachment-system depends upon the occurrence of a threat (actual or perceived), how the threat is appraised, and the attachment style of the concerning individual. Once the attachment system is activated, individuals are motivated to seek proximity to external or internalized (mental representations) attachment figures. If successful, security-based strategies can be employed and feelings of security, relief and positive affect can be attained. However, if external or internalized attachment figures are not available or are inconsistently available, then the threat is compounded and secondary strategies (hyperactivating and deactivating) are employed to alleviate feelings of distress (Cassidy & Kobak, 1988). Main (1990) likens these two secondary strategies to the distinction between fight and flight, in that hyperactivating strategies—fight responses—include increased effort to seek proximity to significant others, whereas deactivating strategies—flight responses—emphasise a decreased effort to seek proximity to significant others.

Individuals with a secure attachment have a history of successful interactions with available and responsive attachment figures, which then increases the likelihood of security-based strategies being employed to alleviate feelings of distress (Mikulincer & Shaver, 2007). For example, research has shown that individuals with secure (vs. insecure) attachment have a greater tendency to seek instrumental and emotional support from significant others and professional sources such as teachers and counselors (Florian, Mikulincer, & Bucholtz, 1995; Larose, Bernier, Soucy, & Duchesne, 1999). Avoidant attachment is the result of emotional and psychical unavailability of attachment figures. Therefore proximity seeking is not a viable option for avoidant individuals, so in threatening times they tend to alleviate distress by deactivating the attachment system (Cassidy & Kobak, 1988). For example, individuals with avoidant attachment have been shown to adopt distancing coping strategies, such as diversion of attention, stress denial, and cognitive and behavioral disengagement (Feeney & Ryan, 1994; Lopez, Mauricio, Gormley, Simko, & Berger, 2001; Shapiro & Levendosky, 1999). Furthermore, avoidant individuals tend to deny thoughts or feelings that imply vulnerability or dependence (Mikulincer & Shaver, 2007).

Anxiously attached individuals have a history of inconsistent responsiveness from attachment figures, but nevertheless have strong desire for proximity (Mikulincer & Shaver, 2007). To gain an attachment figure's support, attention, and care in times of need, anxiously attached individuals tend to employ hyperactivating strategies (Cassidy & Kobak, 1988). For example, they tend to exaggerate the seriousness of threats they are facing, in the hope that this will gain them the support, attention and care they desire (Cassidy & Berlin, 1994; Mikulincer & Shaver, 2003). This coping strategy appears not to be a fruitful one. Overall, Girme, Lemay, and Hammond (2014) found that individuals with anxious attachment tend to exaggerate expressions of hurt when their relationship is threatened, with the aim of inducing guilt in their partner to gain a reassuring reaction. The benefit of attaining some reassurance also comes with the cost of a significant decrease in relationship satisfaction. Mikulincer and Florian (2000) argued that this tendency to exaggerate can account for why anxiously attached individuals are more sensitive to threats. We argue that this exaggeration may also manifest itself in increased conspiracy belief.

1.3. Anxious attachment and conspiracy belief

Recent theorizing in social psychology suggests that individuals use conspiracy theories as an attempted defensive mechanism to address psychological needs, including the existential need for security and control (Douglas et al., 2017). Individuals with anxious attachment are preoccupied with their security, tend to hold a negative view of outgroups, are more sensitive to threats, and tend to exaggerate the seriousness of such threats. Secure and avoidant attachment styles, on the other hand, are less sensitive to threats and do not exaggerate such threats. Anxious attachment—compared to secure and avoidant attachment—could therefore potentially be a key predictor of conspiracy belief.

Several studies provide indirect evidence for this relationship. For example, insecure attachment has generally been shown to predict greater endorsement of right-wing attitudes (for a review see Koleva & Rip, 2009). Furthermore, dispositional and primed attachment security has been found to buffer the effects of existential threats and is associated with decreased endorsement of right-wing attitudes and policies (Weise et al., 2008). Lastly, insecure attachment and interpersonal trust are intimately connected. Much of the literature has revealed that individuals with anxious or avoidant attachment style tend to be low in

interpersonal trust (Cozzarelli, Hoekstra, & Bylsma, 2000; Luke, Maio, & Carnelley, 2004). Considering that anxious attachment predicts low interpersonal trust and increased perceptions of the world as threatening and dangerous, then perhaps endorsement of conspiracy explanations is one way to gain a compensatory feeling of control in an otherwise threatening world filled with untrustworthy others.

Recent research has provided more direct evidence of the relationship between anxious attachment and conspiracy belief. In a large epidemiological study, Freeman and Bentall (2017) found that conspiracy belief positively correlated with both anxious and avoidant—but not secure—attachment styles. However, this study used a single-item measure of conspiracy belief and such items are typically vulnerable to random measurement error (Schmidt & Hunter, 1996). Freeman and Bentall (2017) also used a single item measure for secure, anxious and avoidant attachment, but attachment styles are more accurately measured using two dimensions of attachment—anxious and avoidant (Brennan & Shaver, 1995; Sanford, 1997)—where low scores on both anxious and avoidant attachment are considered to represent a secure attachment style. High scores (and low on the other) on either dimension are considered an anxious and avoidant attachment style. Furthermore, Freeman and Bentall (2017) did not attempt to separate the relative contributions of anxious and avoidant attachment style to conspiracy belief, nor did they control for other factors that have been found to be associated with attachment and conspiracy belief in previous research.

The current research therefore aimed to test the extent to which the different attachment styles contribute to conspiracy belief whilst taking each other into account and controlling for other known predictors of conspiracy belief. Based on the literature reviewed above, and the tendency for anxiously attached individuals to be sensitive to, and exaggerate threats, we anticipate that anxious attachment will be a stronger predictor of conspiracy belief than avoidant or secure attachment.

1.4. The present research

We conducted two studies to examine the relationship between attachment and conspiracy belief. In Study 1 we also controlled for right-wing authoritarianism (RWA; Adorno, Frenkel-Brunswick, Levinson, & Sandford, 1950; Altemeyer, 1981) and social dominance orientation (SDO; Pratto, Sidanius, Stallworth, & Malle, 1994; Sidanius & Pratto, 1999), which have both been shown to predict conspiracy belief in previous research (Abalakina-Paap et al., 1999; Bruder, Haffke, Neave, Nouripanah, & Imhoff, 2013; Grzesiak-Feldman, 2015) and are associated with perceptions of threat (Duckitt, 2001; Duckitt, Wagner, du Plessis, & Birum, 2002; Onraet, Van Hiel, Dhont, & Pattyn, 2013). We also controlled for the extent to which people view the world as a battle between good and evil. This *Manichean worldview* is associated with belief in conspiracy theories (Oliver & Wood, 2014) and arguably centres around the notion of threat from others (Mikulincer & Shaver, 2003). We further controlled for individual differences in interpersonal trust, which are consistently associated with conspiracy belief (e.g., Abalakina-Paap et al., 1999; Goertzel, 1994) and arguably impede feelings of security and control. Finally, we also considered the contribution of demographic variables (specifically age, education level, and religiosity), which have all been found to predict conspiracy belief in previous research (Douglas et al., 2016).

In Study 2 we again measured the relationship between attachment and conspiracy belief, this time including two additional dependent measures—belief in specific conspiracy theories and belief in conspiracy theories about groups. We did so to examine whether attachment predicts a general tendency to believe notions of conspiracy or also more specific conspiracy theories. Finally, we again considered the contribution of age, education level, and religiosity.

Due to heightened threat sensitivity, and the tendency to exaggerate the seriousness of such threats, we hypothesized that anxious attachment would predict belief in conspiracy theories, even when accounting for other established predictors of conspiracy belief. The pattern of regression coefficients allows us to test this hypothesis. Specifically, if *anxious* attachment predicts conspiracy belief as hypothesized, then the beta weight for the relationship between anxious attachment and conspiracy belief should be positive, whereas the beta weight for the relationship between avoidant attachment and conspiracy belief should be negative or non-significant. If *avoidant* attachment style predicts conspiracy belief then the beta weight for the relationship between avoidant attachment style and conspiracy belief should be positive whereas the relationship between anxious attachment style and conspiracy belief should be negative or non-significant. If *secure* attachment style predicts conspiracy belief, then both beta weights should be negative (Fraley, 2012).

2. Study 1

In Study 1, we measured belief in conspiracy theories, RWA, SDO, interpersonal trust, Manichean worldview, age, education level and religiosity.

2.1. Method

2.1.1. Participants and design

Two hundred and fifty-two workers from Amazon's Mechanical Turk™ (Mturk) were recruited to complete an online questionnaire. Participants were timed and those who rushed through the questionnaire or did not complete it properly (e.g., by selecting the same response for every question) were excluded from the study (n = 6). The remaining participants (N = 246; 145 men, 99 women, 2 transgender, M_{age} = 34.22 years, SD_{age} = 10.07) were included in the final analyses. Of this sample, 89% were American, 6.1% were Indian, and the remaining 4.9% were from various countries.[1] They were each paid US $1 for their time. The design of the study was correlational. The predictor variables were anxious and avoidant attachment, RWA, SDO, interpersonal trust, Manichean worldview, and demographic factors (age, education level, and religiosity). The dependent variable was the tendency to believe in conspiracy theories.

2.1.2. Materials and procedure

The questionnaire was designed and administered using the Qualtrics questionnaire design software. Participants were presented with an information page where they were asked to give their informed consent. They were then asked to complete a series of measures in random order, except for the demographic measures which always appeared in the same order at the end of the questionnaire.

2.1.2.1. Belief in conspiracy theories. We used Brotherton, French, and Pickering's (2013) Generic Conspiracist Beliefs scale (GCB). There were 15 statements (e.g., “Certain significant events have been the result of the activity of a small group who secretly manipulate world events”; 1 = *definitely not true*, 5 = *definitely true*, α = 0.94).

2.1.2.2. Attachment styles. We used the Experiences in Close Relationships-Revised (ECR-R) scale (Fraley, Waller, & Brennan, 2000). This is a 36-item scale comprised of 18 anxious attachment items (e.g., “I'm afraid that I will lose my partner's love”; α = 0.96) and 18 avoidant attachment items (“I get uncomfortable when a romantic partner wants to be very close”; α = 0.96). Items are scored on a seven-point scale, where higher scores indicate a higher level of anxious and avoidant attachment (1 = *strongly disagree*, 7 = *strongly agree*). Low levels on both subscales indicate secure attachment.

[1] Belarus, Canada, Chile, Italy, Lebanon, Russia, Slovakia, Turkey, Ukraine, and Venezuela.

Table 1
Means, standard deviations, and Pearson correlation matrix (Study 1).

	Mean	SD	1	2	3	4	5	6	7	8	9	10
1. Conspiracy	2.55	0.96	1	0.24***	0.11†	0.09	0.23***	0.30***	− 0.23***	− 0.15*	− 0.01	0.11†
2. Anxious	2.81	1.41		1	0.64***	0.02	0.33***	0.13**	− 0.18**	− 0.19**	− 0.05	− 0.01
3. Avoidant	2.82	1.31			1	− 0.06	0.24***	0.02	− 0.28***	− 0.09	− 0.02	− 0.09
4. RWA	3.47	0.93				1	0.36***	0.26***	0.36***	0.02	0.01	0.49***
5. SDO	2.27	1.28					1	0.22***	− 0.02	− 0.15*	0.03	0.13*
6. Manichean	1.80	0.82						1	− 0.07	− 0.09	− 0.07	0.18**
7. Trust	3.57	0.81							1	0.17**	− 0.01	0.13*
8. Age	34.22	10.07								1	0.11†	0.03
9. Education	3.65	0.72									1	0.10
10. Religiosity	2.46	1.88										1

$N = 246$.
† $p < 0.10$.
* $p < 0.05$.
** $p < 0.01$.
*** $p < 0.001$.

2.1.2.3. Right-wing attitudes. We used a shortened version of the Authoritarianism–Conservatism–Traditionalism (ACT) scale (Duckitt, Bizumic, Krauss, & Heled, 2010). There were 12 statements (e.g., "What our country needs most is discipline, with everyone following our leaders in unity", 1 = *strongly disagree*, 7 = *strongly agree*, α = 0.92). Higher scores indicate a higher level of right-wing authoritarianism. To measure SDO, we used the Social Dominance Orientation scale (Pratto et al., 1994). There were 16 statements (e.g., "If certain groups of people stayed in their place, we would have fewer problems"; 1 = *strongly disagree*, 7 = *strongly agree*, α = 0.96). Higher scores indicate a higher level of social dominance orientation.

2.1.2.4. Interpersonal trust. We used the three-item trust scale (α = 0.64) used by Goertzel (1994). The items asked whether participants felt that they could trust the police, their relatives, or their neighbors. Items are scored on a five-point scale, where higher scores indicate a higher level of trust (1 = *not at all*, 5 = *very much*).

2.1.2.5. Manichean worldview. To measure the Manichean worldview, two items were drawn from Oliver and Wood (2014). The items were: "Politics is ultimately a struggle between good and evil" and "We are currently living in End Times as foretold by Biblical prophecy", (1 = *don't believe*, 2 = *not sure about*, 3 = *believe*, α = 0.44). Due to poor internal consistency only the former item was used to gauge a Manichean worldview in subsequent analyses, as in Oliver and Wood's (2014) study.

2.1.2.6. Demographics. Participants were asked to provide some demographic details. In addition to age and gender, participants were asked to rate their education level (1 = *no formal education*, 2 = *primary level education*, 3 = *secondary level education*, 4 = *college or university level education [bachelor's degree]*, 5 = *college or university level education [graduate degree]*). Finally, they rated their religiosity (1 = *not religious at all*, 7 = *very religious*). After participants completed the questionnaire, they were debriefed, thanked and paid for their time.

2.2. Results and discussion

We first examined if there was a gender difference in conspiracy belief between females and males but no such gender difference existed, $t(242) = 0.43$, $p = 0.667$. Gender was therefore not included as a factor in further analyses. We also did not analyse results for ethnic differences since numbers were too unequal. All means, standard deviations and zero-order correlations can be found in Table 1. Conspiracy belief positively correlated with anxious attachment, SDO, interpersonal trust, and Manichean worldview. RWA did not correlate with conspiracy belief. Anxious and avoidant attachment positively correlated with SDO. Neither attachment style correlated with RWA. Age negatively correlated with conspiracy belief. Religiosity marginally positively correlated with conspiracy belief.

To test whether anxious attachment predicts conspiracy belief whilst taking into account other known predictors, we loaded all variables into a multiple regression analysis. Conspiracy belief was entered as the dependent variable. Findings of the final model are presented in Table 2. There was no evidence of collinearity (all tolerances > 0.52 and all VIF < 1.9). The overall regression model was significant, $F(9, 236) = 6.87$, $p < 0.001$ and accounted for 21% of variance in conspiracy belief. As hypothesized, anxious attachment significantly predicted conspiracy belief whereas avoidant attachment did not. SDO, interpersonal trust, and Manichean worldview remained significant predictors of conspiracy belief. Therefore anxious attachment appears to be a unique predictor of belief in conspiracy theories whereas avoidant attachment does not. Furthermore, the pattern of coefficients suggests that secure attachment is not associated with conspiracy belief.

Study 1 demonstrates that belief in conspiracy theories is positively associated with anxious attachment, corroborating the findings of Freeman and Bentall (2017). The results also extended existing research by showing that anxious—but not avoidant or secure—attachment uniquely predicts conspiracy belief when accounting for RWA, SDO, Manichean worldview, interpersonal trust, age, education level and religiosity.

3. Study 2

In Study 2, we aimed to replicate the relationship between anxious attachment and conspiracy belief.[2] We again hypothesized that anxious

[2] This study was originally designed to examine the potential causal link between attachment and conspiracy belief. We reasoned that since anxious attachment predicts conspiracy belief, that priming *secure* attachment may reduce conspiracy belief. Indeed, previous findings (Mikulincer & Shaver, 2001) have shown that secure attachment decreases negative attitudes toward others, which is a consistent feature of conspiracy belief. We primed secure attachment by asking participants to recall a situation when a significant other was there for them and to think about how this person makes them feel (Mikulincer & Shaver, 2001, Studies 1 and 3). We also included a positive affect condition in which participants were asked to recall a funny situation, and a control condition in which participants recalled a visit to the grocery store. Participants completed the attachment measure after the manipulation. Whilst the manipulation check was successful—the secure base task was rated as arousing more attachment security feelings ($M = 6.12$, $SD = 1.70$) than both the control ($M = 3.44$, $SD = 1.50$) and the positive affect tasks ($M = 4.88$, $SD = 1.38$), $F(2, 227) = 79.62$, $p < 0.001$, $\eta 2 = 0.41$—there was no effect of the manipulation on anxious or avoidant attachment, or any of the measures of conspiracy belief. We therefore decided to treat the study as a correlational study and test the association between attachment styles and conspiracy belief. Research does suggest that conspiracy beliefs are difficult to reduce (Jolley & Douglas, 2017), so a challenge for future research will be to test ways of priming attachment that influence conspiracy belief.

Table 2
Predictors of conspiracy belief (Study 1).

Variable	*t*	*β*
Anxious	2.03	0.16*
Avoidant	− 1.21	− 0.10
RWA	0.19	0.02
SDO	1.99	0.13*
Manichean	3.63	0.23**
Trust	− 3.56	− 0.24**
Age	− 0.58	− 0.04
Education	− 1.79	− 0.11†
Religiosity	1.22	0.08

† $p < 0.10$.
* $p < 0.05$.
** $p < 0.01$.

attachment would predict greater conspiracy belief. We also extended upon our findings from Study 1. Specifically, we included two additional dependent measures—belief in specific conspiracy theories and belief in conspiracy theories about particular groups—to examine whether anxious attachment predicts belief in only general notions of conspiracy or also established conspiracy theories Finally, we controlled for age, education and religiosity as in Study 1.

3.1. Method

3.1.1. Participants and design

Two hundred and thirty one participants were recruited from Prolific Academic to take part in a memory recall task. As in Study 1, participants were timed and those who rushed through the questionnaire or did not complete it properly (e.g., by selecting the same response for every question) were excluded from the study ($n = 1$). Of the remaining 230 participants (125 women, 105 men, $M_{age} = 38.63$ years, $SD_{age} = 11.63$), 98.7% were British and the remaining 1.3% were of various nationalities.[3] They were each paid UK £1.25 for their time. The design of the study was correlational. The predictor variables were anxious and avoidant attachment, belief in specific conspiracy theories, belief in conspiracy theories about groups, age, education level and religiosity. The dependent variable was belief in conspiracy theories.

3.1.2. Materials and procedure

As in Study 1, the questionnaire was run via Qualtrics software. Participants were first presented with an information page where they were asked to give their informed consent. They were then presented with the questionnaire where the variables below were presented in random order, except for the attachment styles and demographic measures, which always appeared respectively at the end of the questionnaire.[4]

3.1.2.1. Attachment styles. Participants completed the ECR-R scale as in Study 1 ($\alpha = 0.95$ for both anxious and avoidant attachment).

3.1.2.2. General conspiracy beliefs. To measure general conspiracy beliefs, participants complete the GCB scale ($\alpha = 0.95$) as in Study 1.

3.1.2.3. Specific conspiracy beliefs. To measure conspiracy belief regarding specific events, participants completed Douglas et al.'s (2016) specific conspiracy belief's scale (an abridged version of the scale used by Douglas & Sutton, 2011). This is a seven-item scale measuring belief in conspiracy theories about specific events (e.g., "The attack on the Twin Towers was not a terrorist action but a governmental plot"; 1 = *strongly disagree*, 7 = *strongly agree;* $\alpha = 0.90$) rather than general notions of conspiracy.

3.1.2.4. Conspiracy theories about groups. Participants were asked to rate the extent to which they thought five social groups (e.g., bankers, politicians; $\alpha = 0.77$) conspired against others (1 = *not at all*, 6 = *very much*).

3.1.2.5. Demographics. Finally, participants were asked to indicate their age, education level and religiosity as in Study 1. After participants completed the questionnaire, they were debriefed, thanked and paid for their time.

3.2. Results and discussion

We first examined if there was a gender difference in conspiracy belief between females and males, but no such gender difference existed, $t(228) = -0.14$, $p = 0.890$. Gender was therefore not included as a factor in further analyses. We also did not analyse results for ethnic differences since numbers were too unequal. All means, standard deviations and zero-order correlations can be found in Table 3. General, specific and group-specific conspiracy beliefs were all positively correlated with each other. General and group-specific conspiracy beliefs positively correlated with anxious attachment. Specific conspiracy beliefs were marginally correlated with anxious attachment. Neither measure of conspiracy belief correlated with avoidant attachment. Education level negatively correlated with general and specific conspiracy belief. Education marginally correlated with group-specific conspiracy belief. Religiosity negatively correlated with both anxious and avoidant attachment.

To test whether attachment styles could uniquely predict general, specific and group conspiracy belief, we loaded all variables into three separate multiple regression analyses. Findings of the three final models are presented in Table 4. There was no evidence of collinearity (all tolerances > 0.76 and all VIF < 1.3). Firstly, general conspiracy belief was entered as the dependent variable. The overall regression model was significant, $F(5, 224) = 4.99$, $p < 0.001$ and accounted for 10% of variance in general conspiracy belief. As in Study 1, anxious attachment significantly predicted a general belief in conspiracy theories whereas avoidant attachment did not. The pattern of coefficients also suggests that secure attachment did not predict general conspiracy belief.

Secondly, belief in specific conspiracy theories was entered as the dependent variable. The overall regression model was significant, $F(5, 224) = 4.59$, $p < 0.001$ and accounted for 9% of variance in general conspiracy belief. Anxious attachment significantly predicted belief in specific conspiracy theories whereas avoidant attachment did not. The pattern of coefficients also suggests that secure attachment did not predict conspiracy belief.

Lastly, belief in conspiracy theories about specific groups was entered as the dependent variable. The overall regression model was significant, $F(5, 224) = 4.01$, $p = 0.002$ and accounted for 8% of variance in general conspiracy belief. As in Study 1, anxious attachment significantly predicted belief in conspiracy theories whereas avoidant attachment did not. The pattern of coefficients also suggests that secure attachment did not predict conspiracy belief.

4. General discussion

4.1. The present findings

The current research supported the hypothesis that anxious attachment predicts belief in conspiracy theories, and that this relationship holds even when accounting for other known predictors of conspiracy belief. The present research therefore extends the finding that insecure attachment and conspiracy beliefs are positively correlated

[3] Bahrain, Trinidad and Tobago, and Tanzania.
[4] Due to the original experimental design of this study which employed an attachment priming task, attachment was measured last and after a distractor task.

Table 3
Pearson correlation matrix for Study 2.

	Mean	SD	1	2	3	4	5	6	7	8
1. General Conspiracy	2.57	0.92	1	0.82***	0.46***	0.23***	0.01	− 0.03	− 0.16*	− 0.10
2. Specific Conspiracy	2.60	1.38		1	0.31***	0.12†	− 0.04	0.01	− 0.23***	0.12†
3. Group Conspiracy	3.34	1.05			1	0.22***	0.06	− 0.07	− 0.12†	− 0.09
4. Anxious	3.02	1.25				1	0.43***	− 0.12†	− 0.01	− 0.14*
5. Avoidant	2.86	1.18					1	0.01	− 0.03	− 0.22***
6. Age	38.63	11.63						1	− 0.11†	0.04
7. Education	3.80	0.73							1	0.04
8. Religiosity	1.97	1.46								1

$N = 230$.
† $p < 0.10$.
* $p < 0.05$.
*** $p < 0.001$.

Table 4
Predictors of general, specific, and group conspiracy belief (Study 2).

	General		Specific		Group	
Variables	*t*	*β*	*t*	*β*	*t*	*β*
Anxious	3.88	0.27***	2.46	0.18*	3.25	0.23***
Avoidant	− 1.14	− 0.08	− 1.21	− 0.09	− 0.17	− 0.01
Age	− 0.31	0.02	− 0.01	0.00	− 0.92	− 0.06
Education	− 2.52	− 0.16*	− 3.59	− 0.23***	− 2.04	− 0.13*
Religiosity	2.03	0.13*	2.09	0.14*	1.99	0.13*

* $p < 0.05$.
*** $p < 0.001$.

(Freeman & Bentall, 2017), and specifically suggests that anxious attachment is the key predictor. Furthermore, this research lends support to Douglas et al.'s (2017) argument that conspiracy beliefs may be used as a mechanism to address important psychological needs. In this case, conspiracy theories may be adopted to meet the psychological need to feel secure. Furthermore, the present research incorporates the social phenomenon of conspiracy beliefs into the wider theoretical framework of attachment theory. Specifically, since attachment remains moderately stable from childhood to adulthood (Fraley, 2002), the current results might suggest that conspiracy beliefs—in part—result from early childhood attachment experiences. This finding also adds to a growing body of literature suggesting that attachment not only influences how a person interacts with others, but also that it influences people's worldviews and political attitudes (e.g., Koleva & Rip, 2009).

Importantly, the current research also demonstrates that anxious attachment predicts general conspiracy beliefs but also conspiracy beliefs about specific events and groups. These results parallel the finding that individuals with anxious attachment tend to exaggerate and catastrophize the threats that they may be facing (Cassidy & Berlin, 1994; Mikulincer & Shaver, 2003). Individuals high in anxious attachment who endorse different types of conspiracy theories may be doing so to make their vulnerabilities known in the hope of attracting the attention of attachment figures.

More specifically, after encountering a threat to ones sense of security (e.g., a terrorist attack) individuals are motivated to seek proximity to significant others to alleviate distress (Mikulincer & Shaver, 2003). Securely attached individuals tend to deal better with such threats and tend to seek instrumental and emotional support from significant others (Florian et al., 1995). In contrast, for individuals with insecure (i.e., avoidant and anxious) attachment, significant others are either not available or are inconsistently available. These individuals therefore employ secondary strategies to deal with the threat (Cassidy & Kobak, 1988). In this case, individuals with avoidant attachment—for whom significant others are not available—would tend to deactivate the attachment system and be more inclined to deny stress or vulnerability. Arguably therefore, they would be less inclined toward overarching conspiracy narratives that imply vulnerability and powerlessness. Individuals with anxious attachment, however—for whom significant others are inconsistently available—would tend to hyperactivate the attachment system and be more inclined to express their vulnerabilities in an attempt to attract the attention of significant others. One way this could be achieved is by exaggerating the threat, in the form of elaborate conspiracy theories. Belief in conspiracy theories may therefore—in part—be a hyperactivating strategy of the attachment system.

4.2. Limitations and future research

One important limitation of the current research is that it is correlational in nature. Thus, we cannot establish the causal direction of the relationship between anxious attachment and conspiracy belief. Nevertheless, we established the relationship across two samples from predominantly two different nations, which suggests that the relationship is robust at least in Western samples. Future research could sample from other cultural settings and also investigate the direction of causality to draw firmer conclusions about the relationship between attachment and conspiracy belief. In particular, it would be worthwhile further investigating the utility of priming secure attachment as a means to reduce conspiracy belief. We know that conspiracy theories can be harmful (Douglas & Leite, 2017; Jolley and Douglas, 2014a, b), but that conspiracy beliefs may be difficult to defuse once they have taken root (Jolley & Douglas, 2017). Therefore, potential interventions should take some priority for researchers in this area.

Further, if contextual activation of attachment security cannot reduce conspiracy belief, perhaps individuals with dispositional attachment security might be more resistant to conspiracy theories. Future research should examine whether individuals with secure attachment can buffer the effects of perceived loss of control or threats to security on conspiracy belief. Considering that individuals with secure attachment buffer the effects of a mortality salience manipulation (Weise et al., 2008), then perhaps only individuals with insecure attachment will report greater conspiracy belief after a threat. Another way in which the causal effect of attachment styles could be examined is by running longitudinal studies. Specifically, future research might explore the relationship between attachment and conspiracy belief over time.

Finally, considering that attachment styles predict different ways of coping (Mikulincer & Shaver, 2007), future research could examine the relationship between anxious attachment and conspiracy belief with coping strategies acting as mediators. Insecure attachment increases the likelihood of utilizing maladaptive coping strategies to deal with threats to security which, in turn, could increase the likelihood of endorsing conspiracy theories. Specifically, future research should examine potential variables that make insecurely attached individuals more—or less—likely endorse a conspiracy narrative.

4.3. Conclusion

Considering the potentially negative impact of conspiracy theories for individuals and society, it is important to understand why such theories are appealing to so many people. The current research suggests that anxiously attached individuals might turn to conspiracy theories in an attempt to satisfy their unfulfilled need for security. A future challenge for researchers will be to determine if this strategy actually works.

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