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Measuring individual differences in generic beliefs in conspiracy theories across cultures: Conspiracy Mentality Questionnaire .

Conspiracy theories are ubiquitous when it comes to explaining political events and societal phenomena. Individuals differ not only in the degree to which they believe in specific conspiracy theories, but also in their general susceptibility to explanations based on such theories, that is, their conspiracy mentality. We present the Conspiracy Mentality Questionnaire (CMQ), an instrument designed to efficiently assess differences in the generic tendency to engage in conspiracist ideation within and across cultures. The CMQ is available in English, German, and Turkish. In four studies, we examined the CMQ's factorial structure, reliability, measurement equivalence across cultures, and its convergent, discriminant, and predictive validity. Analyses based on a cross-cultural sample (Study 1a; N = 7,766) supported the conceptualization of conspiracy mentality as a one-dimensional construct across the three language versions of the CMQ that is stable across time (Study 1b; N = 141). Multi-group confirmatory factor analysis demonstrated cross-cultural measurement equivalence of the CMQ items. The instrument could therefore be used to examine differences in conspiracy mentality between European, North American, and Middle Eastern cultures. In Studies 2–4 (total N = 476), we report (re-)analyses of three datasets demonstrating the validity of the CMQ in student and working population samples in the UK and Germany. First, attesting to its convergent validity, the CMQ was highly correlated with another measure of generic conspiracy belief. Second, the CMQ showed patterns of meaningful associations with personality measures (e.g., Big Five dimensions, schizotypy), other generalized political attitudes (e.g., social dominance orientation and right-wing authoritarianism), and further individual differences (e.g., paranormal belief, lack of socio-political control). Finally, the CMQ predicted beliefs in specific conspiracy theories over and above other individual difference measures.

“Other centuries have only dabbled in conspiracy like amateurs. It is our (the Twentieth) century which has established conspiracy as a system of thought and a method of action” (Moscovici, 1987, p. 153). INTRODUCTION Belief in conspiracy theories continues to thrive in the twenty-first century. In Western cultures, recent popular conspiracy theories have revolved – among other themes – around the perpetrators (and possible knowing bystanders) of the 9/11 attacks on the World Trade Center in New York (Stempel et al., 2007; Swami et al., 2010), the deaths of Princess Diana (Douglas and Sutton, 2008), and Osama bin Laden (Wood et al., 2012), and the scientific evidence for climate change (Leiserowitz, 2006). These new conspiracy theories take their place next to “classics” such as alleged plots concerning the assassination of John F. Kennedy (McHoskey, 1995), the cover-up of alien contact (Harrison and Thomas, 1997), or the origins of diseases such as HIV (Ross et al., 2006). There is increasing evidence that there are stable individual differences in people's tendency to believe in such conspiracy theories; if a person believes in one conspiracy theory, he or she will also be more likely to believe in other conspiracy theories (Swami et al., 2010). In fact, this tendency even extends to beliefs in mutually contradictory conspiracy theories, and to beliefs in fully fictitious conspiracy theories. Thus, those who believe that Princess Diana faked her own death are also more likely to believe that she was murdered (Wood et al., 2012); those who believe in “real-world conspiracy theories” (i.e., that John F. Kennedy fell victim to an organized conspiracy) are more likely to believe that there was a conspiracy behind the success of the Red Bull energy drink – a conspiracy theory that was purposely developed for a social psychology study (Swami et al., 2011).

This has led some researchers to propose that the endorsement of specific conspiracy theories depends to a large extent on individual differences in the general tendency to adopt such beliefs, that is, a general conspiracy mentality (Imhoff and Bruder, in press). This term was originally phrased by Moscovici (1987) who understood the notion of conspiracy as implying “that members of a confession, party, or ethnicity [. . .] are united by an indissoluble secret bond. The object of such an alliance is to foment upheaval in society, pervert societal values, aggravate crises, promote defeat, and so on.” (p. 154). As such, a conspiracy mentality then describes the general propensity to subscribe to theories blaming a conspiracy of ill-intending individuals or groups for important societal phenomena or, in more abstract terms, the tendency to subscribe to “general conspiracist beliefs” (Swami et al., 2010). Usually, such theories contradict common explanations and allege that these events are caused by secret plots by groups of powerful individuals. Individual differences in conspiracy mentality have important consequences as they predict prejudice against powerful societal groups (Imhoff and Bruder, in press). Consequences of this may either be intentions to engage in political action designed to undermine the perceived conspiracy (Imhoff and Bruder, in press) or – if the conspiracy is perceived to be overpowering – political disengagement (Butler et al., 1995). Further, conspiracy beliefs are powerful predictors of critical health behaviors such as adherence to medication regimens (Bogart et al., 2010) and vaccination uptake (Kata, 2010). There have been a number of initial efforts to measure individual differences in conspiracy mentality (sometimes called “conspiracist ideation”; Swami et al., 2011), the most prominent of which is Swami and colleagues’ Belief in Conspiracy Theories Inventory (BCTI; Swami et al., 2010, 2011). This consists of 15 items measuring beliefs in specific conspiracy theories (e.g., “A powerful and secretive group, known as the New World Order, are planning to eventually rule the world through an autonomous world government, which would replace sovereign governments.”) and has been used in the UK and continental Europe (Swami et al., 2011) as well as East Asia (Swami, 2012). The internal reliability of this scale has consistently been very good and it relates in meaningful ways to other individual difference variables such as: support for democratic principles, political cynicism, negative attitudes to authority, and low agreeableness (Swami et al., 2011). However, scales measuring beliefs in specific conspiracy theories are closely bound to specific temporal and geographical contexts. In response to these limitations, it has been suggested that there is a need to assess the general tendency to believe in conspiracies in a way that is not dependent on the cultural familiarity of selected theories (Brotherton, French, and Pickering; in press) and also independent of knowledge about specific conspiracy theories which may vary between cultures. For example, it is unlikely that the BCTI item concerning the New World Order is equally familiar in all countries around the world. Hitherto, there have been two attempts to address this challenge, however, neither explicitly address the cross-cultural validity of the measurement instruments. First, Brotherton et al. (in press) have developed a 15-item Generic Conspiracist Beliefs Scale on the basis of an exploratory factor analysis of 75 items. They were able to differentiate between five major components of generic conspiracy beliefs: governmental conspiracies, extraterrestrial conspiracies, informational control conspiracies, personal well-being conspiracies, and malevolent global conspiracies. These dimensions are also reflected in the final scale. Second, Imhoff and Bruder (in press) developed a 12-item Conspiracy Mentality Scale. The items of this instrument not only avoid mentioning any specific alleged conspiracy, but also do not name any specific groups that may be responsible for a conspiracy (example item: “Most people do not recognize to what extent our life is determined by conspiracies that are concocted in secret”). Both the authors of the Generic Conspiracist Beliefs Scale and the Conspiracy Mentality Scale provide initial evidence for the convergent and discriminant validity of their instruments.

However, neither scale has been validated in non-Western cultures and so far neither scale has been adopted by researchers other than the original authors. We believe that these activities attest to the scientific relevance of developing valid, reliable, and efficient instruments to measure generic conspiracy beliefs. In this context, we will propose the Conspiracy Mentality Questionnaire (CMQ), a short (5-item) measure of generic conspiracy beliefs that we administered in a large (N = 7,766) international study spanning North American (US), Western European (UK and Ireland; Germany), and Middle Eastern (Turkey) cultures (see Study 1a). The cross-cultural dimension has so far been largely absent from research on conspiracy theories (for a notable exception examining the UK and Austria, see Swami et al., 2011). Developing that dimension would be highly desirable because it is likely that individual characteristics and cultural factors interact when it comes to the belief in specific conspiracy theories, and its consequences on attitudes and behaviors. In particular, a number of studies have shown that subcultures within national groups are differentially prone to belief in conspiracy theories. For example, African American and Latino communities in the US are particularly likely to endorse conspiracy theories claiming that HIV was spread to extinguish specific ethnic groups (Ross et al., 2006). Connecting these findings with research looking at individual differences in the propensity to believe in conspiracy theories is a promising endeavor – even more so when extending the perspective to different cultures around the globe. At the global level, conspiracy theories have been identified as a driving factor in the discourses of conflict in the Middle East (Pipes, 1998). Again, identifying how such broader societal phenomena relate to, and interact with, individual characteristics constitutes a worthwhile future research agenda. Our scale is designed to facilitate such future efforts.

DISCUSSION The main purpose of our analyses was to examine the factorial structure and internal consistency, the measurement equivalence across cultures, and the validity of the 5-item CMQ – a psychometric instrument designed to assess individual differences in conspiracy mentality. Regarding the factorial structure of the CMQ, our data were consistent with the assumption that conspiracy mentality – at its core – constitutes a one-dimensional construct. In each of the English, German, and Turkish language versions, exploratory factor analyses strongly suggested a one-factor solution with satisfactory loadings of all individual items; accordingly, internal consistency of the scale was adequate in all studies. This is consistent with the fact that longer instruments are able to identify subscales of generic conspiracy beliefs. Brotherton et al. (in press) Generic Conspiracist Beliefs Scale does just that by differentiating between conspiracy theories related to government malfeasance, extraterrestrial coverup, control of information, etc. In order to successfully identify subscales, the instrument must contain a sufficient number of items with relatively specific information about possible perpetrators and topics of conspiracies without explicitly referring to any existing conspiracy theory. This approach comes with dangers. First, any specification of content-related aspects such as the topic of the conspiracy (e.g., “New and advanced technology which would harm current industry is being suppressed”; Brotherton et al., in press) renders cross-cultural comparisons more difficult. For example, whereas in some countries the transition from old to new technologies may simply be a matter of market forces, in other countries new technologies may actually be suppressed for political or economic ends. Although an item such as the one by Brotherton et al. (in press) above may be a good indicator of conspiracy mentality in the former type of country (e.g., democracies), answers to this item may reflect appropriate skepticism and low gullibility rather than conspiracy mentality in the latter type of country (e.g., autocracies). Second, any specification of content-related aspects makes a scale more susceptible to the influence of current political events (e.g., the Fukushima

Daiichi disaster in 2011 may have temporarily or lastingly changed attitudes toward some new technologies in certain countries but not others). Thus, although there is doubtlessly substantial benefit in a fine-grained assessment of conspiracy beliefs, we suggest that there are also benefits in a short generic measure focusing on the central construct of conspiracy mentality. The two approaches should therefore be considered as complementary. As Brotherton et al. (in press) have themselves argued, for most purposes, it will be sufficient to establish an overall score measuring the tendency to engage in conspiracist ideation. The CMQ provides a highly economical instrument to do just that, for which measurement equivalence has been established across markedly different cultures. Brotherton et al. (in press) Generic Conspiracist Beliefs Scale, instead, may be better suited for exploring domain-specific differences in conspiracy beliefs. However, its measurement and SE have yet to be established before it can be used in non-English-speaking countries. Our analyses concerning the measurement equivalence of the CMQ across its three language versions provided initial support for the idea that it is possible to assess conspiracy mentality across different cultures. In fact, constraining item loadings to be equal across language versions did not substantially reduce model fit. Thus, items “function” equally well in English-, German-, and Turkish-speaking contexts despite some questions as to whether the construct of conspiracy mentality is as well captured by a one-dimensional scale in a Turkish context than in the other two contexts. This finding illustrates the potential complementarity of our measure with other, more detailed and culture-dependent measures of conspiracy beliefs. Our scale helped to identify a need to examine the structure of conspiracy beliefs in the Middle East using more extensive measures such as the one developed by Brotherton et al. (in press). Study 1a also provided support for the utility of the CMQ in describing mean differences in conspiracy beliefs. At a cross-cultural level, Turkish participants were more prone to believe in conspiracy theories than participants from Western countries (Germany, UK/Ireland, US), who did not systematically differ in their conspiracy mentality. This is consistent with suggestions that conspiracy beliefs are particularly rife in the Middle East (e.g., Pipes, 1998). Within cultures, we observed that women in the US, but not in the other countries, scored higher on conspiracy mentality than did men. This is a powerful reminder that even research focusing on sex differences does well in examining men and women in more than one culture before claiming to have uncovered “essential” (rather than culture-specific) differences between the sexes. Our studies provide ample evidence for the convergent, discriminant, and predictive validity of the CMQ. Study 4 showed that it is closely associated with the Conspiracy Mentality Scale (Imhoff and Bruder, in press), a measure that has been shown to meaningfully predict intergroup and political attitudes. Further evidence for the convergent validity of the scale comes from meaningful predicted correlations with other generalized political attitudes (RWA, social dominance orientation), personality measures (schizotypy, paranoid ideation, agreeableness), and further individual differences measures (e.g., most domains of paranormal belief, anomia, anthropomorphism, perceptions of powerlessness and lack of socio-political control). Beyond these associations, there exist a plethora of potentially meaningful and important relationships to other constructs. For example, recent articles discussed the influence of uncertainty and perceptions of morality (Van Prooijen and Jostmann, 2013) as well as the influence of anxiety-inducing situations (Grzesiak-Feldman, 2013) on conspiracist ideation. One may also want to explore whether people with strong imaginative abilities (i.e., high fantasy proneness or absorption) or those who are more susceptible to outside influence (e.g., those high in hypnotic suggestibility) are more likely to believe in conspiracy theories, or whether and in what way personality variables in general interact with conspiracy mentality over time. However, these questions will have to be addressed in future research. For the initial evaluation of the CMQ, we

purposely focused on those constructs that have been mentioned in the literature on conspiracy beliefs and ascertained that the CMQ relates to these constructs in predictable ways. The relationship between perceptions of control and conspiracy beliefs warrants some further discussion. Conspiracy beliefs have long been linked to low levels of societal power and control. For example, those threatened by unemployment as well as ethnic minorities are more likely to believe in conspiracy theories (Goertzel, 1994; Abalakina-Paap et al., 1999). Consistent with these findings, we also observed a negative association between conspiracy mentality and perceived socio-political control as well as a positive association between conspiracy mentality and anomia. However, in our data there was no relationship between conspiracy mentality and lack of personal or interpersonal control despite recent evidence that inducing perceptions of low personal control also increases the attribution of ambiguous events to conspiracies (Whitson and Galinsky, 2008; Kay et al., 2009). We argue that the difference lies in the functionality of conspiracy beliefs that differs between our correlational design and experimental designs such as Whitson and Galinsky's (2008) due to differences in attribution. For experimentally induced control deprivation, beliefs in conspiracies constitute an opportunity to engage in compensatory action: Seeing the plot behind the curtains helps to regain a sense of control. We argue that the situation is different for self-reported low levels of personal control that are predominantly internally attributed (as measured, e.g., by the item "It's pointless to keep working on something that's too difficult for me" of Paulhus', 1983, Spheres of Control scale). Here, adopting a belief about how others secretly try to gain control over the world would not constitute a functional way of regaining a sense of control, precisely because this lack of control is internally attributed. If own failures were externally attributed (e.g., if there was an item stating "Others confront me with much harder tasks than my competitors"), endorsing conspiracy beliefs may be functional in regaining feelings of control ("I am not incompetent, rather, ill-intending individuals are against me"). The same logic applies to the Spheres of Control subscale of interpersonal control that also targets internally attributed lack of control (e.g., "I'm not good at guiding the course of a conversation with several others"). However, this is markedly different for the subscale tapping into socio-political control which explicitly introduces attributions to external causes (e.g., "Bad economic conditions are caused by world events that are beyond our control"). Thus, it should be expected that conspiracy mentality as a stable generalized political attitude (Imhoff and Bruder, in press) is related to levels of socio-political control but not to momentary fluctuations in perceived personal or interpersonal control. Indeed this is what we observed. Although conspiracy mentality relates to a large number of individual difference measures in meaningful ways, none of these correlations reaches a level that casts doubt on its viability as an independent construct. In particular, whereas the CMQ's correlation with the Conspiracy Mentality Scale was 0.82, all other correlations were smaller than 0.54 (most of them substantially so). Critically, the CMQ fared very well – and much better than any other of the individual difference measures – in predicting beliefs in specific conspiracy theories even when controlling for a large number of alternative predictors. Only a minority of specific conspiracy theories could not be predicted well. Again, this may hint at the role of situational factors in determining the degree to which people (at the time of data collection) believed in these specific theories. This underlines the need to integrate research on situational factors determining endorsement of specific conspiracy beliefs with stable individual differences in conspiracy mentality. We argue that our findings build a convincing case for the suitability and utility of the CMQ as a measure of conspiracy beliefs. However, we recognize that the present studies have their limitations. First, our samples were not representative of the general population of the different countries, and any generalization should therefore proceed with

caution. However, one should note that we made an effort to recruit diverse participant samples to avoid relying on highly specific subgroups of the population (Henrich et al., 2010). In particular, samples differed in terms of participants' professions (e.g., students in Studies 2 and 4 and employees in Study 3) as well as in cultural background (Western Europe, Middle East, and North America). Further, Study 1a is – with over 7,500 participants – one of the largest available data collections on a broad range of items assessing both generic and specific beliefs in conspiracy theories in a cross-cultural context. Similarity in recruitment methods across cultural groups resulted in comparable group compositions in terms of key socio-demographic characteristics, thus allowing for at least tentative between-country comparisons concerning the absolute level of conspiracy mentality. We are aware that the difference in sample size across the four studies (ranging from $N = 76$ to $N = 7,766$) may appear inconsistent. However, on close inspection the results reveal high levels of consistency of findings across the different studies. For example: (1) despite the differences in sample size, age, and professions between Studies 2 and 3, the CMQ scores are highly similar in terms of means and standard deviations. Further, (2) the correlation between the Paranoid Ideation Scale and the CMQ are of similar strength across the two studies ($r = 0.45$ and 0.50). (3) The findings concerning the CMQs predictive validity are highly consistent throughout all four studies. The average correlation of the CMQ with all specific conspiracy theory items always ranged between 0.50 and 0.58. More importantly – as stated above – the CMQ consistently turned out to be the strongest predictor for the belief in specific conspiracy theories across all studies, despite controlling for a broad range of other potential predictors. Second, we are aware of the fact that our scale is not completely free from content-related aspects. For example, the item “I think government agencies closely monitor all citizens” does provide more specific information than the item “I think that events which superficially seem to lack a connection are often the result of secret activities.” This difference may be responsible for the fact that the former item showed a comparatively low factor loading in the Turkish language version. Although we acknowledge that this potential problem must be carefully monitored when extending the use of the scale to further, possibly non-democratic, countries, the level of content provided still allowed for measurement equivalence across the language versions. Lastly, an instrument with items not mentioning any actors or possible topics of conspiracies runs the danger of not adequately capturing the construct. Thus, in our view, the distinction between scales measuring generic and specific conspiracy beliefs is not as clear cut as one may initially suspect. In particular, “generic” scales will usually have to provide some level of specific content to render the assessment of a conspiracy mentality meaningful. Our scale, we suggest, qualifies as a comparatively generic measure able to efficiently assess the general tendency to believe in conspiracy theories in a cross-cultural context.

CODA There is much reason to think that there is no return to what Moscovici (1987) describes as the amateur stage of conspiracy beliefs. To the contrary, an increasingly fast-paced political process characterized by frantic political and economic competition is bound to generate a number of competing theories proclaiming to explain certain societal phenomena and events. The internet is a powerful communication tool that even allows theories to proliferate that in former times may not have passed the filter of mainstream media; and conspiracy theories seem ubiquitous in many cultural contexts. Whether presidential candidates are blamed for covering their real birth place or whether outside powers are blamed for civil unrest in autocratic countries like Syria – conspiracy beliefs permeate political and societal processes. Being able to reliably assess the general tendency to endorse such theories with the CMQ

should help to guide the next steps in the exciting endeavor to better understand the psychological role o

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Finding meaning in the clouds: Illusory pattern perception predicts receptivity to pseudo-profound bullshit Alexander C. Walker* Martin Harry Turpin† Jennifer A. Stolz‡ Jonathan A. Fugelsang† Derek J. Koehler† Abstract Previous research has demonstrated a link between illusory pattern perception and various irrational beliefs. On this basis, we hypothesized that participants who displayed greater degrees of illusory pattern perception would also be more likely to rate pseudo-profound bullshit statements as profound. We find support for this prediction across three experiments (N = 627) and four distinct measures of pattern perception. We further demonstrate that this observed relation is restricted to illusory pattern perception, with participants displaying greater endorsement of non-illusory patterns being no more likely to rate pseudo-profound bullshit statements as profound. Additionally, this relation is not a product of a general proclivity to rate all statements as profound and is not accounted for by individual differences in analytic thinking. Overall, we demonstrate that individuals with a tendency to go beyond the available data such that they uncritically endorse patterns where no patterns exist are also more likely to create and endorse false-meaning in meaningless pseudo-profound statements. These findings are discussed in the context of a proposed framework that views individuals' receptivity to pseudo-profound bullshit as, in part, an unfortunate consequence of an otherwise adaptive process: that of pattern perception. Keywords: pseudo-profound bullshit, bullshit receptivity, illusory pattern perception, irrational belief

1 Introduction

"Bullshit is everywhere." – George Carlin This statement may be truer today than ever before, as technological advances have allowed for information to spread faster and farther than ever before. Included in this expansion of information is likely an increase in peoples' exposure to bullshit. While many people may believe that they can reliably detect and resist bullshit, empirical findings suggest otherwise (Pennycook, Cheyne, Barr, Koehler & Fugelsang, 2015a; Pennycook & Rand, 2018; Pfatthe This research was supported by grants from The Natural Sciences and Engineering Research Council of Canada. Copyright: © 2019. The authors license this article under the terms of the Creative Commons Attribution 3.0 License. *Department of Psychology, University of Waterloo, Waterloo, ON, Canada N2L 3G1. Email: a24walke@uwaterloo.ca. †Department of Psychology, University of Waterloo. ichter & Schindler, 2016; Sterling, Jost & Pennycook, 2016). For example, an initial investigation of people's receptivity to pseudo-profound bullshit by Pennycook and colleagues (2015a) demonstrated how people frequently rate these superficially impressive yet vacuous statements as profound. Furthermore, studies have reported initial evidence for how receptivity to pseudo-profound bullshit relates to real-world beliefs, such as beliefs about political ideologies and candidates (Pfattheicher & Schindler, 2016; Sterling, Jost & Pennycook, 2016), conspiracy and supernatural beliefs (Pennycook et al. 2015a), and beliefs about the accuracy of "fake news" (Pennycook & Rand, 2018). Despite bullshit representing a real, prevalent, and consequential phenomenon, little research has been conducted on the topic. The current article furthers the investigation of pseudo-profound bullshit in two ways: First, we propose that peoples' susceptibility to pseudo-profound bullshit arises in part as an unfortunate consequence of an otherwise adaptive behaviour, that of pattern perception; second, congruent with this proposal, we investigate whether individuals susceptible to endorsing illusory patterns are more receptive to pseudo-profound bullshit.

1.1 Pseudo-profound bullshit

Initial investigations of bullshit, specifically of the pseudoprofound variety, have utilized Frankfurt's (2005) conception of bullshit as an absence of concern for the truth. That is, according to Frankfurt, bullshit is not about falsity but rather fakery; bullshit may be true, false, or meaningless, what makes a claim bullshit is an implied yet artificial attention to the truth.

Consistent with this description of bullshit, Pennycook and colleagues (2015a) generated a list of superficially impressive statements that implied yet did not contain either truth or meaning by having a computer program randomly arrange a set of profound-sounding words in a way that maintained proper syntactic structure (see Dalton, 2016, for a comment, and Pennycook, Cheyne, Barr, Koehler & Fugelsang, 2016, for a response). In addition to demonstrating peoples' receptiveness to meaningless pseudo-profound bullshit statements, Pennycook and colleagues (2015a) revealed how various individual differences were associated with bullshit receptivity. Specifically, it was found that those more receptive to bullshit were less analytic thinkers (e.g., scored lower on the Cognitive Reflection Test), scored lower in measures of cognitive ability (e.g., the Wordsum test and Raven's Advanced Progressive Matrices), and were more likely to hold religious, conspiratorial, and paranormal beliefs. Two mechanisms were proposed to explain participants' endorsement of pseudoprofound bullshit. First, some participants were shown to possess a general tendency to afford any and all statements some level of profundity (e.g., mundane statements such as "Some things have very distinct smells"). The results of Pennycook and colleagues suggest that this gullible tendency towards ascribing profundity to even the most mundane of statements is one component of bullshit receptivity. Second, individual differences in analytic thinking (as measured by the Cognitive Reflection Test and a "Heuristics and Biases" battery) were found to be associated with bullshit receptivity. Specifically, those with a propensity for analytic (as opposed to intuitive) thinking were found to be less receptive to pseudo-profound bullshit. Thus, another explanation put forth by Pennycook and colleagues is that individuals differ with regards to their ability to detect bullshit, with more analytic thinkers being more likely to detect and critically reflect on the presented pseudo-profound bullshit statements leading to lower ratings of profundity. The primary goal of this paper is to propose a third compatible mechanism to explain individual differences in receptivity to pseudoprofound bullshit: the illusory perception of patterns.

1.2 Illusory pattern perception

The ability to perceive patterns and form meaningful connections between stimuli in our environment is clearly evolutionarily advantageous (Beck & Forstmeier, 2007; Mattson, 2014; Shermer, 2011). For example, Mattson (2014) claims that superior pattern processing capabilities are essential for a variety of higher cognitive functions (e.g., imagination and invention) and likewise, credits these capabilities as fundamental to the technological progress humans have enjoyed. Relatedly, he argues that evolved superior pattern processing abilities are a primary reason why human cognition greatly exceeds the capabilities of lower species. Due to the adaptive nature of pattern perception, it has been claimed that we are the descendants of those best able to detect patterns (Shermer, 2011). Nevertheless, our proclivity for detecting patterns comes with a cost, as we often find it difficult to distinguish between real and illusory patterns. Therefore, the same adaptive processes that allow us to perceive patterns and identify meaningful connections between stimuli in our environment also leads us to sometimes perceive illusory patterns and consequently endorse false beliefs about reality. However, when comparing the consequences of failing to detect a real and informative pattern with those of endorsing an illusory pattern, one of these errors may frequently loom larger than the other. For example, failing to connect a rustling in the grass with the presence of a dangerous predator has more dire consequences than mistakenly attributing movement in the grass to a predator and misguidedly escaping from a gust of wind. Using an evolutionary model, Biologist Foster and Kokko (2009) demonstrated how natural selection can favour strategies that involve the frequent endorsement of illusory patterns in order to ensure successful detection of meaningful patterns that offer large reproductive and survival benefits. Additionally, beliefs based on illusory patterns can even be advantageous if they disrupt aversive feelings, such as overwhelming thoughts of lacking control in an unpredictable world

(Hogg, Adelman & Blagg, 2010; Whitson & Galinsky, 2008). This asymmetry of consequences between missing a real pattern and endorsing an illusory one is one reason humans are said to have evolved a “believing-brain” with a proclivity for pattern perception and a susceptibility to being fooled by illusory patterns (Beck & Forstmeier, 2007; Foster & Kokko, 2009; Shermer, 2011). Thus, not unlike the adaptive heuristics that guide decision-making, yet predictably lead to certain biases, pattern perception may represent an adaptive function at the heart of both rational and irrational beliefs about how stimuli are connected in the environments that we inhabit. Illusory pattern perception includes the perception of connections between unrelated stimuli as well as the perception of patterns within random stimuli. One reason for the occurrence of illusory pattern perception is the fact that individuals often have difficulty accepting that ordered events can emerge from random processes. For example, when asked to produce random sequences, people often produce far more variation (and therefore fewer “runs”) than would be created by a truly random process (Falk & Konold, 1997). What follows, is that when people encounter random sequences that coincidentally maintain some order (e.g., symmetry in a series of coin tosses) they may ascribe a meaningful nonrandom process as its source (Gilovich, Vallone & Tversky, 1985). People’s tendency to engage in illusory pattern perception has been shown to be associated with various irrational beliefs (Blackmore & Moore, 1994; Van Harreveld, Rutjens, Schneider, Nohlen & Keskinis, 2014; Van Prooijen, Douglas & Inocencio, 2018; Wiseman & Watt, 2006). For example, Van Prooijen, Douglas and Inocencio (2018), found that individuals who perceive more illusory patterns are also more likely to endorse conspiracy and supernatural beliefs. Related to this association between illusory pattern perception and irrational belief is the finding that lacking control increases illusory pattern perception (Van Harreveld et al., 2014; Whitson & Galinsky, 2008). Whitson and Galinsky (2008) demonstrate that those induced to feel a lack of control perceive more illusory patterns and engage in more conspiratorial and superstitious thinking. On the basis of this evidence they argue that feeling a lack of control in one’s environment is so aversive that individuals will often endorse illusory patterns and irrational beliefs in order to diminish feelings of lacking control and return to the more pleasant view that one’s environment is predictable. Consistent with this argument is additional evidence demonstrating that lacking control increases conspiracy (Sullivan, Landau & Rothschild, 2010; Van Prooijen & Acker, 2015) and supernatural beliefs (Kay, Gaucher, McGregor & Nash, 2010; Laurin, Kay & Moscovitch, 2008). Therefore, irrational beliefs may not only arise as the result of a believing-brain with a proclivity towards pattern perception, but also as a compensatory strategy that seeks to endorse patterns (illusory or not) in order to alleviate aversive states, such as feeling a lack of control in an unpredictable environment.

1.3 The current study

The current study investigates how individual differences in pattern perception relate to differences in pseudo-profound bullshit receptivity. While previous studies have observed a positive relation between illusory pattern perception and various irrational beliefs (e.g., conspiracy and supernatural beliefs; Van Harreveld et al., 2014; Van Prooijen et al., 2018) no study has examined the relation between pattern perception and bullshit receptivity. Bullshit is distinct from other irrational beliefs on two dimensions. First, bullshit as conceived of by Frankfurt (2005) is disinterested in the specific truth or untruth of a given claim. That is, the primary goal of a bullshitter is to be persuasive, without concern for the validity of their claims. In contrast, irrational beliefs involve individuals endorsing beliefs that are specifically concerned with making truth claims. For example, the belief that the United States government is covering up its own involvement in the 2001 Islamic terrorist attacks against the World Trade Centre. In this case, those with a belief in this conspiracy are insisting that there is a truth to be discovered that is merely being covered up by a government’s deception. This point leads into a second distinguishing feature of

bullshit: specificity. Continuing with the example of the 911 attacks, endorsing this belief comes along with endorsing a specific set of rules for how the world and governments operate. Bullshit receptivity, however, requires only the vague perception that there is something meaningful being communicated by the bullshitter. Bullshit receptivity could be an early contributor to the eventual adoption of an irrational belief, but there is no reason a priori to assume that they are identical. Despite being distinguished from other irrational beliefs, we expect that bullshit receptivity will relate to illusory pattern perception in a familiar way. Specifically, we hypothesize that individuals susceptible to endorsing illusory patterns will be more receptive to pseudo-profound bullshit. This hypothesis is consistent with our view of receptivity to pseudo-profound bullshit as arising in part as an unfortunate consequence of an otherwise adaptive process: the uncritical perception of patterns in our environment. Therefore, we believe that individuals with a greater tendency to go beyond the available data and uncritically endorse patterns where no patterns exist will also be more likely to create and endorse false-meaning in meaningless pseudo-profound statements. Importantly, we expect this relation to remain after controlling for individual differences in analytic thinking. Controlling for analytic thinking is important as individual differences in analytic thinking have been shown to relate to a host of irrational beliefs, including conspiracy and supernatural thinking (Pennycook, Fugelsang & Koehler, 2015b; Shenhav, Rand & Greene, 2012; Swami, Voracek, Stieger, Tran, & Furnham, 2014). Therefore, it is possible that previous positive associations observed between illusory pattern perception and various irrational beliefs are simply a result of those with an intuitive (as opposed to analytic) thinking style being more likely to endorse illusory patterns as well as irrational beliefs. Lastly, we expect illusory pattern perception to share an association with bullshit sensitivity, a measure of participants' ability to distinguish between legitimately meaningful motivational quotations and pseudoprofound bullshit statements. That is, we believe that individual differences in illusory pattern perception will relate specifically to the endorsement of meaningless statements as profound as opposed to relating to an increase in profundity ratings in general. In Experiments 1 and 2 we build on two experiments from Van Prooijen and colleagues (2018), which examined the relation between participants' endorsements of illusory patterns and their level of conspiracy and supernatural belief. Importantly, we modified these experiments in order to assess the research questions at hand by replacing items assessing participants' conspiracy and supernatural beliefs with a profundity judgment task featuring both pseudo-profound bullshit statements and motivational quotations. Furthermore, we added in a measure of analytic thinking in order to assess and control for individual differences in thinking style. In Experiment 3 we improve upon these first two experiments by utilizing two new measures of pattern perception which more concretely and objectively feature both real and illusory patterns. These measures of pattern perception allow us to more convincingly distinguish between how individual differences in illusory, as opposed to non-illusory, pattern perception relate to differences in bullshit receptivity and bullshit sensitivity. Taken together, the current study utilizes four distinct measures of pattern perception to conduct an initial investigation of how individual differences in the endorsement of both illusory and non-illusory (Experiments 2 and 3) patterns predicts individuals' receptivity to pseudoprofound bullshit.

5 General discussion Across three experiments and four distinct measures of pattern perception, our findings provide support for our hypothesis that individuals susceptible to endorsing illusory patterns would be more receptive to pseudo-profound bullshit. Notably, this association was observed for both conceptual and perceptual pattern perception tasks, suggesting that pattern perception may be a useful construct for connecting across conceptual

and perceptual illusions. Additionally, this finding was not merely a consequence of illusory pattern perception being related to a general tendency to rate statements as profound as bullshit sensitivity was found to generally be positively associated with illusory pattern perception. That is, participants who endorsed more illusory patterns tended to judge pseudo-profound bullshit statements as equally (or more) profound than meaningful motivational quotations. Although it should be noted that individual differences in illusory pattern perception may also help explain why some individuals seemingly afford some level of profundity to any and all statements (including those that are pseudo-profound). This is evidenced by our finding that profundity ratings for even “truly profound” motivational quotes also share a positive relation with illusory pattern perception (albeit weaker than pseudo-profound bullshit). Therefore, illusory pattern perception may not represent a mechanism entirely distinct from one put forth by Pennycook and colleagues (2015a) suggesting that a gullible tendency towards ascribing profundity to even the most mundane of statements is one component of bullshit receptivity. Previous research has found that individuals less likely to engage in analytic thinking are more receptive to pseudoprofound bullshit (Pennycook et al., 2015a; Pennycook & Rand, 2018). We replicate these findings in the current study consistently observing a negative relation between bullshit receptivity and CRT performance. One possibility is that the relation between bullshit receptivity and illusory pattern perception arises simply as a result of intuitive thinkers being more prone to both bullshit receptivity and illusory pattern perception. However, the relation between bullshit receptivity and illusory pattern perception was largely unaffected by the inclusion of CRT performance as a covariate, suggesting that illusory pattern perception may represent a distinct mechanism for explaining individual differences in bullshit receptivity. Nevertheless, the results of the current study do suggest a modest negative relation between CRT performance and illusory pattern perception, such that individuals with a greater tendency to engage in analytical thinking appear less likely to endorse illusory patterns. This finding suggests that the tendency to engage analytic thinking as well as the tendency to perceive illusory patterns may interact in predicting who adopts irrational beliefs. That is, being less likely to engage analytic thinking may make individuals more likely to perceive patterns in random noise while simultaneously leaving them less able to correct for this intuitive perception. This speculation could have interesting implications for research on irrational beliefs that future studies should explore. Lastly, the results of Experiments 2 and 3 demonstrate that increases in non-illusory pattern perception are not predictive of increases in bullshit receptivity. In fact, results obtained from two of our three measures of non-illusory pattern perception suggest that participants who perceived more non-illusory patterns were less receptive to bullshit. Therefore, bullshit receptivity does not appear to be positively associated with a proclivity for endorsing patterns in general. Rather, it is specifically a proclivity for endorsing illusory patterns that was shown to share a positive association with bullshit receptivity. Accounts of various irrational beliefs, including conspiracy, supernatural, and superstitious beliefs, have explained these beliefs in part as arising due to peoples’ natural tendency to uncritically perceive patterns (Kay, Moscovitch & Laurin, 2010; Shermer, 2011; Van Prooijen et al., 2018; Whitson & Galinsky, 2008; Zhao, Hahn & Osherson, 2014). Congruent with these accounts are findings showing that a tendency to endorse illusory patterns is positively associated with various irrational beliefs (Blackmore & Moore, 1994; Van Prooijen et al., 2018; Whitson & Galinsky, 2008; Wiseman & Watt, 2006; although see Blackmore, 1997 and Bressan, 2002). In the current article, we propose a similar account in attempt to elucidate why people are frequently receptive to pseudo-profound bullshit. Specifically, we propose that bullshit receptivity arises in part as an unfortunate side-effect of an otherwise adaptive pattern perception process. Such a perspective is important as, compared to initial accounts of

bullshit receptivity which focus on receptivity to bullshit as arising from errors in reasoning (e.g., failing to engage in reflective thinking when encountering bullshit), this account emphasizes distinct ways to potentially reduce peoples' susceptibility to bullshit. For example, it has been documented that aversive feelings, such as feelings related to a lack of control, increase peoples' endorsement of illusory patterns. Thus, to the extent that greater illusory pattern perception leads to the creation of meaning where no meaning exists, manipulations that allow people to regain a sense of control should also reduce their susceptibility to bullshit. Congruent with this claim, enhancing people's sense of control has been demonstrated to lower conspiracy beliefs (Van Prooijen & Acker, 2015; Whitson & Galinsky, 2008). Finally, related to the concepts examined here (i.e., pattern perception, engagement of analytic thinking, and bullshit receptivity) is the construct of liberal acceptance. Liberal acceptance, or the tendency to collect little evidence and have lower decision-thresholds for making strong judgments, has been discussed as a risk factor for the emergence of various delusions and irrational beliefs, specifically for those suffering from psychosis (Moritz, Woodward, Jelinek & Klinge, 2008). For example, Moritz and colleagues, examining a liberal acceptance account of psychosis, found that patients suffering from schizophrenia were more likely to strongly endorse a false memory on a recognition memory test compared to healthy controls, specifically for weakly or moderately related distractors (as opposed to strongly related distractors for which no differences between patients and controls were observed). One might expect that liberal acceptance would be associated with greater illusory pattern perception, lower levels of analytic thinking, and a tendency to endorse pseudo-profound bullshit statements as profound. The relation between illusory pattern perception and bullshit receptivity (perhaps compounded by low levels of analytic thinking) could be explained by this concept of liberal acceptance. That is, a person with low decision-thresholds for judging the relevance of infrequent or unrelated events may also be more likely to endorse illusory patterns as well as find meaning in meaningless pseudo-profound statements.

5.1 Future directions and limitations

One limitation of the current study was that, across all three experiments, our pattern perception tasks preceded our profundity judgment task, resulting in potential order effects. However, while one can imagine how profundity judgments may be influenced by first having participants complete a pattern perception task, it is not clear how the predictive validity of our individual difference measures would be affected. Furthermore, a clear limitation of the current study is its strictly correlational nature which prevents support of any causal claims. Thus, while increases in illusory pattern perception may lead to greater bullshit receptivity, it is also possible that the endorsement of pseudo-profound bullshit leads to greater illusory pattern perception or that both of these variables are associated with some unmeasured third variable (e.g., liberal acceptance). Nevertheless, we believe that the more parsimonious model is one suggesting a low-level perceptual process contributing to a higher level conceptual process as opposed to a model suggesting the reverse (i.e., bullshit receptivity influencing pattern perception). This may give some weight to our suggested account however, ideally, a future study would address this limitation by directly manipulating illusory pattern perception in order to investigate the potential causal link between illusory pattern perception and bullshit receptivity. However, successfully manipulating individuals' propensities towards illusory pattern perception in a way that remains influential during individuals' subsequent profundity ratings of pseudo-profound bullshit statements may prove difficult. One potential way to accomplish this goal is through a loss of control manipulation, such that aversive feelings of lacking control have been shown to lead to increases in illusory pattern perception and conspiratorial and superstitious beliefs (Whitson & Galinsky, 2008). Therefore, future research could investigate whether those randomly assigned a task that induces a lack of control more readily endorse pseudo-profound

bullshit as profound. 5.2 Conclusion Like other irrational beliefs, bullshit is a real, prevalent, and consequential phenomenon. Due to this prevalence and potential for harm, the ability to recognize and avoid bullshit is an essential skill to have in today's world. Unfortunately, initial investigations of peoples' susceptibilities to pseudoprofound bullshit paint a grim picture, with people frequently endorsing profundity in meaningless pseudo-profound statements (Pennycook et al., 2015a; Pennycook & Rand, 2018; Pfattheicher & Schindler, 2016; Sterling et al., 2016). In the current study we propose that, like many other irrational beliefs, people's susceptibilities to bullshit results from an overall adaptive tendency to perceive patterns in the world. We demonstrate that individuals with a proclivity towards endorsing illusory patterns are more likely to rate meaningless pseudo-profound bullshit statements as profound. In conclusion, the tendency to go beyond the available data and infuse the world with illusory patterns is positively associated with the tendency to create and endorse meaning in superficially impressive, yet ultimately meaningless, pseudoprofound statements.

THREE

On the reception and detection of pseudo-profound bullshit Gordon Pennycook* James Allan Cheyne† Nathaniel Barr‡ Derek J. Koehler† Jonathan A. Fugelsang† Abstract Although bullshit is common in everyday life and has attracted attention from philosophers, its reception (critical or ingenuous) has not, to our knowledge, been subject to empirical investigation. Here we focus on pseudo-profound bullshit, which consists of seemingly impressive assertions that are presented as true and meaningful but are actually vacuous. We presented participants with bullshit statements consisting of buzzwords randomly organized into statements with syntactic structure but no discernible meaning (e.g., “Wholeness quiets infinite phenomena”). Across multiple studies, the propensity to judge bullshit statements as profound was associated with a variety of conceptually relevant variables (e.g., intuitive cognitive style, supernatural belief). Parallel associations were less evident among profundity judgments for more conventionally profound (e.g., “A wet person does not fear the rain”) or mundane (e.g., “Newborn babies require constant attention”) statements. These results support the idea that some people are more receptive to this type of bullshit and that detecting it is not merely a matter of indiscriminate skepticism but rather a discernment of deceptive vagueness in otherwise impressive sounding claims. Our results also suggest that a bias toward accepting statements as true may be an important component of pseudo-profound bullshit receptivity. Keywords: bullshit, bullshit detection, dual-process theories, analytic thinking, supernatural beliefs, religiosity, conspiratorial ideation, complementary and alternative medicine. 1 Introduction “It is impossible for someone to lie unless he thinks he knows the truth. Producing bullshit requires no such conviction.” – Harry Frankfurt In *On Bullshit*, the philosopher Frankfurt (2005) defines bullshit as something that is designed to impress but that was constructed absent direct concern for the truth. This distinguishes bullshit from lying, which entails a deliberate manipulation and subversion of truth (as understood by the liar). There is little question that bullshit is a real and consequential phenomenon. Indeed, given the rise of communication technology and the associated increase in the availability of information from a variety of sources, both expert and otherwise, bullshit may be more pervasive than ever before. Despite these seemingly commonplace observations, we know of no psychological research on bullshit. Are people able to detect blatant bullshit? Who is most likely to fall prey to bullshit and why? Funding for this study was provided by the Natural Sciences and Engineering Research Council of Canada. Copyright: © 2015. The authors license this article under the terms of the Creative Commons Attribution 3.0 License. *Department of Psychology, University of Waterloo, 200 University Avenue West, Waterloo ON, Canada, N2L 3G1. Email: gpennyco@uwaterloo.ca. †Department of Psychology, University of Waterloo. ‡The School of Humanities and Creativity, Sheridan College. 2 Pseudo-profound bullshit The Oxford English Dictionary defines bullshit as, simply, “rubbish” and “nonsense”, which unfortunately does not get to the core of bullshit. Consider the following statement: “Hidden meaning transforms unparalleled abstract beauty.” Although this statement may seem to convey some sort of potentially profound meaning, it is merely a collection of buzzwords put together randomly in a sentence that retains syntactic structure. The bullshit statement is not merely nonsense, as would also be true of the following, which is not bullshit: “Unparalleled transforms meaning beauty hidden abstract”. The syntactic structure of a), unlike b), implies that it was constructed to communicate something. Thus, bullshit, in contrast to mere nonsense, is something that implies but does not contain adequate meaning or truth. This sort of phenomenon is similar to what Buekens and Boudry (2015) referred to as obscurantism (p. 1): “[when] the speaker... [sets] up a game of verbal smoke and mirrors to suggest depth and insight where none exists.” Our focus, however, is somewhat

different from what is found in the philosophy of bullshit and related phenomena (e.g., Black, 1983; Buekens & Boudry, 2015; Frankfurt, 2005). Whereas philosophers have been primarily concerned with the goals and intentions of the bullshitter, we are interested in the factors that predispose one to become or to resist becoming a bullshittee. Moreover, this sort of bullshit – which we refer to here as pseudo-profound bullshit – may be one of many different types. We focus on pseudo-profound bullshit because it represents a rather extreme point on what could be considered a spectrum of bullshit. We can say quite confidently that the above example (a) is bullshit, but one might also label an exaggerated story told over drinks to be bullshit. In future studies on bullshit, it will be important to define the type of bullshit under investigation (see Discussion for further comment on this issue). Importantly, pseudo-profound bullshit is not trivial. For a real-world example of pseudo-profound bullshit and an application of our logic, consider the following: “Attention and intention are the mechanics of manifestation.” This statement bears a striking resemblance to (a), but is (presumably) not a random collection of words. Rather, it is an actual “tweet” sent by Deepak Chopra, M.D., who has authored numerous books with titles such as *Quantum Healing* (Chopra, 1989) and *The Soul of Leadership* (Chopra, 2008) and who has been accused of furthering “woo-woo nonsense” (i.e., pseudo-profound bullshit; e.g., Shermer, 2010). The connection between (a) and (c) is not incidental, as (a) was derived using the very buzzwords from Chopra’s “Twitter” feed.¹ The vagueness of (c) indicates that it may have been constructed to impress upon the reader some sense of profundity at the expense of a clear exposition of meaning or truth. Despite the lack of direct concern for truth noted by Frankfurt (2005), pseudo-profound bullshit betrays a concern for verisimilitude or truthiness. We argue that an important adjunct of pseudo-profound bullshit is vagueness which, combined with a generally charitable attitude toward ambiguity, may be exacerbated by the nature of recent media. As a prime example, the necessary succinctness and rapidity of “Twitter” (140 characters per “Tweet”) may be particularly conducive to the promulgation of bullshit. Importantly, vagueness and meaning are, by definition, at cross purposes, as the inclusion of vagueness obscures the meaning of the statement and therefore must undermine or mask “deep meaning” (i.e., profundity) that the statement purports to convey. The concern for “profundity” reveals an important defining characteristic of bullshit (in general): that it attempts to impress rather than to inform; to be engaging rather than instructive. ¹This example came from <http://wisdomofchopra.com>. See Method section of Study 1 for further details. ³ Bullshit receptivity What might cause someone to erroneously rate pseudoprofound bullshit as profound? In our view, there are two candidate mechanisms that might explain a general “receptivity” to bullshit. The first mechanism relates to the possibility that some people may have a stronger bias toward accepting things as true or meaningful from the outset. According to Gilbert (1991, following Spinoza), humans must first believe something to comprehend it. In keeping with this hypothesis, Gilbert, Tafarodi and Malone (1993) found that depleting cognitive resources caused participants to erroneously believe information that was tagged as false. This indicates that people have a response bias toward accepting something as true. This asymmetry between belief and unbelief may partially explain the prevalence of bullshit; we are biased toward accepting bullshit as true and it therefore requires additional processing to overcome this bias. Nonetheless, it should be noted that previous work on belief and doubt focused on meaningful propositions such as “The heart produces all mental activity.” The startling possibility with respect to pseudo-profound bullshit is that people will first accept the bullshit as true (or meaningful) and, depending on downstream cognitive mechanisms such as conflict detection (discussed below), either retain a default sense of meaningfulness or invoke deliberative reasoning to assess the truth (or meaningfulness) of the proposition. In terms of individual differences, then, it is possible that

some individuals approach pseudo-profound bullshit with a stronger initial expectation for meaningfulness. However, since this aspect of bullshit receptivity relates to one's mindset when approaching (or being approached with) bullshit, it is therefore not specific to bullshit. Nonetheless, it may be an important component of bullshit receptivity. Put differently, some individuals may have an excessively "open" mind that biases them to make inflated judgments of profundity, regardless of the content. The second mechanism relates to a potential inability to detect bullshit, which may cause one to confuse vagueness for profundity. In the words of Sperber (2010): "All too often, what readers do is judge profound what they have failed to grasp" (p. 583). Here, the bullshittee is simply unaware that the relevant stimulus requires special consideration. This mechanism is linked to what has been labelled as "conflict monitoring" failures (e.g., De Neys, 2014; Pennycook, Fugelsang & Koehler, 2015). In the context of reasoning research, for example, conflict monitoring is necessary when two sources of information in a problem cue conflicting responses (e.g., logical validity and conclusion believability in a syllogism). Recent research indicates that people are capable of detecting these sorts of conflicts (see De Neys, 2012 for a review), but that conflict monitoring failures are nonetheless an important source of bias in reasoning and decision making (Pennycook, Fugelsang & Koehler, 2015). Moreover, conflict detection is viewed as an important low-level cognitive factor that causes at least some people to engage deliberative, analytic reasoning processes (Pennycook, Fugelsang & Koehler, 2015). With respect to bullshit, there are likely many factors that may lead an individual to successfully detect the need for skepticism that will depend on the type of bullshit encountered and the bullshit context. For example, the source (perhaps a known bullshitter) may be particularly untrustworthy. Or, perhaps, the bullshit may conflict with common knowledge or specific knowledge or expertise of the recipient. For the present investigation, we focus on pseudo-profound bullshit that is missing any obvious external cue that skepticism is required. The goal is to investigate whether there are consistent and meaningful individual differences in the ability to spontaneously discern or detect pseudo-profound bullshit. Unlike response bias, this mechanism involves distinguishing bullshit from non-bullshit.

17 General discussion The present study represents an initial investigation of the individual differences in receptivity to pseudo-profound bullshit. We gave people syntactically coherent sentences that consisted of random vague buzzwords and, across four studies, these statements were judged to be at least somewhat profound. This tendency was also evident when we presented participants with similar real-world examples of pseudo-profound bullshit. Most importantly, we have provided evidence that individuals vary in conceptually interpretable ways in their propensity to ascribe profundity to bullshit statements; a tendency we refer to as "bullshit receptivity". Those more receptive to bullshit are less reflective, lower in cognitive ability (i.e., verbal and fluid intelligence, numeracy), are more prone to ontological confusions and conspiratorial ideation, are more likely to hold religious and paranormal beliefs, and are more likely to endorse complementary and alternative medicine. Finally, we introduced a measure of pseudo-profound bullshit sensitivity by computing a difference score between profundity ratings for pseudo-profound bullshit and legitimately meaningful motivational quotations. This measure was related to analytic cognitive style and paranormal skepticism. However, there was no association between bullshit sensitivity and either conspiratorial ideation or acceptance of complementary and alternative medicine (CAM). Nonetheless, our findings are consistent with the idea that the tendency to rate vague, meaningless statements as profound (i.e., pseudoprofound bullshit receptivity) is a legitimate psychological phenomenon that is consistently related to at least some variables of theoretical interest. 17.1

Response bias and sensitivity We proposed two mechanisms that explain why people might rate bullshit as profound. The first is a type of response bias wherein some individuals are simply more prone to relatively high profundity ratings. Although this mechanism is not specific to bullshit, it may at least partly explain why our pseudo-profound bullshit measure was so consistently positively correlated with epistemically suspect beliefs. Some people may have an uncritically open mind. As the idiom goes: “It pays to keep an open mind, but not so open your brains fall out”. In Study 3, some people even rated entirely mundane statements (e.g., “Most people enjoy at least some sort of music”) as at least somewhat profound. Our results suggest that this tendency – which resembles a general gullibility factor – is a component of pseudoprofound bullshit receptivity. There is, of course, a great deal of research on this sort of mechanism. As a prominent example, consider the “Barnum effect”. In his classic demonstration of gullibility, Forer (1949) had introductory psychology students complete a personality measure (the “Diagnostic Interest Blank”, DIB). One week later, he gave each of the students an ostensibly personalized personality sketch that consisted of 13 statements and asked them to rate both the accuracy of the statements and the overall efficacy of the DIB. Unbeknownst to the students, Forer had actually given every student the same personality sketch that consisted entirely of vague, generalized statements taken from a newsstand astrology book (e.g., “You have a great need for other people to like and admire you.”). Although some people were more skeptical than others, the lowest number of specific statements accepted was 8 (out of 13). Moreover, the students were quite convinced of the personality tests’ efficacy – “All of the students accepted the DIB as a good or perfect instrument for personality measurement” (Forer, 1949, p. 121). Meehl (1956) first referred to this as the Barnum effect, after the notorious hoaxer (bullshitter) P. T. Barnum.^{2 2} In an amusing irony, P. T. Barnum is often erroneously attributed the phrase “There’s a sucker born every minute.” This is true even in at least one review of research on the Barnum effect (Furnham & Shofield, 1987). As a secondary point, it is worthwhile to distinguish uncritical or reflexive open-mindedness from thoughtful or reflective open-mindedness. Whereas reflexive open-mindedness results from an intuitive mindset that is very accepting of information without very much processing, reflective open-mindedness (or active open-mindedness; e.g., Baron, Scott, Fincher & Metz, 2014) results from a mindset that searches for information as a means to facilitate critical analysis and reflection. Thus, the former should cause one to be more receptive of bullshit whereas the latter, much like analytic cognitive style, should guard against it. The foregoing highlights what appears to be a strong general susceptibility to bullshit, but what cognitive mechanisms inoculate against bullshit? Drawing on recent dualprocess theories that posit a key role for conflict detection in reasoning (De Neys, 2012; Pennycook et al., 2015), we proposed that people may vary in their ability to detect bullshit. Our results modestly support this claim. Namely, we created a bullshit “sensitivity” measure by subtracting profundity ratings for pseudo-profound bullshit from ratings for legitimate motivational quotations. Increased bullshit sensitivity was associated with better performance on measures of analytic thinking. This is consistent with Sagan’s (1996) famous claim that critical thinking facilitates “baloney detection”. Further, bullshit sensitivity was associated with lower paranormal belief, but not conspiratorial ideation or acceptance of complementary and alternative medicine. This was not predicted as all three forms of belief are considered “epistemically suspect” (e.g., Pennycook, et al., in press). One possible explanation for this divergence is that supernatural beliefs are a unique subclass because they entail a conflict between some immaterial claim and (presumably universal) intuitive folk concepts (Atran & Norenzayan, 2004). For example, the belief in ghosts conflicts with folk-mechanics – that is intuitive belief that objects cannot pass through solid objects (Boyer, 1994). Pennycook et al. (2014) found that degree of belief in

supernatural religious claims (e.g., angels, demons) is negatively correlated with conflict detection effects in a reasoning paradigm. This result suggests that the particularly robust association between pseudo-profound bullshit receptivity and supernatural beliefs may be because both response bias and conflict detection (sensitivity) support both factors. Further research is needed to test this claim.

17.2 Future directions

The focus of this work was on investigating individual differences in the tendency to accept bullshit statements, and our initial evidence indicates that reflectiveness may be a key individual difference variable. At a very basic level, the willingness to stop and think analytically about the actual meanings of the presented words and their associations would seem an a priori defense against accepting bullshit at face value (i.e., to avoid an excessively open-minded response bias). Moreover, increased detection of bullshit may reinforce a critical attitude and potentially engender a more restrained attitude to profundity judgments. The present findings also provide evidence that an increased knowledge of word meaning (via verbal intelligence) may assist in critical analysis. An understanding of more precisely nuanced meanings of words may reveal inconsistencies, incongruities, and conflicts among terms in bullshit statements. Conflict detection is a key aspect of dual-process theories (e.g., De Neys, 2012; Pennycook, et al., 2015), though in this case it remains unclear precisely what features of bullshit statements might cue reflective thinking. What is it about a statement like “good health imparts reality to subtle creativity” that might cause someone to stop and consider the meaning of the sentence more deeply? Although a reflective thinking style appears to militate against bullshit acceptance, other cognitive processes that underlie the propensity to find meaning in meaningless statements remain to be elucidated. It may be that people naturally assume that statements presented in a psychology study (vague or otherwise) are constructed with the goal of conveying some meaning. Indeed, the vagueness of the statements may imply that the intended meaning is so important or profound that it cannot be stated plainly (Sperber, 2010). In the current work, we presented the participants with meaningless statements without cueing them to the possibility that they are complete bullshit. Although this is likely how bullshit is often encountered in everyday life, it may be that some skepticism about the source of the statement is the key force that may guard against bullshit acceptance. For example, poems attributed to prestigious sources are evaluated more positively (Bar-Hillel, Maharshak, Moshinsky & Nofech, 2012). Interpretation is difficult and humans surely rely on simple heuristics (e.g., “do I trust the source?”) to help with the task. In this vein, psychological research should aim to elucidate contextual factors that interact with individual differences in the reception and detection of bullshit. As noted by philosophers studying the topic, the bullshitter oft has the intention of implying greater meaning than is literally contained in the message, though the nature of the intent can vary. For example, the literary critic Empson (1947) describes the use of ambiguity in literature, including a type of intentional ambiguity used by poets in which a passage “says nothing, by tautology, by contradiction, or by irrelevant statements; so that the reader is forced to invent statements of his own . . . ” (p. 176). The employment and reception of such literary devices in the context of a broader meaningful work seems related to but dissociable from isolated statements such as those used here. By examining pseudo-profound bullshit in an empirical fashion, we set the stage for further refinement of this important conceptual variable as it converges with and diverges from other related uses of vagueness. We anticipate that there are many variations of vague, ambiguous, or otherwise unclear statements that have unique psychological correlates in varied contexts that are amenable to study.

18 Limitations and caveats

Bullshit comes in many forms and we have focused on only one type. Frankfurt (2005) discusses the so-called bull session wherein “people try out various thoughts and attitudes in order to see how it feels to hear themselves saying such things and in order to

discover how others respond, without it being assumed that they are committed to what they say: It is understood by everyone in a bull session that the statements people make do not necessarily reveal what they really believe or how they really feel” (p. 9). This qualifies as bullshit under Frankfurt’s broad definition because the content is being communicated absent a concern for the truth. Nonetheless, the character of conversational bullshit is likely quite different from pseudo-profound bullshit, and by extension the reception and detection of it may be determined by different psychological factors. It is important for researchers interested in the psychology of bullshit to be clear about the type of bullshit that they are investigating. Our bullshit receptivity scale was quite successful overall, but future work is needed to refine and improve it. In particular, the bullshit sensitivity measure would be improved if there was a more direct mapping between the pseudoprofound bullshit and the genuinely meaningful control items. Naturally, more items would improve both scales. Finally, knowledge of Deepak Chopra may subtly confound experiments using our bullshit sensitivity scale (or, at least, slightly restrict the effect size). Finally, we have focused on an individual differences approach given that our primary goal was to demonstrate that bullshit receptivity is a consequential thing that can be reliably measured. This preliminary work is required for experiments to be meaningful. Future work should focus on the dual goals of further refining our measure of bullshit receptivity and experimentally modulating profundity ratings for pseudo-profound bullshit. 19

Conclusion

Bullshit is a consequential aspect of the human condition. Indeed, with the rise of communication technology, people are likely encountering more bullshit in their everyday lives than ever before. Profundity ratings for statements containing a random collection of buzzwords were very strongly correlated with a selective collection of actual “Tweets” from Deepak Chopra’s “Twitter” feed (r 's = .88–.89). At the time of this writing, Chopra has over 2.5 million followers on “Twitter” and has written more than twenty New York Times bestsellers. Bullshit is not only common; it is popular.³ Chopra is, of course, just one example among many. Using vagueness or ambiguity to mask a lack of meaningfulness is surely common in political rhetoric, marketing, and even academia (Sokal, 2008). Indeed, as intimated by Frankfurt (2005), bullshitting is something that we likely all engage in to some degree (p. 1): “One of the most salient features of our culture is that there is so much bullshit. Everyone knows this. Each of us contributes his share.” One benefit of gaining a better understanding of how we reject other’s bullshit is that it may teach us to be more cognizant of our own bullshit. The construction of a reliable index of bullshit receptivity is an important first step toward gaining a better understanding of the underlying cognitive and social mechanisms that determine if and when bullshit is detected. Our bullshit receptivity scale was associated with a relatively wide range of important psychological factors. This is a valuable first step toward gaining a better understanding of the psychology of bullshit. The development of interventions and strategies that help individuals guard against bullshit is an important additional goal that requires considerable attention from cognitive and social psychologists. That people vary in their receptivity toward bullshit is perhaps less surprising than the fact that psychological scientists have heretofore neglected this issue. Accordingly, although this manuscript may not be truly profound, it is indeed meaningful.

FOUR

Conspiracy beliefs and the individual, relational, and collective selves.

Abstract.

Recent empirical and theoretical developments suggest that endorsement of conspiracy theories can arise from the frustration of social motives. Taking this further, the current review integrates theorising on processes relating to three selves—the individual, relational, and collective self and outlines their associations with conspiracy beliefs. In doing so, we argue that motives pertaining to the individual self (e.g., narcissism, need for uniqueness) are linked to belief in conspiracy theories to deflect blame from personal shortcomings and protect the self-image. Motives responding to threats to the relational self (e.g., social exclusion) increase endorsement of conspiracy theories to regain a sense of social support through exchanging shared concerns. Finally, collective self motives (e.g., collective narcissism, perceived ingroup victimhood) foster conspiracy beliefs to defend the group image by blaming outgroups for ingroup misfortunes and placing one's group in a morally superior victim role. Taken together, endorsement of conspiracy theories appears to be borne out of attempts to manage these three selves. Potential consequences for each of the selves, future directions, and theoretical implications are discussed. **KEYWORDS** conspiracy beliefs, conspiracy theories, social motives, the self.

The COVID-19 pandemic has brought conspiracy theories to the front of mainstream public discourse. Almost immediately after the outbreak, we observed the use of conspiracy theories to blame outgroups for the spread of the virus (Douglas, 2021a; Lee, 2020). For example, China was accused of deliberately manufacturing COVID-19 in a laboratory to be used as a bioweapon. Further down the line, the impact of conspiracy theories and misinformation on reducing intentions to follow virus-mitigating behaviours (e.g., Biddlestone, Green, & Douglas, 2020) or take the vaccine (e.g., Bertin et al., 2020) became more apparent (see also Roozenbeek et al., 2020). These findings illustrate the grave consequences that conspiracy beliefs can have in the face of global threats, reminding us we urgently need to understand why they appeal to so many people (see Douglas, 2021b; Van Bavel et al., 2020). Conspiracy theories can be defined as attempts to explain the causes of significant social or political events by accusing malevolent outgroups of secretly plotting to achieve nefarious goals (Douglas et al., 2019; Zonis & Joseph, 1994). The psychological factors that attract people to conspiracy theories have received significant attention in recent years. This has led to a refined theoretical understanding of the appeal of conspiracy theories. Many scholars now agree that belief in conspiracy theories arises from efforts to satisfy important but thwarted psychological motives (e.g., Douglas et al., 2017, 2019; Jutzi et al., 2020; van Prooijen, 2020). Douglas et al. (2017) drew on theorising about ideological belief systems (Jost et al., 2008; see also Hennes et al., 2012) to categorise the motives associated with conspiracy beliefs as existential, epistemic, and social.¹ Epistemic motives encompass the need to feel in possession of a stable and reliable understanding of the environment (Kruglanski, 1989). For example, a sense of uncertainty is associated with belief in conspiracy theories (Lamberty et al., 2018). Existential motives encompass the need for a sense of security and safety (Greenberg et al., 1990; Onraet et al., 2013). For example, people are likely to turn to conspiracy theories when they feel anxious (Grzesiak-Feldman, 2013) or powerless (Abalakina-Paap et al., 1999). Social motives refer to the need to bolster and protect a favourable image of the self and ingroup (Brewer & Gardner, 1996). For example, conspiracy beliefs have been linked to narcissistic needs for recognition of oneself and one's social groups (e.g., Cichocka, Marchlewska, & Golec de

Zavala, 2016), as well as the need to feel unique (Lantian et al., 2017; Imhoff & Lamberty, 2017). All three motives appear to play an important role in predicting conspiracy beliefs, but it is the social motives in particular that we turn our focus to in the current review.

6 | SUMMARY, CAVEATS, AND FUTURE RESEARCH While recent findings have applied experimental designs to determine the effects of threats to the selves on conspiracy beliefs (e.g., Lantian et al., 2017; Imhoff & Lamberty, 2017; Poon et al., 2020; Pantazi et al., 2020), less is known about how exposure to conspiracy theories affects the three selves. Past work has shown that exposure to conspiracy theories can make people feel powerless and uncertain about politics (Jolley et al., 2014a, 2014b). This suggests that while conspiracy beliefs can be adopted to in an attempt to satisfy needs and cope with stress (Marchlewska et al., 2021), they may also further thwart the frustrated motives that drive them in the first place (Douglas et al., 2017, 2019; van Prooijen, 2020). Future studies would do well to examine the way conspiracy theories affect one's views of the self, one's group, or social relationships. Importantly, the vast majority of research on conspiracy beliefs to-date has been conducted on White, Educated, Industrialised, Rich, and Democratic (WEIRD) samples. However, research including non-WEIRD samples seems to be on the rise (e.g., Swami, 2012; van Prooijen & Song, 2020). For example, Hornsey et al. (2018) confirmed the link between reactance and conspiracy beliefs across 24 separate nations. Similarly, Sternisko, Cichočka, Cislak and colleagues (2020) replicated the association between collective narcissism and conspiracy beliefs in 55 countries. However, other research has begun to uncover the differential role cultural orientations may play in the formation of conspiracy beliefs (Adam-Troian et al., 2020; Biddlestone, Green, et al., 2020; van Prooijen & Song, 2020). One implication may be that different cultural orientations could alter the way in which different self motives operate. Although Sedikides et al. (2013) argued for the primacy of the self being pancultural, other research highlights the different mechanisms associated with self-affirmation (Heine & Lehman, 1997) and reactance (Jonas et al., 2009) between cultures with independent versus interdependent views of the self. Therefore, future research should follow these efforts to further refine our understanding of the contextual parameters to previously established processes. Another line of investigation that may further clarify the unique connections between these motives and conspiracist notions is the distinction between beliefs and intentions. For example, while collective narcissism is robustly linked to conspiracy beliefs, it has recently been shown to predict intentions to both disseminate (Sternisko, Cichočka, Cislak, & Van Bavel, 2020) and engage in conspiracies against fellow ingroup members (Biddlestone et al., 2021). Furthermore, preliminary findings suggest that individual narcissism may also be associated with intentions to disseminate conspiracy theories, even more so than endorsing the beliefs themselves (Wood, 2021). Thus, while other motives may embolden genuine belief in conspiracy theories, using and spreading conspiracy theories may simply be another activity that demonstrates narcissists' Machiavellian side (Paulhus & Williams, 2002; see also Douglas & Sutton, 2011). In other words, this strategic use of conspiracy theories to gain a competitive advantage over others further exposes the antagonistic self-protection displayed by narcissists (Back et al., 2013), suggesting a promising avenue for future research. Future studies could also investigate whether it is possible to attenuate belief in, as well as dissemination of, conspiracy theories by managing frustrated social motives (Douglas et al., 2015; see also Cichočka, 2020). Possible approaches include self-affirmation (see Poon et al., 2020), or the distancing of the individual self-definition from that of conspiracy believers' through ridicule of the logical inconsistencies inferred by these beliefs (Orosz et al., 2016). We hope that our approach provides a basis for future research that will not only help us understand, but also manage, the

motivational appeal of conspiracy theories. To conclude, while conspiracy theories can be an appealing avenue for individuals to protect and maintain their various levels of self, these efforts are likely to create a downward spiral of self-reinforcing processes that ultimately result in a dangerous mixture of perceived threats toward the self-image, social exclusion, and group conflicts.

FIVE

Public sector corruption is fertile ground for conspiracy beliefs: A comparison between 26 Western and non-Western countries.

Abstract.

Objective: Research on conspiracy theories has mainly focused on psychosocial and sociodemographic factors associated with conspiracy beliefs. Little is known about factors at the nation level that provide a breeding ground for conspiracist thinking. However, an interesting finding emerges from recent international comparisons: people living in countries with a highly corrupt public sector seem to be more likely to endorse conspiracy theories. The present study aims to replicate this finding with new data. **Methods:** We investigate the relationship between corruption and conspiracy beliefs across 26 Western and non-Western countries through multiple linear regression analyses and conditional inference trees. In addition to the corruption level of these countries, our statistical models include other nation-level factors known to be associated with the prevalence of conspiracy beliefs, namely, their levels of democracy, freedom of the press, social threat (unemployment and homicide rates), economic inequality, and human development (life expectancy, standard of living, and education). **Results:** Our analyses confirm a robust link between public sector corruption and conspiracy beliefs that remains significant when controlling for these other factors. **Conclusion:** We suggest that public sector corruption is fertile ground for conspiracy theories because it makes them less implausible to the public.

Conspiracy theories are typically defined as explanations of major events that involve powerful and secretive groups (the alleged conspirators) using covert and malicious activities to manipulate or deceive the public. According to Brotherton and Eser (2015, p. 1), what characterizes conspiracy theories is that they are “[...] claims of conspiracy which are less plausible than alternative explanations, contradict the general consensus among epistemic authorities, are predicated on weak evidence, postulate unusually sinister and competent conspirators, and are ultimately unfalsifiable.” These theories can range from relatively benign, such as the idea that the 1969 moon landing was faked, to highly consequential, such as the belief that the 9/11 attacks were an inside job or that governments are conspiring with pharmaceutical companies to hide the harmfulness of vaccines. Conspiracy theories can have serious implications (for a review, see Jolley, Mari, and Douglas 2020). For example, it has been shown that exposure to conspiracy theories reduces trust in authorities and institutions (e.g., Einstein and Glick 2015), decreases intentions to reduce one’s carbon footprint (Jolley and Douglas 2014a) or to get vaccinated or have one’s children vaccinated (e.g., Jolley and Douglas 2014b), discourages participation in democratic life through voting (Jolley and Douglas 2014a), and fuels prejudice (Jolley, Meleady, and Douglas 2020) and even hostile attitudes (Bilewicz et al. 2013) toward various categories of the population. Some conspiracy theories are also suspected of contributing to the radicalization of extremist groups (Bartlett and Miller 2010; see also Amarasingam and Argentino 2020), and several studies have found a link between endorsing Covid-19-related conspiracy theories and expressing the intention to commit violent acts (e.g., Jolley and Paterson 2020; Levinsson et al. 2021). Factors linked to conspiracy beliefs Research has identified numerous psychosocial factors linked to the propensity to believe in conspiracy theories (for a recent review, see Wagner-Egger 2022). For example, distrust of authorities and institutions (e.g., Adam-Troian et al. 2023; Wagner-Egger et al. 2022) and a

sense of anomie (e.g., Goertzel 1994) have been linked to higher levels of belief in conspiracy theories. Other studies have found that individuals who feel marginalized or disempowered, as well as those who feel they lack control over the events, are more likely to endorse conspiracy theories (e.g., Imhoff and Bruder 2014; Uscinski and Parent 2014; Whitson and Galinsky 2008), presumably as a way of making sense of their social environment (Whitson and Galinsky 2008) or to motivate social action aimed at changing the status quo (Imhoff and Bruder 2014). Conspiracy beliefs are also linked to economic and political factors. They are more prevalent at both extremes of the political spectrum, particularly on the far right (e.g., Imhoff et al. 2022), as well as among individuals who report living in economic precarity (Adam-Troian et al. 2023). Endorsement of conspiracy theories is sometimes seen as a symptom of gullibility (Alper 2022) since research has shown that individuals who believe in this kind of theories are on average less educated (e.g., Van Prooijen 2017), more intuitive than analytical in their thinking style (e.g., Pennycook, Fugelsang, and Koehler 2015), more prone to paranormal beliefs (e.g., Darwin, Neave, and Holmes 2011; Enders and Smallpage 2019), less skilled in scientific reasoning (e.g., Cavojeva, Šrol, and Jurkovic 2020), and score lower in actively open-minded thinking (e.g., Rizeq, Flora, and Toplak 2021) and need for cognition (Lobato et al. 2014) scales. Moreover, cognitive biases such as intentionality bias (Douglas et al. 2016), which leads people to see human intentions where there are presumably none, or illusory pattern perception (van Prooijen, Douglas, and De Inocencio 2018) have been shown to be associated with the endorsement of conspiracy theories. In comparison, less is known about the environmental factors at the nation-level that can facilitate the success of conspiracy theories (Imhoff 2022). A few recent studies have shown, through international comparisons, that the level of conspiracy beliefs is higher in countries with lower GDP per capita (Hornsey and Pearson 2022; Hornsey et al. 2023) and higher economic inequalities (Cordonier, Cafiero, and Bronner 2021; Hornsey and Pearson 2022). In addition, countries' levels of collectivism and authoritarianism appear to be positively associated with their level of conspiracy beliefs (Adam-Troian et al. 2021; Hornsey and Pearson 2022). Conversely, higher levels of democracy, freedom of the press, and human development 15406237, 2024, 3, Downloaded from <https://onlinelibrary.wiley.com/doi/10.1111/ssqu.13374> by University Of South Africa, Wiley Online Library on [06/04/2026]. See the Terms and Conditions (<https://onlinelibrary.wiley.com/terms-and-conditions>) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License PUBLIC SECTOR CORRUPTION IS FERTILE GROUND FOR CONSPIRACY BELIEFS 845 (Cordonier, Cafiero, and Bronner 2021; Hornsey and Pearson 2022) are associated with lower levels of conspiracy beliefs. Furthermore, conspiracy theories seem to be more successful in countries where the level of social threat is higher (e.g., higher unemployment and/or homicide rates; Cordonier, Cafiero, and Bronner 2021). One of the most interesting findings emerging from this comparative literature is that people living in countries with a highly corrupt public sector may be more likely to endorse conspiracy theories (Alper 2022; Alper, Douglas, and Capraro 2021; Cordonier, Cafiero, and Bronner 2021; Hornsey and Pearson 2022).

DISCUSSION International comparisons have shown that the prevalence of conspiracy beliefs is higher in countries with elevated levels of public sector corruption (Alper 2022; Alper, Douglas, and Capraro 2021; Cordonier, Cafiero, and Bronner 2021; Hornsey and Pearson 2022). In this study, we replicated this finding using two annual surveys on conspiracy theories covering a total of 26 Western and non-Western countries. Data of one of these surveys have already been used to explore the link between corruption and conspiracy beliefs, but we reanalyzed it somewhat differently in this study, while, to our knowledge, data of the other

survey have never been used for this purpose. Our correlational and multiple regression analyses of these two datasets confirm a strong association between countries' level of corruption and the prevalence of conspiracy beliefs among their population. This holds true when controlling for nation-level variables related to democracy, social threats, inequalities, and human development. Additional analyses using conditional inference trees demonstrate that, among all these variables, public sector corruption is the one that best distinguishes between countries based on their level of conspiracy beliefs.

Due to the risk of ecological fallacy (i.e., making spurious inferences about individuals based on aggregate data), it is hazardous to attempt an explanation of how the national level of corruption may influence individuals' conspiracy beliefs. With this limitation in mind, we nevertheless propose the following hypothesis. The countries' corruption indicator used in this study is based on experts' assessments, not on public opinion polls. However, it is known to correlate highly with indicators that are based on citizens' perceptions of public sector corruption, such as their reported experience with bribery.⁷ Therefore, it is likely that in countries where the corruption indicator we used is high, the population perceives its institutions as highly corrupt, and thus as untrustworthy. Since it has been shown that distrust of institutions and the government is a predictor of conspiracy beliefs at the individual level (e.g., Adam-Troian et al. 2023; Wagner-Egger et al. 2022), it is reasonable to think that a highly corrupt country offers fertile ground for conspiracy theories. Indeed, all else being equal, in such a country a higher proportion of the population has good reason to distrust its institutions and government than in a less corrupt one. It is clearly not irrational for people not to trust their institutions and government when they are corrupt, and thus to believe that they may be lying to them or hiding important facts. In a sense, public sector corruption makes conspiracy theories less implausible. Put differently, in a highly corrupt country, not all conspiracy beliefs are necessarily a sign of gullibility. This assumption is supported by Alper's (2022) study, which suggests that individual factors associated with gullibility play a lesser role in the endorsement of conspiracy theories in countries where corruption is high than in those where it is low. From a slightly different perspective, Hornsey and Pearson (2022, p. 3) propose that "Rather than being a result of flawed cognition per se, conspiracist thinking might emerge in contexts where official versions of information are unreliable; a kind of rational skepticism." However, while rampant public sector corruption may understandably lead citizens to suspect the possibility of conspiracies on the part of their institutions or government (a kind of "rational skepticism"), there would be no reason to generalize this possibility to events that do not depend directly and solely on them. Yet, in our study, we found strong correlations between the countries' level of corruption and the level of endorsement of each of the conspiracy theories tested, including those concerning events over which the government or institutions of most of the countries covered by the study have little to no control (for instance, conspiracy theories about global events or those explicitly and exclusively targeting the U.S. government). Thus, the legitimate distrust of corrupt institutions may lead citizens to become overly suspicious about the functioning of the social world in general. In other words, the "rational skepticism" stemming from living in a highly corrupt country could easily transform into a "sub-rational overgeneralized suspicion." These assumptions should be tested in further studies. A crucial initial step would be to establish the relationship between conspiracy beliefs and the perception of public sector corruption at the individual level.

Lack of Trust, Conspiracy Beliefs, and Social Media Use Predict COVID-19 Vaccine Hesitancy.

Abstract: As COVID-19 vaccines are rolled out across the world, there are growing concerns about the roles that trust, belief in conspiracy theories, and spread of misinformation through social media play in impacting vaccine hesitancy. We use a nationally representative survey of 1476 adults in the UK between 12 and 18 December 2020, along with 5 focus groups conducted during the same period. Trust is a core predictor, with distrust in vaccines in general and mistrust in government raising vaccine hesitancy. Trust in health institutions and experts and perceived personal threat are vital, with focus groups revealing that COVID-19 vaccine hesitancy is driven by a misunderstanding of herd immunity as providing protection, fear of rapid vaccine development and side effects, and beliefs that the virus is man-made and used for population control. In particular, those who obtain information from relatively unregulated social media sources—such as YouTube—that have recommendations tailored by watch history, and who hold general conspiratorial beliefs, are less willing to be vaccinated. Since an increasing number of individuals use social media for gathering health information, interventions require action from governments, health officials, and social media companies. More attention needs to be devoted to helping people understand their own risks, unpacking complex concepts, and filling knowledge voids. **Keywords:** COVID-19; vaccination; trust; misinformation

1. Introduction Governments are rapidly mobilising vaccines against COVID-19 [1], with success relying on sufficient uptake; yet there is a rise in vaccine hesitancy, linked to loss of trust, complacency, and misinformation [2,3]. Trust is crucial to ensuring compliance with public health measures [4–6], but governments and experts have needed to communicate uncertain advice, and even reversals in advice, eroding public trust [7]. COVID-19 is not only a pandemic, but an “infodemic” of complex and dynamic information—both factual and incorrect. This can generate vaccine hesitancy [8], which the WHO listed as one of the top 10 threats to global health in 2019. But who does the public trust, and does trust depend on where the public acquire their information? The growth in Internet use and reliance on social media sources such as YouTube, Facebook, Twitter, and TikTok has changed the landscape of information gathering, with 72% of Americans and 83% of Europeans using the Internet as a source for health information [9]. Conspiracy and anti-vax beliefs and low trust in institutions are associated with a greater reliance on social media for health information, but research on this topic until now has primarily used small, selective samples (e.g., MTurk) [10,11]. In order to empirically inform these urgent issues, we present the results of a survey fielded during the first vaccine rollout in the UK between 12 and 18 December 2020, on a nationally representative sample of 1476 adults, complemented with 5 focus groups conducted during roughly the same period (see Supplementary Information, SI).

2. Background and Hypotheses Based on previous literature, we test three hypotheses. Trust is confidence in the action of others, mistrust measures vigilance in whether actors or information are trustworthy, and distrust denotes a negative orientation towards institutions or actors [4,5]. A recent survey in England found that those endorsing conspiracy theories were less likely to adhere to government guidelines, and had a general distrust in institutions [12]. Another found a link between trust, conspiratorial beliefs, and vaccine hesitancy [13]. Individuals may not trust the government, but be more willing to “follow the science” and trust scientific or health experts. In our first hypothesis, we therefore contend that multiple facets of trust are crucial in understanding vaccine uptake [4,7,14]. We hypothesise that trust in government and a positive view of the government’s handling of the crisis will predict higher

vaccine willingness, while vaccine distrust/mistrust, and mistrust/distrust of government, predict greater hesitancy (H1). A study in Italy during the initial COVID-19 outbreak found that trust in scientists and health authority experts initially increased, and predicted better knowledge about COVID-19 [15]. More generally, there is evidence that societal-level trust in science is related to vaccine confidence [16]. As a sub-hypothesis, we therefore predict that those with higher levels of trust in health institutions and experts will exhibit higher vaccine willingness [11] (H1.1). Social trust enables the collective action needed to achieve sufficient population vaccination levels, with previous research demonstrating that social capital is positively associated with health [17]. Since deaths from COVID-19 are concentrated in higher ages and higher risk groups [18], public discourse has been centred around "vulnerable" groups and herd immunity [19]. Research has shown that this can result in people holding lower perceived personal risk, interpreting risk as only targeting the "vulnerable" and not related to them personally [3]. If personal risk is perceived as low, this translates into lower vaccination intentions [20,21]. In our second hypothesis, we therefore expect those with higher collective social trust and a higher perceived personal threat from COVID-19 to be less vaccine-hesitant (H2). A wide body of literature examining a variety of vaccines has shown that holding general conspiracy or COVID-19 misinformation beliefs lowers vaccine willingness [3]. Trust itself is a predictor of susceptibility to misinformation about COVID-19 [22]. The main sources of vaccine misinformation are on social media. An analysis of 1300 Facebook pages during the 2019 measles outbreak found that anti-vax pages grew by 500%, compared to 50% growth of pro-vaccine pages [23]. With social media, individuals can now also more easily find themselves in echo chambers. Once a YouTube user develops a watch history, for instance, a filter bubble tailors their "Top 5" and "Up-Next" recommendations, with watching videos promoting vaccine misinformation leading to more misinformed recommendations [24]. Based on this research, in our third hypothesis, we expect that consumers of social media are more likely to be vaccine-hesitant than consumers of traditional media sources (e.g., TV, newspaper, radio, etc.) (H3). This is especially likely for platforms where algorithms channel future content based on past history, and where content remains relatively unregulated. Socio-demographic and political factors are also central to understanding vaccine hesitancy. Based on existing research, we anticipate socio-political demographic variation by digital disparities in information seeking, with younger, more educated, and higher socio-economic status individuals being more active [9,25]. Research has also shown that political conservatives are more likely to believe in vaccine conspiracies [11]. An analysis of popular anti-vax Facebook pages found that the majority (72%) were mothers, often linked to childhood vaccinations for measles, mumps, and rubella (MMR) [26]

5. Discussion Our findings offer further support to the evidence that trust and conspiracy beliefs predict vaccine hesitancy, both generally and for COVID-19 specifically [4,6,8,11,13]. They also highlight the importance of distinguishing between different types of social and institutional trust (i.e., trust in others, government, media, scientists/experts), in both theoretical and methodological terms. Like other studies, we find that trust in science and health organisations is important [13,16]. The perceived personal threat of COVID-19 and confidence in government handling of the pandemic are also associated with greater willingness to be vaccinated. In the bivariate analysis, we find some support for a relationship between social media use (of certain platforms: Snapchat, TikTok, YouTube, and Instagram) and increased vaccine hesitancy. Only the association for YouTube remains in the fully specified model, which could suggest that these findings reflect self-selection of particular subpopulations in social media usage. This highlights the potential for misinformation to

impact on vaccine hesitancy through relatively unregulated and decentralized platforms [7,11,22]. Of demographic factors, age and education have the most robust associations with willingness to take the vaccine. The novel contribution of the paper to the fast-moving advances in this field comes both from its theorization of trust, mistrust, and distrust as distinct, extending recent studies [5], and its use of a mixed-methods approach. Insights from the focus groups serve to validate findings from the survey analysis, as well as shedding light on how individuals formulate judgments over the perceived safety of COVID-19 vaccines and their expressed willingness to be vaccinated. These were often founded not on "irrational" thinking, but on understandable concerns about the (impressive) speed of vaccine development, or on misunderstandings of relevant concepts such as herd immunity. While some people are willing to entertain conspiratorial beliefs, these are rarely Manichean in nature, but rather attempts to make sense of fragmented and confusing information. We provide new evidence on how trust and information are linked with COVID-19 vaccine hesitancy, informing policy in key ways. Misinformation thrives where there is lack of trust in government, politics, and elites. A broader lesson is the need for authorities to communicate truthfully, transparently, and consistently. Over-promising, confusing messages, and blame rather than solving problems are faults of government and politicians that are best minimized—especially during times of crisis. Personal perceived threat remains pivotal. With increased vaccinations and a drop in infections and deaths, individuals perceive lower threat. Our focus groups reveal that complacency emerges from a misunderstanding of "herd immunity". What may seem to be irrational, conspiratorial judgements are often attempts to make sense of knowledge fragments accumulated during a fraught, complex, and rapidly evolving crisis. The public use a "fast" and frugal model of intuitive thinking, using a mix of shortcuts and heuristics [31], which should be taken into account in communications. This fast and often emotional thinking during conditions of uncertainty can be clouded by social media, family, and friends, making it difficult for individuals to assess the relative importance of risks [32]. This inability to assess risk became clear in early 2021 in relation to the very rare blood clot disorders of 4 in 1 million, or 0.0004%, associated with the Oxford/AstraZeneca and Johnson & Johnson vaccines [32]. Since the Internet and social media are key sources for health information, governments should establish an engaging web presence in order to fill knowledge gaps [3]. Social media sites remain relatively unregulated, and since they do not operate as "publishers" that are forced to present balanced information, misinformation or conspiracy theories can quickly go "viral". Some effective interventions could include advertisers boycotting their advertisements alongside harmful content [33]; companies can also check information, alter keyword searches, and redirect individuals to correct sources [3], ban overt conspiracy groups such as QAnon [3], balance viewpoints, flag misinformation, or rapidly remove content. Users can also be a source of misinformation correction, though the evidence remains inconclusive for COVID-19 so far [34]. Action also needs to be rapid; YouTube and Facebook removed "Plandemic", but only after it was watched by millions [35]. Noting the source of information and forcing it to be traceable could be another measure. The most common sources of YouTube vaccine information are presented by non-expert individuals [29], suggesting that sites could flag or fact-check expertise of the video providers in order to help users gauge the accuracy or balance of information. However, expertise requires consensus, and in some rare cases, classic "experts", such as medical doctors or even leading politicians, may not always provide accurate information. The viral YouTube film claiming that COVID-19 death certificates were manipulated was made by an anti-vax doctor, who is also a member of the Montana Health Board [36]. Lower COVID-19 vaccine uptake in some groups in the US has been linked to the former President Trump's anti-vax views and tweets, which raised concerns about vaccine

safety and are linked to belief in conspiracies [37]. This study is not without limitations, and invites extensions. We relied upon self-reports of media sources rather than objective logs. The data are cross-sectional, collected at a particular time point in the pandemic and global vaccination response, making it difficult to disentangle the causality of whether exposure to poor vaccine and health information shapes hesitancy, or a tendency to believe in conspiracies shapes information-seeking. Although our study is nationally representative, complemented by focus groups, the sample size remains small in a single country. Larger cross-national and longitudinal samples with multi-mode data gathering would be desirable. Nevertheless, with its mixed-methods design of a nationally representative survey with focus groups at the time of the initial vaccine rollout in the UK, exploring the core topics of trust and social media, this study provides a unique and vital window into contemporary COVID-19 vaccine hesitancy.

SEVEN

The Satisfaction With Life Scale ED DIENER, ROBERT A. EMMONS, RANDY J. LARSEN, and SHARON GRIFFIN University of Illinois at Urbana-Champaign Abstract: This article reports the development and validation of a scale to measure global life satisfaction, the Satisfaction With Life Scale (SWLS). Among the various components of subjective well-being, the SWLS is narrowly focused to assess global life satisfaction and does not tap related constructs such as positive affect or loneliness. The SWLS is shown to have favorable psychometric properties, including high internal consistency and high temporal reliability. Scores on the SWLS correlate moderately to highly with other measures of subjective well-being, and correlate predictably with specific personality characteristics. It is noted that the SWLS is suited for use with different age groups, and other potential uses of the scale are discussed. Recent years have seen an increase in research on subjective well-being (Diener, 1984). In this research, three separable components of subjective well-being have been identified: positive affect, negative affect, and life satisfaction (Andrews & Withey, 1976). The first two components refer to the affective, emotional aspects of the construct; the latter to the cognitive-judgmental aspects. Although several scales for the assessment of affect exist (Bradburn, 1969; Kammann & Flett, 1983; Kozma & Stones, 1980), the measurement of general life satisfaction has received less attention. Life satisfaction refers to a cognitive, judgmental process. Shin and Johnson (1978) define life satisfaction as "a global assessment of a person's quality of life according to his chosen criteria" (p. 478). Judgments of satisfaction are dependent upon a comparison of one's circumstances with what is thought to be an appropriate standard. It is important to point out that the judgment of how satisfied people are with their present state of affairs is based on a comparison with a standard which each individual sets for him or herself; it is not externally imposed. It is a hallmark of the subjective well-being area that it centers on the person's own judgments, not upon some criterion which is judged to be important by the researcher (Diener, 1984). For example, although health, energy, and so forth may be desirable, particular individuals may place different values on them. It is for this reason that we need to ask the person for their overall evaluation of their life, rather than summing across their satisfaction with specific domains, to obtain a measure of overall life satisfaction. As Tatarkiewicz (1976) wrote, "... happiness requires total satisfaction, that is satisfaction with life as a whole" (p. 8). Scales of general life satisfaction have been developed. Unfortunately, many of these scales consist only of a single item. Such single item scales have a number of problems associated with them (see Diener, 1984, for a detailed discussion of these measures). Also, many of the existing scales have been designed and are appropriate only for geriatric populations, such as Neugarten, Havighurst, and Tobin's (1961) Life Satisfaction Index and Lawton's (1975) Philadelphia Geriatric Center Morale Scale. Furthermore, many of these scales do not appear to be tapping solely the judgmental quality of life satisfaction. For example, the Life Satisfaction Index, despite its name, includes a factor of zest vs. apathy (Neugarten et al., 1961). Thus, these scales are not, strictly speaking, measures only of life satisfaction. Thus, there exists a need for a multiitem scale to measure life satisfaction as a cognitive-judgmental process. The purpose of the present studies is to design and partially validate such a measure, the Satisfaction With Life Scale (SWLS). The scale is designed around the idea that one must ask subjects for an overall judgment of their life in order to measure the concept of life satisfaction.

Discussion.

The results indicated that the scale has favorable psychometric properties. The correlations with personality indicators of well-being discussed in Study 2 suggest that the scale might be

useful in clinical settings. The correlation of .57 with summed domain satisfactions indicates that global satisfaction and domain satisfactions share a good deal of common variance, but certainly are not equivalent constructs. The SWLS correlated at an adequate level with interviewer estimates of life satisfaction. A question arises about why the interviewer ratings correlated more highly with the LSI than with the SWLS. The LSI is a broader band instrument that includes affective as well as life satisfaction content. It appears that the interviewer ratings were also influenced by such affective content and thus correlated more highly with the LSI. The narrow band character of the SWLS is supported by the findings of Larsen, Diener, and Emmons (1983) which showed that the SWLS showed weaker correlations with affect than did other measures of subjective well-being. Future research needs to establish the discriminant validity of the scale, and should also explore in more depth the relationship between affect and life satisfaction, as well as the relationship between life satisfaction and domain satisfactions. Unlike other scales, the SWLS leaves the respondent free to weight various domains (e.g., health or material wealth) and various feeling states (e.g., loneliness) in whatever way he or she chooses.

Eight.

Psychometric analyses of the general mattering scale, antimattering scale, and the fear of not mattering inventory in Chinese youth Jin-Liang Ding¹, Xia Zheng^{2*}, Gordon L. Flett³, Cui-Hong Cao⁴, Jeffrey Hugh Gamble⁵, Xing-Yong Jiang⁶, Liang Zhao⁷, Wei-Ming Zheng⁸, Xian-He Chen⁹ & I-Hua Chen^{10*} The importance of mattering for children and adolescents has garnered increasing attention. However, systematic psychometric examination for the related scales is lacking in this population. To address this gap, the present study employed classical test theory and Rasch analysis to evaluate the reliability and validity of the General Mattering Scale (GMS), Anti-Mattering Scale (AMS), and Fear of Not Mattering Inventory (FNMI) in a sample of 4,225 Chinese children and adolescents from 16 schools spanning primary, middle, and senior high school levels. The scales exhibited high reliability and validity, with Rasch analysis confirming unidimensionality for each, although one of the five GMS items showed poor fit for primary and senior high school samples. Multiple-group confirmatory factor analysis demonstrated strong measurement invariance for the AMS and FNMI across age groups, but not for the GMS. Scores on the GMS, AMS, and FNMI each accounted for a significant and unique portion of variance in depression, anxiety, and stress, underscoring their incremental validity. The AMS and FNMI are well-suited for assessing anti-mattering and fear of not mattering across Chinese youth populations, while the GMS requires refinement due to Item 1's poor fit and lack of cross-group invariance. Notably, anti-mattering showed the strongest associations with depression, anxiety, and stress across all age groups, highlighting its particular importance for youth mental health. Keywords General mattering, Anti-mattering, Fear of not mattering, Children and adolescents, Psychometrics, Psychological distress Recent academic discourse has increasingly focused on the concept of 'mattering' in student mental health¹. Identified by Rosenberg and McCullough in 1981, 'mattering' is the feeling of being important and significant to others, influencing perceptions of being valued and cared for². General mattering refers to this sense of significance to others in general, as distinct from specific mattering to particular individuals such as family or friends, and acts as a protective factor against mental health issues³. Recent extensions of this framework have introduced 'anti-mattering' as the feeling of not being important to others, serving as a key risk factor linked to increased distress^{4–8}. "The fear of not mattering," another recent development representing a specific anxiety concerning being deemed insignificant to others, has also been found to exacerbate distress among university students⁵.

To accurately measure mattering, three key scales have been developed: the General Mattering Scale (GMS)⁹, the Anti-Mattering Scale (AMS)¹⁰, and the Fear of Not Mattering Inventory (FNMI)¹¹. The GMS evaluates perceived importance within broader interpersonal and social contexts, while the AMS^{10,11} measures feelings of being undervalued, and the FNMI assesses anxiety related to fears of insignificance^{10,11}. These instruments have been adapted for Chinese populations^{12–14}, with a comprehensive psychometric evaluation conducted among Chinese university students during the COVID-19 pandemic⁵. However, there remains a gap in understanding the psychometric properties of these scales across different age groups, particularly in younger populations such as children and adolescents (e.g., primary, middle, and high school students). First, general mattering, anti-mattering, and fear of not mattering are developmentally sensitive constructs, yet their measurement properties in this demographic remain underexplored. Prior to our study, no systematic psychometric evaluation of the AMS and FNMI had been conducted for this age group, and existing research on the GMS in Chinese

youth was limited by small sample sizes^{15,16}. Second, several studies have reported variations in mattering scores across subgroups, based on factors such as gender, educational level, and geographic location^{17,18}. However, it remains unclear whether these differences reflect true variations in perceived significance or are the result of measurement biases. For example, Liu¹⁹ found that upper-level university students reported higher mattering scores compared to lower-level students, while Myers and Bechtel²⁰ found no significant age differences in mattering scores among West Point cadets. These contrasting findings highlight the need to assess the measurement invariance of mattering scales to determine if observed differences are genuine reflections of individuals' feelings of significance or artifacts of the measurement tools. Liu et al.⁵ emphasized the importance of evaluating the psychometric properties of mattering scales across diverse age groups, but the task of establishing measurement invariance for the GMS, AMS, and FNMI across different age brackets has not been undertaken; a critical consideration for interpreting score differences during key developmental transitions (e.g., from childhood to adolescence). Finally, although Liu et al.⁵ provided a robust evaluation using the adult-oriented Depression Anxiety Stress Scale-8 version (DASS-8) to associate mattering scales with distress, this approach highlights a further limitation when applied to youth: the need for age-appropriate validation tools. Youth-specific measures like the DASS-Y²¹ demonstrate stronger psychometric suitability for children and adolescents, enabling more reliable assessments of how mattering relates to mental health outcomes during critical developmental stages. In this study, we evaluated 4,225 Chinese students aged 6–18 years (spanning primary, middle, and high school), a population vastly underrepresented in mattering research. Our objectives were to assess the reliability and validity of these scales in measuring mattering-related constructs among Chinese children and adolescents using both classical test theory and Rasch analysis, and to investigate the measurement invariance of the scales across the specified age groups. This is critical for interpreting mean differences in mattering scores among children, early adolescents, and late adolescents; an analysis not conducted by Liu et al.⁵ or other prior work. Moreover, we used the DASS-Y, which is normed and validated for youth²¹, to examine the external convergent and incremental validity. This ensures more accurate associations among mattering constructs and youth-specific psychological distress (depression, anxiety, stress) compared to adult-focused measures like the DASS-8. Understanding the relationships between mattering and symptoms of distress can provide valuable information for developing targeted interventions aimed at improving mental health outcomes in this population.

Conclusion.

This study validated three mattering instruments across 4,225 Chinese students spanning primary, middle, and senior high school, revealing that the AMS and FNMI demonstrated robust psychometric properties (including factorial validity, internal, external validity, item validity, and strong measurement invariance) across age groups, while the GMS showed adequate within-group reliability and validity but failed to achieve scalar invariance, limiting cross-age comparisons. Moreover, all three scales demonstrated incremental validity, contributing unique variance to psychological distress outcomes, with anti-mattering showing the strongest associations with depression, anxiety, and stress, followed by fear of not mattering, then general mattering. The identification of middle school as a period of heightened anti-mattering with optimal person-item alignment for AMS/ FNMI scales highlights this developmental stage as critical for intervention. School-based interventions could incorporate mattering-enhancing components such as peer mentoring programs, service-learning opportunities where students contribute to their communities, and structured activities that highlight each student's unique

value and contributions, thereby promoting mental health through increased sense of mattering. However, these findings should be interpreted considering several limitations: the sample, while large, may not be nationally representative; the cross-sectional design precludes causal inferences; self-report measures may be influenced by cultural response biases; and the GMS requires particular caution given its lack of age invariance. Overall, these findings provide essential psychometric evidence for measuring mattering constructs in Chinese youth, though future research should prioritize developing culturally appropriate GMS adaptations, establishing clinical validity through diagnostic interviews and ROC analyses, and conducting longitudinal studies to examine developmental trajectories of mattering across childhood and adolescence.

NINE

The psychological and political correlates of conspiracy theory beliefs Joseph Uscinski^{1*}, Adam Enders², Amanda Diekmann³, John Funchion⁴, Casey Klofstad¹, Sandra Kuebler⁵, Manohar Murthi⁶, Kamal Premaratne⁶, Michelle Seelig⁷, Daniel Verdear⁸ & Stefan Wuchty⁸

Understanding the individual-level characteristics associated with conspiracy theory beliefs is vital to addressing and combatting those beliefs. While researchers have identified numerous psychological and political characteristics associated with conspiracy theory beliefs, the generalizability of those findings is uncertain because they are typically drawn from studies of only a few conspiracy theories. Here, we employ a national survey of 2021 U.S. adults that asks about 15 psychological and political characteristics as well as beliefs in 39 different conspiracy theories. Across 585 relationships examined within both bivariate (correlations) and multivariate (regression) frameworks, we find that psychological traits (e.g., dark triad) and non-partisan/ideological political worldviews (e.g., populism, support for violence) are most strongly related to individual conspiracy theory beliefs, regardless of the belief under consideration, while other previously identified correlates (e.g., partisanship, ideological extremity) are inconsistently related. We also find that the correlates of specific conspiracy theory beliefs mirror those of conspiracy thinking (the predisposition), indicating that this predisposition operates like an ‘average’ of individual conspiracy theory beliefs. Overall, our findings detail the psychological and political traits of the individuals most drawn to conspiracy theories and have important implications for scholars and practitioners seeking to prevent or reduce the impact of conspiracy theories. Conspiracy theory beliefs are associated with numerous societal harms, including vaccine refusal, prejudice against vulnerable groups, and political violence^{1–6}. To lay the groundwork for the development of effective and practical tools to minimize such harms, broad, interdisciplinary research programs have developed over the past decade^{7–11}. The growing literature has collectively identified dozens of individual-level psychological and political factors that are correlated with conspiracy theory beliefs¹¹. However, the literature has developed in a piecemeal fashion, with singular studies oftentimes considering only a small number of conspiracy theories or potential correlates at a time¹². This brings into question the generalizability of these previous findings. Our central concern is the extent to which the previously identified psychological and political correlates of conspiracy theory beliefs vary—in strength, direction, and statistical significance—depending on the specific conspiracy theory belief being examined. For example, Republicanism and conservatism are typically associated with the belief that Barack Obama faked his birth certificate¹³. Such a finding reveals important details about the basic nature of “birther” beliefs and could even be used to develop strategies to correct such beliefs¹⁴. But should we also expect that the factors related to birtherism are also related to beliefs in other conspiracy theories, such as the assertion that the moon landing was faked? Are the characteristics related to birtherism similar to those of the average conspiracy theory believer, or specific to believers in birtherism or a few other conspiracy theories? Similar questions may be asked of the political and psychological characteristics associated with believers of other conspiracy theories. Going further, should we expect because, for example, narcissism is associated with Holocaust denial and support for violence with QAnon beliefs that, on average, those exhibiting a tendency toward generalized conspiracy thinking are also likely to be narcissistic or supportive of violence? In each case the literature only offers speculation because generalizability is rarely considered. Our research question asks: to what extent do the major psychological and political correlates of conspiracy theory beliefs fluctuate depending on the specific conspiracy theory belief under consideration? To answer, we aim to construct

empirical distributions of the effects of various political and psychological characteristics on a wide variety of conspiracy theory beliefs. The distribution of these effects provides clues as to how common (or uncommon) a relationship between a given conspiracy theory belief and political/psychological characteristic is, thereby shedding light on the characteristics of the average conspiracy believer and potentially qualifying past inferences made using beliefs in only a single or small number of conspiracy theories. In short, our analysis is calibrated to decipher how generalizable and representative previously identified characteristics of conspiracy believers really are. To this end, we employ a national survey of 2021 U.S. adults from May 2021, estimating previously identified relationships across many conspiracy theory beliefs within both bivariate (correlation) and multivariate (regression with controls) frameworks. In particular, we focus on 15 different individual-level psychological and political characteristics identified by past work and beliefs in 39 conspiracy theories that vary by topic, the supposed villains, the age of the theory, and its popularity—585 pairwise relationships in total. We also consider the relationships between the 15 individual-level characteristics and conspiracy thinking, the predisposition toward viewing events and circumstances in conspiratorial terms^{15–17}, which allows for a comparison of these relationships with those we observe with beliefs in specific conspiracy theories. Of course, we should hope that patterns match, but this is ultimately an empirical question that remains unanswered by the literature. Should the relationships between the various correlates we consider and the specific conspiracy theory beliefs we employ closely match the relationships between those correlates and the conspiracy thinking predisposition, there would be good empirical reason for researchers—in many research designs—to avoid the trappings of specific conspiracy theories in favor of analyzing the general predisposition. The vast majority of research on the political correlates of conspiracy theory beliefs focuses on partisanship and ideology^{16, 18–22}. Some studies distinguish between partisanship and ideology and the strength of those attachments, finding that—regardless of partisan/ideological “direction”—the extremity of one’s political attachments are associated with conspiracy beliefs^{21, 22}. After Donald Trump was elected, more research considered the role of orientations toward Trump²³, specifically, as well as other orientations that have been associated with Trump, such as populism and Manicheism^{24–32}. Finally, support for political violence has become relevant in the wake of the January 6, 2021 riot³³, the burning of 5G cell tower³, and other acts of violence during the COVID pandemic and 2020 election³⁴. Altogether, we believe that we have broad coverage of the political correlates of conspiracy beliefs identified in past literature. Our examination of psychological correlates is primarily confined to personality traits, such as Machiavellianism, psychopathy, and narcissism—each of which are related to conspiracy theory beliefs^{35–37}. We also consider potential downstream products of these antisocial personality traits that have also been found to correlate with conspiracy theory beliefs, such as the tendency to knowingly share false information online, support the use of violence, and distrust government and other people^{35, 38–40}. We focus on personality traits because they—perhaps unlike other psychological factors such as cognitive biases (e.g., conjunction fallacy, intentionality bias) or existential motives (e.g., feelings of powerlessness)—appear to actually structure conspiratorial belief systems³⁸. This is not to say that cognitive biases and existential motives of various sorts are not fundamental or important, but they appear to be less predictive of conspiracism than personality traits and other political orientations⁴¹. Although the list of correlates we consider is necessarily incomplete, it does broadly cover the political and social-psychological correlates identified by past literature as being strongly predictive of a wide variety of beliefs in specific conspiracy theories. The answer to our primary research question—to what extent do the major psychological and political correlates of conspiracy theory beliefs

fluctuate depending on the specific conspiracy theory belief under consideration—has important implications for the study of conspiracy theories. First, it may call into question the generalizability of inferences made using a small number of conspiracy theory beliefs (which is the strategy employed by most studies), especially when the conspiracy theories examined in singular studies exhibit similar characteristics (e.g., who the accused conspirators are). Second, our findings may help with the development of strategies designed to curtail conspiracy theory beliefs and their associated harms. The development of effective interventions requires an accurate understanding of the correlates of conspiracy theory beliefs, as these can shed light on believers' motivations and tendencies.

Discussion.

We investigated variability in the magnitude, direction, and statistical significance of correlations between 15 different psychological and political characteristics identified by the conspiracy theory belief literature and beliefs in 39 specific conspiracy theories, capturing a total of 585 relationships. We also interrogated the robustness of these findings across question types and utilizing a multivariate framework. Finally, we compared the correlations across specific conspiracy beliefs to those between the psychological and political characteristics we considered and conspiracy thinking, as operationalized by the ACTS. We found that the psychological (dark triad, propensity to share false information online) and non-partisan/ ideological political (populism, Manicheanism, support for political violence) traits tend to exhibit the strongest and most consistent correlations across a wide variety of beliefs in conspiracy theories. The ACTS was the strongest correlate of specific beliefs—it is reassuring, though not surprising, that it is a significant predictor of every conspiracy theory belief we examined. We also found that partisan/ideological attitudes and identities were less strongly correlated with specific conspiracy theory beliefs, on average, and exhibited a great deal of variability across beliefs. Indeed, left–right orientations such as these were most strongly correlated with beliefs in conspiracy theories that involved partisan actors and groups (e.g., Clinton, Trump, Republicans) or had ideological implications (e.g., global warming hoax beliefs). Finally, patterns in the correlations between individual characteristics we considered and conspiracy thinking (ACTS) were quite similar to patterns in the correlations with specific conspiracy theory beliefs. Where such correlations diverged, relationships with conspiracy thinking were stronger in absolute magnitude compared to the average correlations across specific conspiracy theory beliefs. These findings have several implications for the study of conspiracy theory beliefs. First, researchers should be circumspect about generalizing from one or a small number of conspiracy theories. Not all conspiracy theories are created equal! Such an observation is reinforced when examining the partisan and ideological correlates of conspiracy theory beliefs. In particular, the basic nature of these relationships is heavily contingent on the specific conspiracy theories probed because conspiracy theories are differentially attractive depending on one's social and political identities^{61, 62}. Further, the factors associated with belief in one conspiracy theory may not speak to the general tendency to believe in conspiracy theories⁶⁰. Nonetheless, the extant literature has focused heavily on some conspiracy theories, such as those regarding climate change^{63–65}, Barack Obama's birth certificate^{12, 13, 66}, and the terror attacks of 9/11/2001^{67–69}, oftentimes attempting to draw generalizable inferences about the broader tendency toward conspiracy theorizing⁷⁰. While these conspiracy theories are, of course, important and worthy of study, our findings show that they are not representative of all conspiracy theories. Thus, generalizations based on analyses involving these conspiracy theories can be misleading if not properly qualified and contextualized. One practical solution for those seeking to study conspiracy theories

generally—as opposed to intentionally focusing on one or a few—involves utilizing a variety of conspiracy theory beliefs, ideally spanning various characteristics or dimensions, such as those identified by Brotherton et al.⁴⁶ Another practical solution involves studying conspiracy thinking, the predisposition to believe in conspiracy theories, rather than the beliefs in specific conspiracy theories^{46, 71–74}. Given that patterns in the average correlation between the psychological and political characteristics and the 39 conspiracy theory beliefs we considered tend to mirror patterns in those characteristics' correlation with conspiracy thinking, researchers might consider employing measures of conspiracy thinking in many cases, rather than measures of beliefs in specific conspiracy theories. The ACTS and similar operationalizations (e.g., the CMQ75 and GCBS⁴⁶) have the advantage of being demonstrably reliable, valid, and measurement invariant across countries and contexts. Furthermore, they are typically composed of a small number of survey items, thereby making them a robust and thrifty alternative to specific conspiracy theory beliefs. Even in instances where researchers are interested in specific beliefs, perhaps because of their potential consequences (e.g., those about vaccines, election fraud, minority groups), they might also examine conspiracy thinking as a window into how a specific belief might deviate from the average. Overall, the robust relationship between conspiracy thinking and beliefs in specific conspiracy theories demonstrated here suggests that there is still enormous potential for theory development and empirical testing when it comes to understanding the characteristics, experiences, processes, and situational factors that promote or inhibit conspiracy thinking. Finally, our findings have implications for social and political debates and policies regarding the spread of conspiracy theories. Whereas conspiracy theories certainly pose a political problem, they may not always be a left–right partisan or ideological problem. We found positive and negative correlations with partisan and ideological identities, as well as support for Biden and Trump, signaling that those on the political left and right both believe in conspiracy theories when it is psychologically, politically, or socially expedient to do so (e.g., to reduce cognitive dissonance, bolster one's group-image, denigrate an out-group). In such cases, measures involving correctives from co-partisans can be successful^{14, 76}. However, some of the strongest and most consistent correlates of conspiracy theory beliefs involve psychological and political characteristics that are markers of anti-social, conflictual tendencies (e.g., dark triad traits, support for violence, Manicheanism). Efforts to correct or pre-bunk conspiracy theory beliefs are less likely to be successful among individuals exhibiting such traits. We encourage researchers who are actively developing interventions aimed at dissuading people from adopting conspiracy theory beliefs to examine the effectiveness of their strategies across a large range of conspiracy theories that vary in numerous ways and to specifically consider strategies for reaching the most cantankerous—and perhaps the most dangerous—conspiracy theory believers. For example, treatments designed to “correct” conspiracy beliefs might not only include high-quality information from epistemic authority figures, which the most conspiratorial individuals are likely to ignore, but also acknowledge that even scientists and other experts occasionally get things wrong and that the process of scientific discovery is dynamic and non-linear. Such a strategy may disarm narcissists and the most distrustful members of society by acknowledging that their beliefs and worldviews have some merit, thereby making them more receptive to authoritative information. In general, more research examining the impact of debunking, prebunking, and the like—conditional on high levels of distrust, populism, Manicheanism, and dark triad personality traits—must be conducted. Limitations and future directions. Despite the relatively large number of correlates we employ, many other correlates that have been identified by the rapidly growing literature (e.g., criminal activity, anomie, paranoid ideation, depression) are not included in this study due to the space limitations of our survey^{3, 4, 77}. We

encourage future studies to replicate and expand our analyses, using additional psychological and political traits across a broad range of specific conspiracy theory beliefs to understand the robustness of the relationships observed in past work. Since they are based on cross-sectional, observational data we must also acknowledge that our analyses are incapable of shedding light on causal pathways between the psychological and political characteristics we identified and conspiracy theory beliefs. The conspiracy belief literature would benefit greatly from more studies that employ different research designs, especially those involving panel data and experimental manipulations. We also recognize that our analysis was conducted on a U.S. sample and during a tumultuous political time when one political party was continuing to contest the outcome of a recent election. While we do not expect our focus on the U.S. to impact inferences about psychological characteristics, political dynamics do vary across sociopolitical contexts, as does the relative salience of specific conspiracy theories²¹. In other words, it could be that case that the dynamics of partisan and ideological predispositions are contingent not only on the specific conspiracy theory beliefs assessed, but also on the broader political climate (as is certainly the case for feelings toward political candidates, who differ from election to election). For example, the “conspiracy theories are for losers” hypothesis holds that those who identify with the party that loses an election or is perceived to lack power are more likely to exhibit conspiracy theory beliefs, especially about the out-party^{21, 47, 78}. For these reasons, we also encourage future studies to replicate and expand our study in different countries and other time points to account for the potential impact of situational factors.

TEN.

Dark Triad and COVID-19 vaccine hesitancy: the role of conspiracy beliefs and risk perception.

Abstract.

With the spread of the Coronavirus Disease-2019 (COVID-19) pandemic, the mass vaccination plan represents the primary weapon to control the infection curve. Unfortunately, vaccine hesitancy also spread out worldwide. This led to exploring the critical factors that prevent vaccination from improving the efficacy of vaccine campaigns. In the present study, the role of the Dark Triad (psychopathy, Machiavellianism, and narcissism) in vaccine hesitancy was investigated, considering the sequential mediating effects of conspiracy beliefs and risk perception. Via a cross-sectional design, the study was conducted with 210 participants surveyed using an online questionnaire to assess the Dark Triad, vaccine hesitancy, conspiracy beliefs, risk perception, and a set of demographic and socio-cultural control variables. Results showed that conspiracy beliefs and risk perception fully mediated the association between the Dark Triad and vaccine hesitancy. This finding suggested that albeit personality accounts for individual differences in human behaviour, vaccine hesitancy is also affected by irrational and false beliefs that, in turn, weaken the risk perception associated with COVID-19. Implications and future research directions were discussed.

Introduction.

Since its outbreak, the Coronavirus Disease-2019 (COVID19) has deeply affected worldwide populations. Due to its highly contagious nature, the World Health Organisation – WHO (2020) and government agencies have provided different recommendations and issued policies for reducing the spread of the virus, including using masks and social distancing. Although these recommendations can help flatten the COVID-19 infection curve, the long-term control of the COVID-19 pandemic depends on the public acceptance of vaccination (Zheng et al., 2022). Nevertheless, antivaccination movements have heavily fought back against vaccination campaigns, mainly during the COVID-19 pandemic (Lin & Wang, 2020), representing one of the ten most prominent health threats (WHO, 2020). Past research suggested that vaccine hesitancy depends on different causes, including demographics, knowledge about the virus and vaccine, past infection, religious and political interests as well as individual dispositions, such as personality (e.g., Murphy et al., 2021; Shachman et al., 2021). This latter has been widely conceptualised as a hard-core and relatively stable variable involving biological, social (i.e., norms, values, roles, and authority), and intrapsychic factors determining, causing, and explaining people's behaviours (DeYoung, 2010; Dwairy, 2002), including protective practices against the COVID-19 (Reagu et al., 2023). For instance, Abdelrahman (2022) found that Conscientiousness and Neuroticism were positively associated, while Agreeableness was negatively related to personal hygiene practices and social distancing. It is worth noting that research on the association between personality and healthy behaviours against COVID-19 has been overwhelmed by the Big Five model (Reagu et al., 2023; Abdelrahman, 2022), whereas little empirical evidence has been collected on other personality taxonomies, such as the Dark Triad (DT). This personality model reflects a constellation of three theoretically distinctive yet interconnected personality traits (i.e., psychopathy, Machiavellianism, and narcissism), underpinning inappropriate, unethical, and aversive behaviours (Paulhus & Williams, 2002). Previous studies showed that DT negatively affects people's disposition in engaging healthy behaviours against COVID-19, including the willingness to be vaccinated (e.g., Howard, 2022; Konc et al., 2022). However, the key mechanism involved in this association has not been

explored so far. In order to fill the gap, drawing upon the Health Belief Model (Janz & Becker, 1984), this study advanced the idea that the relationship between psychological dispositions (i.e., DT) and COVID-19 vaccine adherence results from a sequential effect of conspiracy beliefs and COVID-19 risk perceptions. The dark triad The DT construct has been introduced by Paulhus & Williams (2002) and entails three subclinical personality traits. First, psychopathy involves emotional/interpersonal and behavioural deviances (e.g., Hare, 1993), including interpersonal manipulation (e.g., grandiosity, lying, superficial charm); callous affect (e.g., lack of empathy, lack of remorse); erratic lifestyle (e.g., impulsivity, irresponsibility, sensation seeking); and criminal tendencies (e.g., antisocial or counterproductive behaviours) (Paulhus & Williams, 2002). Second, Machiavellianism entails “a strategy of social conduct that involves manipulating others for personal gain” (Christie & Geis, 1970, p. 285; Dahiling et al., 2009; Wilson et al. 1996). According to Paulhus and Williams (2002), people with high Machiavellianism also show callousness, disagreeableness, exploitativeness, and manipulativeness (Furnham et al., 2013) but are less impulsive and aggressive and more able to adopt cynical tactics to reach their own goals. Third, narcissism relies on harbour feelings of superiority, a dysfunctional need for excessive attention and admiration, a propensity for engaging in exploitive behaviours, and, ultimately, a lack of empathy and callousness (Paulus & Williams, 2002; O’Boyle et al., 2012; Raskin & Hall. 1979; Wright et al., 2013). Following Dinić and Jevremov (2021), the main research trends regarding DT can be summarised in four directions: (1) evolutionary-based life history theory; (2) psychometric validity of the construct, including empathy, emotional intelligence, and revenge; (3) basic personality models (e.g., Big Five and HEXACO); and (4) gender differences, evolutionary psychology, and deception. Notably, given the focus of the present study, DT was found to be negatively associated with pro-social practices, including equity and altruism (Giancola et al., 2022a), as well as adherence to prevention guidelines and unwillingness to be vaccinated during the COVID-19 pandemic (e.g., Giancola, 2022; Konc et al., 2022). Dark triad and hesitancy toward COVID-19 vaccine Overall, DT was found to be associated with risky practices, which weaken mental and physical health (Malesza et al., 2016), mainly in terms of financial (Sekścińska et al., 2020), and driving behaviours (Endriulaitienė et al., 2018), substance use (Stenason & Vernon, 2016), problematic social media use (Kircaburun et al., 2018), bullying and cyberbullying (van Geel et al., 2017), as well as unprotected sex (Malesza & Kaczmarek, 2021). In this vein, people with high levels of DT usually show an individual profile characterised by a low-risk perception and a misinterpretation of the informative and adaptive value of affective states, leading them to underestimate the entity and the dangerousness of threats (Giancola, 2022). Indeed, DT was found to be negatively associated with fear of COVID-19 as well as compliance with prevention guidelines against the virus (Giancola, 2022). Particularly, Machiavellianism and psychopathy were found to be negatively correlated with healthy behaviours and positively associated with the tendency to continue living one’s own life “as nothing happened” (Triberti et al., 2021; Howard, 2022) argued that narcissism and psychopathy were positively associated with vaccine hesitancy, negatively with pro-vaccination outcomes, and positively with anti-vaccination outcomes. Furthermore, Konc and colleagues (2022) found that deviousness, a key aspect of Machiavellianism, contributed to the unwillingness to be vaccinated against COVID-19 regardless of an individual’s risk-taking tendencies. Overall, these findings yielded evidence of the key role of DT in neglecting protective and healthy behaviours against the spread of the virus, calling theoretical basis on the positive association between DT and COVID-19 vaccine hesitancy. Therefore, the first hypothesis of the current study was formulated as follows: H1 The DT is directly and positively associated to COVID19 vaccine hesitancy. Dark triad and conspiracy beliefs Conspiracy reasoning lies in non-random patterns, intentional agency,

coalitions or groups of (non) human actors, hostility in pursuing evil goals, and continued secrecy (Karić & Međedović, 2021). It involves false beliefs in which the ultimate cause of an event relies on a group of agents (e.g., a government body or secret societies), which secretly work together to achieve a hidden and malevolent goal (Swami & Furnham, 2014). Some widespread instances of conspiracy theories include believing that elements within the American government planned the Twin Towers attacks or that Princess Diana was deliberately killed, or even that the COVID-19 pandemic is the result of electromagnetic waves transmitted by 5G technology (Jolley & Paterson, 2020), or that COVID-19 is artificially and deliberately generated in a laboratory for military porpoises (Chayinska et al., 2021).

Conspiracy beliefs rise mainly during a societal crisis, an “impactful and rapid societal change that calls existing power structures, norms of conduct, or even the existence of specific people or groups into question” (van Prooijen & Douglas, 2017, p. 324). The spread of conspiracy beliefs can help people to manage the chaos and get the illusion of control (Imhoff & Lamberty, 2020), also providing the reason why a given event happens, who could be blamed, and who benefits from it and how (Karić & Međedović, 2021). Studies on the impact of DT on conspiracy theories reveal that the manipulative, cynical, and exploitative nature of this cluster fosters the inclination to believe in conspiracy theories (Lukić & Živanović, 2021; March & Springer, 2019). For example, primary psychopathic people were found to believe in conspiracy theories because they assume that others are manipulative as they are (Douglas & Sutton, 2011). Moreover, antisocial facets of psychopathy were associated with higher conspiracist ideation (Kay, 2021). Narcissism also predicted an increased belief in COVID19 conspiracy theories (Blanchard et al., 2023; Gligorić et al., 2021; Sternisko et al., 2021) and intentional dissemination of COVID-19-related conspiracy theories (Sternisko et al., 2021). Interestingly, Cichocka and colleagues (2016; 2022) suggested that people with high narcissism endorse conspiracy theories due to their heightened paranoia, which makes them believe that others are intentionally malicious. In this vein, both high and moderate scores on narcissism and high scores on Machiavellianism were found to weaken the power of scepticism on conspiracy theories in COVID19 (Ahadzadeh et al., 2021). Furthermore, collective narcissism, Machiavellianism, as well as primary and secondary psychopathy were found to be associated with general COVID-19 conspiracy beliefs and COVID-19 conspiracy dissemination (Hughes & Machan, 2021). Finally, Uscinski and colleagues (2022) found that amongst different psychological and political variables (e.g., populism, support for violence), DT was strongly associated with conspiracy theory beliefs. Given this evidence, the second hypothesis of the study states that: H2 The DT is positively related to conspiracy beliefs.

Conspiracy beliefs and risk perception Risk perception is based on the subjective calculation of outcomes or accidents and their probabilities (Jia et al., 2008). Different factors can affect the people’s risk perception, including not only numeric information about a threat people are exposed to (Reyna et al., 2009) but also contextual factors (e.g., the immediacy and the controllability of the threat), general affect (Ferrer & Klein, 2015), and individual beliefs (Slovic et al. 2007). Risk perceptions are threat-specific and rely on deliberative, affective and eund that conspiracy ideationes (Slovic et al., 2007; Ferrer & Klein, 2015). Different studies explored the disease risk perception of COVID-19 and its perceived impact on health (Cerami et al., 2020; Lanciano et al., 2020). Surprisingly, risk perception during the COVID-19 pandemic was not as high as expected (Commodari & La Rosa, 2020), although it correlated to preventative health behaviours (Dryhurst et al., 2020). Research revealed that conspiracy beliefs negatively predicted COVID19 health risk behaviours (Hughes et al., 2022; Maftei & Holman, 2022). In this vein, Imhoff and Lamberty (2020) found that when the COVID-19 virus was conceived as a hoax rather than as a bioweapon, people tended to show less compliance with infection-reducing measures.

However, Marinthe et al. (2020) found that conspiracy mentality was a significant and positive predictor of a greater perception of COVID-19 risk of contamination and risk of death. Additionally, Chayinska et al. (2021) showed that the individual disposition toward conspiracy beliefs on COVID-19 was positively associated with optimistically biased risk perceptions (i.e., underestimating the likelihood of given events) in Ukraine and with optimistically biased public risk meta-perceptions (i.e., individuals' perception that others overestimate the severity of COVID-19) in Turkey and Germany. Given this misleading evidence, the third hypothesis of the research was non-directional:

H3 Conspiracy beliefs are related to COVID-19 risk perception. Risk perception and hesitancy toward COVID-19 vaccine Vaccine hesitancy, one of the ten threats to global health in 2019, reflects people's indecision and reluctance to receive specific safe and recommended vaccination despite the availability of vaccination services (Troiano & Nardi, 2021; WHO, 2021). The 3Cs model, first proposed to the WHO EURO Vaccine Communication Working Group 2011 (WHO, 2011), posits that vaccine hesitancy relies on a complex decision-making process involving three main determinants: (1) confidence defined as trust in the vaccine, providers, and policymakers; (2) convenience, which entails the access to vaccination campaigns; (3) and complacency, which refers to perceived risks of vaccine-preventable diseases. In terms of complacency, as suggested by the risk-as-feeling hypothesis (Chapman & Coups, 2006), risk perception, and specifically its emotional side, plays a pivotal role in motivating people toward healthy and protective behaviours against health threats (e.g., pandemics), including vaccination (Floyd et al., 2000; İkişik et al., 2021; Rudisill, 2013). For instance, affective risk perceptions were found to account for over half of the indirect association between intuitive thinking and the likelihood of being vaccine-hesitant (Martinelli & Veltri, 2021). Fadel and colleagues (2022) revealed that risk perception positively correlated with people's vaccine intentions against COVID-19. Moreover, Soares et al. (2021) argued that people who perceive a low/non-existing risk of COVID-19 infection are highly likely to refuse vaccination. Similarly, risk perception was associated with COVID-19 vaccine hesitancy (Du et al., 2021; Qin et al., 2022). Furthermore, in the Italian context, Caserotti and colleagues' study (2021) highlighted that people were more willing to get vaccinated during the lockdown phase as the risk perception of the virus increased. These findings were also confirmed in cross-cultural research (e.g., Savoia et al., 2022), suggesting that people weigh the severity of a threat (e.g., perceived risk of getting infected and sick from COVID-19) as well as the perceived benefits or harms of getting vaccinated. Thus, low levels of COVID-19 risk perception modulate people's disposition toward vaccine hesitancy. Overall, this evidence leaves room for the fourth hypothesis of the study:

H4 Risk perception is negatively associated to hesitancy toward the COVID-19 vaccine. The sequential mediating effect of conspiracy beliefs and COVID-19 risk perception As previously mentioned, past studies suggested that DT and COVID-19 risk perception are roughly associated. People with low-risk perception and high psychopathy and Machiavellianism demonstrate low engagement in behaviours to prevent COVID-19 spread (Giancola, 2022; Zajenkowski et al., 2020) and high vaccine hesitancy (e.g., Konc et al., 2022), generally adopting the tendency of "as nothing happened" (Triberti et al., 2021). Yet, conspiracy beliefs and hesitancy toward the COVID-19 vaccine were also demonstrated (Romer & Jamieson, 2020; Sallam et al., 2021, 2022). For instance, Sallam and colleagues (2021) argued that a higher rate of belief in conspiracy, in addition to dependence on social media platforms to obtain information about the vaccine, can explain the lower acceptance rate for COVID-19 vaccine. This evidence shows that the interrelationships between the variables under investigation in the present study are well-grounded in the literature, allowing for hypothesising different mediation

models. However, given that the current research draws upon the idea that COVID-19 vaccine hesitancy results from a blend of individual dispositions (i.e., personality traits), subjective beliefs (i.e., conspiracy beliefs), and cognitions (i.e., risk perceptions about health), a sequential mediating effect of conspiracy beliefs and risk perception was advanced on the association between the DT and people's hesitancy toward the COVID-19 vaccine. The model hypothesised that Machiavellianism, psychopathy, and narcissism enhanced the hesitancy to get vaccinated and that such a hesitancy involved people's false beliefs in conspiracy, which inevitably affected the evaluation of COVID-19 risk perception. The last hypothesis of the study was:

H5 Conspiracy beliefs and COVID-19 risk perception sequentially mediate the interplay between the DT and hesitancy toward the COVID-19 vaccine.

Summary The current research aimed to deepen the main mechanisms underpinning unhealthy behaviours related to COVID-19, giving some insight into the determinants of getting vaccinated and, ultimately, into health-promoting behaviours. Results rejected H1, given that DT was not associated with hesitancy toward the COVID-19 vaccine, and confirmed the other hypotheses. Overall, this scenario suggests that other factors could mediate the relationships between the two constructs. Regarding H2, DT was positively related to conspiracy beliefs, extending the view that malevolent and aversive personality traits foster the inclination to believe in conspiracy theories (Lukić & Živanović, 2021; March & Springer, 2019). Regarding H3, conspiracy beliefs were negatively related to COVID-19 risk perception, supporting the view that generally misleading beliefs lead people to less compliance with infection-reducing measures (Hughes et al., 2022; Maftei & Holman, 2022). Compared with previous literature, this finding provides additional evidence of the critical role of conspiracy beliefs in shaping perception about a threat, such as the pandemic. Regarding H4, COVID-19 risk perception was negatively related to hesitancy toward the COVID-19 vaccine, supporting that low perceptions about the risk modulate people's dispositions toward unhealthy behaviours (Du et al., 2021; Qin et al., 2022). This finding extends the evidence that the underestimation of the severity of the pandemic leads people to be not compliant with healthy practices such as vaccination. Together, these results confirmed the fifth hypothesis (H5): conspiracy beliefs and COVID-19 risk perception sequentially mediated the association between DT and hesitancy toward the COVID-19 vaccine.

Theoretical implications Overall, the current study demonstrated in a comprehensive and integrated model that the hesitancy toward the COVID-19 vaccine results from the indirect effect of the antisocial, unethical, and aversive personality dispositions (i.e., DT) via subjective beliefs in conspiracy as well as cognitions about the perception of risk of the virus. From a theoretical perspective, these results yielded promising evidence on individual COVID-19-related practices, shedding light on the key mechanisms underpinning people's reactions to unique and unpredictable global threats, such as the COVID-19 pandemic. Accordingly, our study stressed that vaccine hesitancy could be better understood if different variables are simultaneously investigated, opening to the idea that the impact of personality can be addressed in conjunction with other mechanisms potentially affecting hesitancy toward a vaccine. For instance, previous studies showed that vaccine hesitancy also relies on the inclination to favour inaction over action (Baron & Ritov, 2004), lower levels of knowledge in a given area (e.g., Motta et al., 2018), and lower general intelligence (e.g., Halstead, et al., 2022), and so forth. **Practical implications** From the situational perspective (Miller, 2020), policymakers and public health authorities should consider the evidence provided by this

research to manage vaccine campaigns and citizens' motivation. For example, knowing the association between personality traits, conspiracy beliefs, and general anxiety caused by threat perception may better support short-term and long-term political goals, including adherence to vaccine campaigns. Remarkably, these results could be helpful to plan and build trust in the vaccine, ensuring not only the enhancement of individuals' engagement in future vaccines but also guaranteeing high levels of quality of life. In this vein, efforts should be mainly targeted towards specific personality dispositions, which entail antisocial, unethical, and aversive features, also focusing on people's misleading conceptions, which can weaken compliance with vaccination, with severe and adverse implications for community well-being. Overall, this strategy might help reduce the impact of exposure to traumatic and unpredictable events, such as the pandemic.

Limitations and future research directions This study has some limitations. First, a cross-sectional design was adopted. This research design is used when the purpose of the study is descriptive, often in the form of a survey to detect the relationships between risk factors and the outcome of interest (Bland, 2015) at a specific time point or over a short period, providing only a snapshot of the outcome and the main variables associated with it (Levin, 2006). Furthermore, this method does not allow for making cause-and-effect inferences. Given these disadvantages, future research should consider other research designs (e.g., longitudinal design) to clarify better the mediation model advanced (e.g., Robertson et al., 2021). Second, we evaluated the DT using a brief self-report questionnaire, such as the DTDD. Although this scale bypasses the issue of timeconsuming assessment and response fatigue in participants, it allows only a unidimensional evaluation of psychopathy, Machiavellianism, and narcissism. As shown in previous research (Kay, 2021), DT can be evaluated considering a fine-grained approach to the internal structure of the DT, including primary and secondary psychopathy, grandiose and vulnerable narcissism, as well as a more granular evaluation of Machiavellianism (Volmer et al., 2019). Furthermore, future research could extend the impact of other personality taxonomies, such as the Light Triad, HEXACO and proactive personality. Finally, we assessed conspiracy beliefs using a generic scale. Although this latter has been widely used in previous research on conspiracy (e.g., Bonetto et al., 2018), future research should consider the role of specific conspiracy beliefs or misconceptions (Bodner et al., 2020), according to which the COVID-19 vaccine causes infertility or contains 5G-nanochip.

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3 *Advances in Political Psychology*, Vol. 40, Suppl. 1, 2019 doi: 10.1111/pops.12568 This is an open access article under the terms of the Creative Commons Attribution License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited. 0162-895X © 2019 The Authors *Political Psychology* published by Wiley Periodicals, Inc. on behalf of International Society of Political Psychology Published by Wiley Periodicals, Inc., 350 Main Street, Malden, MA 02148, USA, 9600 Garsington Road, Oxford, OX4 2DQ, and PO Box 378 Carlton South, 3053 Victoria, Australia

Understanding Conspiracy Theories Karen M. Douglas University of Kent Joseph E. Uscinski University of Miami Robbie M. Sutton University of Kent Aleksandra Cichocka University of Kent Turkey Nefes Oxford University Chee Siang Ang University of Kent Farzin Deravi University of Kent

Scholarly efforts to understand conspiracy theories have grown significantly in recent years, and there is now a broad and interdisciplinary literature. In reviewing this body of work, we ask three specific questions. First, what factors are associated with conspiracy beliefs? Our review of the literature shows that conspiracy beliefs result from a range of psychological, political, and social factors. Next, how are conspiracy theories communicated? Here, we explain how conspiracy theories are shared among individuals and spread through traditional and social media platforms. Next, what are the societal risks and rewards associated with conspiracy theories? By focusing on politics and science, we argue that conspiracy theories do more harm than good. We conclude by suggesting several promising avenues for future research. **KEY WORDS:** communication, conspiracy belief, conspiracy theories, politics, psychology

Conspiracy theories are abundant in social and political discourse, yet a coordinated research agenda to grapple with their causes and consequences has only developed in the last decade. It is imperative that scholars better understand conspiracy theories for many important reasons. Across history they have been closely linked to prejudice, witch hunts, revolutions, and genocide. Many perpetrators of terrorist attacks were known to be keen supporters of conspiracy theories. Conspiracy theories have been a driver of people to reject mainstream medicine to the point where once-cured diseases are now making a comeback in some parts of the world. Also, conspiracy theories drive people to reject scientific consensus, most notably the consensus around anthropogenic climate change. In this article, we review studies from psychology, political science, sociology, history, information sciences, and the humanities. We consider conspiracy theories ranging in topics from science, health, the environment, immigration, racism, terrorism, and politics to international relations. The research we review spans a range of methodologies including content analysis of texts, discourse analysis of political tracts and private interviews, analyses of public survey data, psychological experiments, studies of personality variables, trends within individuals over time, archival studies of societal trends, computer simulations, and automated computerized coding. We believe this effort comprises the most comprehensive and interdisciplinary review yet of research on conspiracy theories. We begin by defining key terms and discussing measurement. We then delineate the psychological, demographic, and political factors that predict belief in conspiracy theories. Next, we address the motives, mediums, and methods of communicating conspiracy theories. Then we assess the effects of conspiracy theories, beginning with their social and political benefits and moving on to their influence on other views and actions. We conclude by highlighting some questions that remain open for future research.

Definitions It is first necessary to define some key terms since many arguments about conspiracy theories originate with disputes over what counts as a conspiracy theory and what does not. First, we identify a “conspiracy” as secret plot by two or more powerful actors

(Keeley, 1999; Pigden, 1995). Conspiracies typically attempt to usurp political or economic power, violate rights, infringe upon established agreements, withhold vital secrets, or alter bedrock institutions. This definition goes beyond simple criminal conspiracies, such as conspiring to rob a corner shop. Conspiracies such as the Watergate scandal do happen, but because of the difficulties inherent in executing plans and keeping people quiet, they tend to fail (Dai & Handley-Schachler, 2015; Grimes, 2016; Keeley, 1999; Popper, 1972). When conspiracies fail—or are otherwise exposed—the appropriate experts deem them as having actually occurred (Levy, 2007). “Conspiracy theories” are attempts to explain the ultimate causes of significant social and political events and circumstances with claims of secret plots by two or more powerful actors (Aaronovitch, 2010; Byford, 2011; Coady, 2006; Dentith & Orr, 2017; Keeley, 1999). While often thought of as addressing governments, conspiracy theories could accuse any group perceived as powerful and malevolent. Conspiracy theories about the 9/11 terror attacks accuse the Bush administration, the Saudi Government, corporations, the financial industry, and the Jews; conspiracy theories about climate change accuse scientists, communists, the United Nations, Democrats, the government, and the oil industry among others. While a conspiracy refers to a true causal chain of events, a conspiracy theory refers to an allegation of conspiracy that may or may not be true. For a history of the term, see McKenzie-McHarg (2018), and for a critique of its usage, see Walker (2018). Another term we will use throughout this review—“conspiracy belief”—refers to belief in a specific conspiracy theory, or set of conspiracy theories. For example, about 60% of Americans continue to believe that the CIA killed President John F. Kennedy (Enders & Smallpage, 2018), and in the run up to the 2016 European Union membership referendum in the United Kingdom, about 46% of those intending to vote “leave” believed that the vote would be rigged (YouGov, 2016; see also Drochon, 2018). Many of the social scientific studies on conspiracy theories focus on beliefs about the assassination of President John F. Kennedy (McCauley & Jacques, 1979), the death of Diana, Princess of Wales (Douglas & Sutton, 2008), 9/11 “Truther” theories (Laine & Parakkal, 2017; Stempel, Hargrove, & Stempel, 2007), “chemtrail” conspiracy theories (Tingley & Wagner, 2018), 14679221, 2019, S1, Downloaded from <https://onlinelibrary.wiley.com/doi/10.1111/pops.12568> by University Of South Africa, Wiley Online Library on [13/04/2026]. See the Terms and Conditions (<https://onlinelibrary.wiley.com/terms-and-conditions>) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Conspiracy Theories 5 and theories about Barack Obama’s citizenship (Enders, Smallpage, & Lupton, in press). Other studies have looked at beliefs that are less specific about the plot but accuse groups of conspiring more generally (Furnham, 2013; Smallpage, Enders, & Uscinski, 2017). Another suggestion made more recently by scholars is that there may be such a thing as a tendency toward “conspiracy thinking,” or a general “conspiracy mindset” (e.g., Brotherton, French, & Pickering, 2013; Imhoff & Bruder, 2014; Moscovici, 1987; Uscinski & Parent, 2014). This idea largely stems from the finding that people who already believe in particular conspiracy theories are likely to believe in others (Goertzel, 1994), even unrelated ones (Wood, Douglas, & Sutton, 2012). This may indicate an underlying tendency for some people to prefer conspiracy explanations because of a bias against powerful disliked groups and official accounts (Wood, Douglas, & Sutton, 2012; see also Imhoff & Lamberty, 2018). Other terms used to refer to this idea include “conspiracy predispositions,” “conspiracist ideation,” “conspiracy ideology,” “conspiracy mentality,” and “conspiracy worldview.” Finally, the term “conspiracy theorist” refers to a variety of concepts in both popular usage and in the literature. For some, the term refers to a person who believes in a particular conspiracy theory or has a strong tendency toward conspiracy thinking. It is sometimes used more specifically to denote a person who

propagates conspiracy theories professionally (e.g., Alex Jones, David Icke) or to people who advocate strongly for a conspiracy theory, such as former Florida Atlantic University Professor James Tracy who claims that the 2012 killings at the Sandy Hook elementary school in Connecticut in the United States were a hoax, or Piers Corbyn—brother of UK Labour Party Leader Jeremy Corbyn—who claims that climate science is a fraud. We avoid this term in this review in exchange for more precise language. It is important for scholars to define what they mean by “conspiracy theorist” and “conspiracy theory” because—by signalling irrationality—these terms can neutralize valid concerns and delegitimize people (Harambam & Aupers, 2017; McKenzie-McHarg & Fredheim, 2017; Orr & Husting, 2018; Raikka & Basham, 2018). These terms can thus be weaponized, and because of this, people often deny that their ideas are conspiracy theories even though they clearly qualify. Politicians sometimes use these terms to deflect criticism because it turns the conversation back onto the accuser rather than the accused (Coady, 2006; Hall & Hewitt, 1970). The exact effect the term “conspiracy theory” and its variants have is open for debate. Some people are clearly repulsed by these terms, while others are attracted to them (see Wood, 2016). Nonetheless, conspiracy theories are a controversial subject (Bjerg & Presskorn-Thygesen, 2017; Smallpage, 2018) which can arouse passions both in and out of academia (Cullen, 2018; Lewandowsky, 2018). Measurement To measure belief in conspiracy theories, scholars and polling houses often ask respondents—through surveys—if they believe in particular conspiracy theories such as 9/11, the assassination of JFK, or the death of Princess Diana (Cassino, 2016; Douglas & Sutton, 2008; Public Policy Polling, 2013). For example, one item from Douglas and Sutton’s (2008) scale measuring belief in Princess Diana conspiracy theories is “There was an official campaign by MI6 to assassinate Princess Diana, sanctioned by elements of the establishment” where participants responded on a scale from 1 (strongly disagree) to 5 (strongly agree). Some scholars create scales using several questions about belief in various different conspiracy theories like those mentioned above (Miller, Saunders, & Farhart, 2016; Oliver & Wood, 2014a) to come up with an overall measure of beliefs in conspiracy theories. To address issues of validity across time and cultural context, Wood (2017) devised a scale that could be adapted to specific conspiracy theories. Enders and Smallpage (2018) examined a wide range of polling techniques pointing out the promises and pitfalls of polling about conspiracy theories (see also studies by Berinsky, 2018 and Lopez & Hillygus, 2018). 14679221, 2019, S1, Downloaded from <https://onlinelibrary.wiley.com/doi/10.1111/pops.12568> by University Of South Africa, Wiley Online Library on [13/04/2026]. See the Terms and Conditions (<https://onlinelibrary.wiley.com/terms-and-conditions>) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License 6 Douglas et al. Other researchers (e.g., Brotherton et al., 2013; Bruder, Haffke, Neave, Nouripanah, & Imhoff, 2013; Imhoff & Bruder, 2014; Lantian, Muller, Nurra, & Douglas, 2016; Uscinski & Parent, 2014) have devised scales to measure the general tendency toward conspiracy thinking rather than referring to specific events. For example, Brotherton et al.’s (2013) scale includes statements like “A lot of important information is deliberately concealed from the public out of self-interest” where participants rate the likelihood of each statement being true from 1 (definitely not true) to 5 (definitely true). Some of these scales include as many as 15 questions and may therefore be prohibitively costly for representative polling (i.e., Brotherton et al., 2013); other scales are significantly shorter. For example, Lantian et al. (2016) employ one question while Uscinski and Parent (2014) use three. One concern about all of these scales that is yet to be resolved is that all combine two elements that may be distinct—a tendency toward believing that malevolent groups are conspiring and a tendency to believe that official accounts are false. These two beliefs could substantively overlap, but they could also be separate (i.e., one could

believe that an official account is wrong but not believe that malevolent groups are out to get them; see also Swami et al. [2017] for a critique of existing scales). Furthermore, both of these measurement approaches assume that belief in conspiracy theories is property that varies from individual to individual, but also a property that can be measured as a dependent variable in response to experimental manipulations predicted to heighten or reduce conspiracy beliefs. Whether these scales are appropriate for both of these purposes also remains an open question. Expressions of belief can also be captured by measuring discourse. For example, Wood and Douglas (2013) surveyed online comments made by people who both believe and disbelieve conspiracy theories about 9/11; Lewandowsky, Oberauer, and Gignac (2013) gathered online comments rejecting published scientific research; Wood (2018) examined the content of Tweets; and Uscinski and Parent (2014) examined letters to the editor of *The New York Times*. This approach is valuable because it allows those engaging in the discourse to express their conspiracy beliefs, rather than researchers choosing a set of conspiracy theories and then asking respondents if they agree with them or not. Note that we are leaving aside from this discussion that some people spread conspiracy theories for profit (e.g., Alex Jones), political gain (e.g., Donald Trump), or as a foreign relations tactic (e.g., see Watanabe, 2018) and therefore may have a reason to transmit them other than to merely express their true beliefs. All of these measurement methods have their merits. For example, surveys allow large-scale and representative data to be collected. They are also efficient to use and do not require lengthy contact with respondents. They are also relatively inexpensive. On the other hand, recording discourse avoids the problem that surveys have of occasionally capturing opinions on topics that were not thought about before the survey and are therefore nonopinions. Recording discourse also provides richer data on the content of respondents' conspiracy beliefs and how these relate to the personal experiences of respondents, which surveys cannot capture. Whichever method researchers choose, the aim is typically to gauge the extent to which people adopt conspiracy theories. It is this question that we turn to in the following section.

Why Do People Adopt Conspiracy Theories? Psychological Factors

A small number of studies were published in psychology journals before 2007 (e.g., Abalakina-Paap, Stephan, Craig, & Gregory, 1999; Butler, Koopman & Zimbardo, 1995; Goertzel, 1994; McHoskey, 1995), but a significant research agenda did not develop until after that time (Butter & Knight, 2018). A significant and rapidly growing body of research since then has concentrated on the psychological factors that increase the likelihood of believing conspiracy theories.

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Conspiracy Theories

7 Goertzel's (1994) study used a survey of New Jersey residents in the United States that asked about 10 conspiracy theories. The data showed that some people believed in several while others believed in none. As an explanation for this, Goertzel proposed that conspiracy beliefs comprise part of a monological belief system where these beliefs comprise a self-sealing and expanding network of ideas that mutually support each other (Goertzel, 1994). Indeed, it does appear that conspiracy beliefs tend to "stick together"—some conspiracy beliefs tend to correlate strongly with each other. In addition, those who believe in a conspiracy theory often turn to other conspiracy theories to explain why their pet theory has amassed no positive proof or support (Boudry & Braeckman, 2011; Keeley, 1999). While the monological explanation is appealing, it has limitations (see Franks, Bangerter, Bauer, Hall, & Noort, 2017; Sutton & Douglas, 2014). Specifically, conspiracy theories are not always mutually supportive and often directly contradict each other. For example, Wood et al. (2012) showed that the positive

correlation between mutually contradictory conspiracy beliefs (e.g., that Princess Diana was murdered or that she faked her own death and is still alive) was no longer significant when participants' level of agreement that there was a cover-up was taken into account. Therefore, a competing and potentially more attractive explanation is that conspiracy beliefs are only related to each other to the extent that they cohere with a higher-order belief system. Given this, the monological account of conspiracy theories has lost traction, and the literature suggests that other psychological factors provide more compelling explanations. According to Douglas, Sutton, and Cichocka (2017), people appear to be drawn to conspiracy theories when—compared to nonconspiracy explanations—they promise to satisfy important social psychological motives that can be characterized as epistemic (e.g., the desire for understanding, accuracy, and subjective certainty), existential (e.g., the desire for control and security), and social (e.g., the desire to maintain a positive image of the self or group). Note that people do not necessarily need to be conscious of these motives. We review each of these in turn.

Epistemic Motives Conspiracy theories appear to provide broad, internally consistent explanations that allow people to preserve beliefs in the face of uncertainty and contradiction. Consistent with this analysis, research suggests that belief in conspiracy theories is stronger under conditions of uncertainty (van Prooijen & Jostmann, 2013). Further, belief in conspiracy theories appears to be stronger when people perceive patterns in randomness (van Prooijen, Douglas, & de Inocencio, 2018; van der Wal, Sutton, Lange, & Braga, 2018; Whitson & Galinsky, 2008; but see Dieguez, Wagner-Egger, & Gauvrit, 2015). Conspiracy belief is also stronger among people who consistently seek patterns and meaning in their environment, such as believers in paranormal and supernatural phenomena (Bruder et al., 2013; Darwin, Neave, & Holmes, 2011; Drinkwater, Dagnall, & Parker, 2012; Leiser, Duani, & Wagner-Egger, 2017; Oliver & Wood, 2014a, 2018). It is also stronger when events are especially large-scale or significant and when small-scale, mundane explanations therefore seem unsatisfactory (Leman & Cinnirella, 2013). People who overestimate their ability to understand complex causal phenomena are also prone to conspiracy beliefs (Vitriol & Marsh, 2018). Conspiracy beliefs have also been linked to the need for cognitive closure (Marchlewska, Cichocka, & Kossowska, 2018; Leman & Cinnirella, 2013), especially when events lack a clear official explanation. Conspiracy beliefs have also been linked to feelings of boredom (Brotherton & Eser, 2015). However, conspiracy theories might appear to satisfy some epistemic motives at the expense of others. For example, conspiracy belief has been linked to the conjunction fallacy (Brotherton & French, 2015; Dagnall, Denovon, Drinkwater, Parker, & Clough, 2017), which is an error of probabilistic reasoning whereby people overestimate the likelihood of co-occurring events (Tversky & Kahneman, 1983). Other researchers have shown that projection of one's own personal beliefs onto others is associated with conspiracy belief—that is, the belief that “they conspire” is in part the 14679221, 2019, S1, Downloaded from <https://onlinelibrary.wiley.com/doi/10.1111/pops.12568> by University Of South Africa, Wiley Online Library on [13/04/2026]. See the Terms and Conditions (<https://onlinelibrary.wiley.com/terms-and-conditions>) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

8 Douglas et al. result of the belief that “I would conspire” (Douglas & Sutton, 2011). Swami, Voracek, Stieger, Tran, and Furnham (2014; see also Ståhl & van Prooijen, 2018) found that lower levels of analytic thinking predicted conspiracy beliefs. Mikušková (2017) found that student teachers high in conspiracy beliefs were more likely to score lower in rational thinking style. Douglas, Sutton, Callan, Dawtry, and Harvey (2016) found that hypersensitive agency detection—the tendency to attribute agency and intentionality where it does not (or is unlikely to) exist—predicts conspiracy beliefs (see also Brotherton & French, 2015; van der Tempel & Alcock, 2015).

McHoskey (1995) found that conspiracy beliefs may be in part a product of biased assimilation—accepting information that confirms one’s views and scrutinizing information that disconfirms one’s views (see also Thorson, 2015). Other cognitive processes linked to conspiracy beliefs involve a tendency to accept epistemically unwarranted beliefs (Lobato, Mendoza, Sims, & Chin, 2014), a quasi-religious mentality (Franks, Bangerter, & Bauer 2013; Wagner-Egger, Delouvee, Gauvrit, & Dieguez, 2018), and lower levels of intelligence (Stieger, Gumhalter, Tran, Voracek, & Swami, 2013). Finally, conspiracy beliefs have been linked to factors such as nonclinical delusional thinking (Dagnall, Drinkwater, Parker, Denovan, & Parton, 2015) and schizotypy (Barron, Morgan, Towell, Altemeyer, & Swami, 2014; Bruder et al., 2013; Darwin et al., 2011; Swami, Pietschnig, Tran, Nader, Stiener, & Voracek, 2013; van der Tempel & Alcock, 2015). Overall, there is evidence that conspiracy theories appear to appeal to individuals who seek accuracy and/or meaning, but perhaps lack the cognitive tools or experience problems that prevent them from being able to find accuracy and meaning via other more rational means.

Existential Motives People may also turn to conspiracy theories when their existential needs are threatened, as a way to compensate for those threatened needs (Douglas et al., 2017). For example, people who lack agency and control may reclaim some sense of control by believing conspiracy theories because they offer the opportunity to reject official narratives and allow people to feel that they possess a better account. Consistent with this reasoning, studies have demonstrated that conspiracy beliefs are associated with feelings of powerlessness (Abalakina-Paap et al., 1999; Pratt, 2003; Zarefsky, 1984/2014), anxiety (Grzesiak-Feldman, 2013; Radnitz & Underwood, 2017), anxious attachment style (Green & Douglas, 2018), and existential anxiety (Newheiser, Farias, & Tausch, 2011). Further, Bruder et al. (2013) demonstrated a relationship between conspiracy thinking and low feelings of control in the sociopolitical domain (see also Nyhan, 2017; van Prooijen and Acker 2015; Uscinski & Parent, 2014). Conversely, experimentally strengthening people’s sense of control appears to reduce conspiracy beliefs (van Prooijen & Acker, 2015; for another perspective, see van Elk & Lodder, 2018). Furthermore, research demonstrates that conspiracy beliefs are correlated with alienation from the political system and anomie—a feeling of personal unrest and lack of understanding of the social world (e.g., Abalakina-Paap et al., 1999; Bruder et al., 2013; Goertzel, 1994; but see Nyhan & Zeitzoff, 2018). Belief in conspiracy theories is also associated with a belief that the economy is getting worse (Parsons, Simmons, Shinhoster, & Kilburn, 1999). Conspiracy theories may allow people to come to terms with particular problems, enabling them to regain some of the psychological goods that they have lost (Franks et al., 2013). In this vein, others have demonstrated that conspiracy theories might buffer people from threats to the social system in which they live (Federico, Williams & Vitriol, 2018; Jolley, Douglas, & Sutton, 2018).

Social Motives People generally have the need to maintain a positive image of the self, and conspiracy theories may assist people in maintaining this positive image. For example, Cichocka, Marchlewska, and Golec de Zavala (2016) demonstrated that the endorsement of conspiracy theories is associated with narcissism—an exaggerated self-view accompanied by the need for external validation. Other 14679221, 2019, S1, Downloaded from <https://onlinelibrary.wiley.com/doi/10.1111/pops.12568> by University Of South Africa, Wiley Online Library on [13/04/2026]. See the Terms and Conditions (<https://onlinelibrary.wiley.com/terms-and-conditions>) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Conspiracy Theories 9 studies have shown links between conspiracy beliefs and the social psychological need to feel unique to others (Imhoff & Lamberty, 2017; Lantian, Muller, Nurra, & Douglas, 2017). Perhaps conspiracy theories allow people to feel that they are in possession of rare, important information that other people do not have, making them feel special and thus boosting their

self-esteem. People have a strong need to feel positive about the groups they belong to as well, such as their nationalities, political parties, and religious groups. A conviction that others conspire against one's group is more likely to emerge when the group thinks of itself as undervalued, underprivileged, or under threat (Uscinski & Parent, 2014). For example, research by Mashuri and Zaduqisti (2014) demonstrated that beliefs that Western people have victimized Muslims were associated with belief in conspiracy theories suggesting that Western intelligence services instigated terrorism in Indonesia. Bilewicz, Winiewski, Kofta, and Wojcik (2013) showed similar findings in a Polish sample with respect to conspiracy theories about Jews. Thus, conspiracy theories are linked to defensive ways of identifying with one's social group. This is captured by the concept of collective narcissism (Golec de Zavala, Cichocka, Eidelson, & Jayawickreme, 2009)—a form of ingroup positivity that reflects a belief in the ingroup's greatness associated with a conviction that others do not acknowledge the ingroup's worth enough. Golec de Zavala and Cichocka (2012) found that national collective narcissism in Poland predicted endorsement of conspiracy stereotypes of Jews. Golec de Zavala and Federico (2018) found that American collective narcissism predicted conspiracy theorizing during the 2016 US presidential campaign. Also, Cichocka, Marchlewska, Golec de Zavala, and Olechowski (2016) demonstrated that national collective narcissism in Poland was associated with the endorsement of conspiracy theories about Russian involvement in the Smolensk crash of 2010 in which the Polish president and several officials died (see also Soral, Cichocka, Bilewicz, & Marchlewska, 2018). However, mere identification with the national group without the narcissistic component predicted lower likelihood of endorsing these conspiracy theories. This suggests that conspiracy explanations of intergroup events derive from a need to validate group image by denigrating outgroups. Thus, conspiracy theories are more likely to be prevalent among members of low-status groups attempting to explain their status. Indeed, research shows that members of low-status social groups are more likely to endorse conspiracy theories than members of high-status groups (Abalakina-Paap et al., 1999; Crocker, Luhtanen, Broadnax, & Blaine, 1999; Goertzel, 1994; Uscinski & Parent, 2014). For example, Crocker et al. (1999) demonstrated that black Americans (compared to white Americans) were more likely to believe in conspiracy theories about the American government conspiring against blacks. Given their experiences, it is not completely irrational for historically disadvantaged groups to believe that dominant groups are conspiring against them (e.g., Davis, Wetherell & Henry, 2018; Thomas & Quinn, 1991). On this point, studies have shown that people are more likely to believe in conspiracies directed at their own group if they personally have experienced discrimination, such as being the victim of police harassment (Parsons et al., 1999) or racial discrimination (Simmons & Parsons, 2005). Thus, belief in outgroup conspiracies can be fueled by experiences suggesting that one's social group has been treated unfairly. Therefore it is important to consider the political, social, and historical contexts that make conspiracy theories seem plausible (see also Briggs, 2004; Nattrass, 2013). Situational threats and crisis situations can also increase the likelihood of strong group attachment to foster conspiracy beliefs (Kofta, Sędek, & Sławuta, 2011; Mashuri & Zaduqisti, 2014; van Prooijen & Douglas, 2017; Thomson et al., 2012). Taken together, findings from research on the role of social identification highlight the fact that feelings of being undermined and threatened in the context of international relations can facilitate the development of conspiracy theories that serve to justify groups' disadvantaged position (Uscinski & Parent, 2014). In the end, a conviction that other groups conspire against one's own can help excuse the ingroup's disadvantaged position. To sum up, research on the psychology of conspiracy theories suggests that epistemic, existential, and social motives drive conspiracy belief. Whether or not these psychological motives are

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10 Douglas et al. satisfied by conspiracy theories is another matter, and research would suggest that they are not and that conspiracy theories might even do more harm than good (Douglas et al., 2017). We return to this issue later when we highlight the consequences of conspiracy theories.

Demographic Factors Some studies have attempted to chart the social characteristics of those prone to conspiracy theories. In the United States, Uscinski and Parent (2014) found that higher levels of conspiracy thinking correlate with lower levels of education and lower levels of income. A recent study analyzing historical survey data found further evidence of the relationships between demographic factors and conspiracy belief (Freeman & Bentall, 2017). In this study, conspiracy believers were more likely to be male, unmarried, less educated, have lower income, be unemployed, be a member of an ethnic minority group, and have weaker social networks. Similar relationships were found in a large sample of South African adolescents when surveyed about HIV/AIDS conspiracy theories (Hogg et al., 2017). Other investigations point in particular to the link between conspiracy belief and lower levels of education (e.g., Bogart & Bird, 2003; Goertzel, 1994; Mancosu, Vassallo, & Vezzoni, 2017; Oliver & Wood, 2014a). Two recent investigations have attempted to explain this relationship. Douglas et al. (2016) demonstrated that the relationship was explained in part by the tendency for people with lower levels of education to also be more likely to attribute agency and intentionality where it does not, or is unlikely, to exist. Van Prooijen (2017) found support for two additional mediating factors—greater feelings of control and a general doubt that complex problems may have simple solutions. Although neither of these articles have established a causal link between education and conspiracy beliefs, they suggest that education may provide people with a set of cognitive and affective attributes that enable them to resist conspiracy theories. For example, news media literacy has been found to decrease conspiracy theory endorsement (Craft, Ahsley, & Maksl, 2017). The causal relationships between conspiracy beliefs and income are also indeterminate. It could be that employers shun those who advocate conspiracy theories or that those who advocate conspiracy theories shun establishment jobs that offer higher pay. For example, Uscinski and Parent (2014) found that those with the lowest levels of conspiracy thinking were the most likely to work in the financial industry or for government or the military. In addition, more research is needed to understand how elite status affects conspiracy theorizing. Simmons and Parsons (2005) found that elites and masses are equally likely to traffic in specific conspiracy theories, and Uscinski & Parent (2014) found that elites and masses follow similar patterns with their conspiracy discourse. Nefes (2013, 2014, 2015a, 2015b, 2017) has shown that political party members in Turkey endorse or reject conspiracy theories based upon situational and ideological factors. With this said, insiders seem to be the scapegoats of much conspiracy theorizing in Western societies, so it would seem obvious that insiders would tend to reject conspiracy thinking.

Political Factors Politics presents circumstances similar to other social conflicts: There are “winners” and “losers” in highly competitive situations, one group (usually a party) is more powerful than others, and the stakes of the conflict are real. Given the stakes, conspiracy theories arise frequently from political events especially when those events stimulate the psychological states linked to conspiracy beliefs, such as low political trust, feelings of powerlessness, uncertainty, and unpredictability. For example, Einstein and Glick (2013) demonstrated that political scandals diminish trust in government, which in turn result in higher levels of conspiracy beliefs (see also Moore, 2018). Conspiracy beliefs can also be strengthened by

exposing participants to redactions in government documents (Nyhan et al., 2016) or to media environments in which conspiracies feature prominently in the news (Einstein & Glick 2013; Udani, Kimball, & Fogerty, 2018; see also Weeks, 2018). Finally, conspiracy 14679221, 2019, S1, Downloaded from <https://onlinelibrary.wiley.com/doi/10.1111/pops.12568> by University Of South Africa, Wiley Online Library on [13/04/2026]. See the Terms and Conditions (<https://onlinelibrary.wiley.com/terms-and-conditions>) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Conspiracy Theories 11 theories can be especially potent in times of uncertainty—upcoming elections drive Americans to fear voter fraud (Edelson, Alduncin, Krewson, Sieja, & Uscinski, 2017) and Poles to link conspiracy theories portraying Jews as collective enemies to anti-Semitic attitudes (Kofta & Sedek, 2005). With this said, political scientists are just beginning to examine how conspiracy theories become part of political contests, what political factors drive conspiracy belief, and when conspiracy theories are used as persuasive political tools (Atkinson & DeWitt, 2018; Atkinson, DeWitt, & Uscinski, 2017). Ideology In general, people are more likely to believe that political opposition is involved in malevolent activity than their own party's representatives (Claassen & Ensley, 2016; McCloskey & Chong, 1985). In terms of accusing the opposition of fraud, Democrats are more likely to believe that Republicans commit voter fraud to win, and Republicans are more likely to believe that Democrats do so (Cassino & Jenkins, 2013; Karp, Nai, & Norris, 2018). Overall, these findings suggest that political opponents are more likely to accuse each other of being involved in conspiracies, which might be a reflection of the ingroup-outgroup mentality and be especially strong when people experience a threat to their political faction or feel that it is being undermined in some way (Smallpage et al., 2017). However, research demonstrates that certain political convictions are more strongly associated with conspiracy beliefs than others (Mancuso et al., 2017). van Prooijen, Krouwel, and Pollet (2015) demonstrated that conspiracy beliefs are most prevalent at the political extremes. They found a quadratic effect—that is a “U-shaped” function— in both the United States and the Netherlands suggesting that conspiracy theorizing is strongest at the far left and right, although stronger on the right. Similar effects have been found in Sweden (Krouwel, Kutiyski, van Prooijen, Martinsson, & Markstedt, 2017). Although it is unknown whether conspiracy theorizing may be a result of political ideology, or vice versa, or both, this research suggests that extremist attitudes may be a consequence of conspiracy belief. On the other hand, Uscinski and Parent (2014) and Uscinski, Klofstad, and Atkinson (2016) suggest that levels of conspiracy thinking are stronger among those identifying as independents or with third parties. There exists a strong assumption both within and outside academia that there is evidence for conservatives being more prone to conspiracy theories than liberals. Some studies support this assumption (Galliford & Furnham, 2017; Miller et al., 2016). Furthermore, several studies (e.g., Bruder et al., 2013; Grzesiak-Feldman & Irzycka, 2009; see also Richey, 2017) reported a link between conspiracy beliefs and right-wing authoritarianism—a dimension of political attitudes characterized by preference for conventionalism, authoritarian aggression, and authoritarian submission to authorities (Altemeyer, 1996). On the other hand, Oliver and Wood (2014a) and Uscinski and Parent (2014) did not find a link between political ideology/party and conspiracy belief, and Berinsky (2012) did not find a link between authoritarianism and conspiracy belief. How is it possible to integrate these findings? One possibility is that although both extreme left and right-wingers are likely to embrace various conspiracy theories, the link is stronger at the right side of the political spectrum, as observed by van Prooijen et al. (2015). In other words, although both extreme left-wing and right-wing ideologies foster conspiracy convictions, right-wingers are more predisposed to believe in conspiracy theories because they are also more likely to exhibit the personality predispositions that foster conspiracy thinking, such as the need

to manage uncertainty (Jost, Glaser, Kruglanski, & Sulloway, 2003). It is also possible, given that much of the research to date has been conducted on American samples during the Obama administration, that situational factors, rather than dispositional factors, affected the discrepancy between conservatives and liberals. For example, the research by Miller et al. (2016) was conducted in the United States while conservatives were on the “losing” side at the time of the data collection. In short, the method and timing of measurement could explain the discrepancies (Enders & Smallpage, 2018). 14679221, 2019, S1, Downloaded from <https://onlinelibrary.wiley.com/doi/10.1111/pops.12568> by University Of South Africa, Wiley Online Library on [13/04/2026]. See the Terms and Conditions (<https://onlinelibrary.wiley.com/terms-and-conditions>) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

12 Douglas et al. On the other hand, it may simply be the case that the bulk of the research has been conducted by left-leaning researchers (Cardiff & Klein, 2005). There have been many studies of conspiracy theories held by the right (going back to Hofstadter, 1964), but few studies focusing on conspiracy theories held by the left (Douglas & Sutton, 2015). The end result is that researchers may overlook conspiracy theories closer to home. Motivated Reasoning An increasing line of research shows that people with different ideologies are likely to interpret the same information differently (e.g., Jerit & Barabas, 2012). One mechanism that can explain this consistent finding is that of motivated reasoning (Kunda, 1990; Lodge & Taber, 2013). People resort to motivated reasoning when they are presented with facts that contradict their predispositions, and they will interpret new information in such a way as to not disturb their previously held worldviews. Scholars in the American context most often observe this phenomenon in conjunction with partisanship (Lodge & Taber, 2013; see Flynn, Nyhan, & Reifler, 2017 for an overview). Motivated reasoning has frequently been observed with conspiracy theories, particularly with partisanship and political ideology (Duran, Nicholson, & Dale, 2017; Edelson et al., 2017; Enders et al., 2018; Hartman & Newmark, 2012; Miller et al., 2016; Nyhan, 2010; Oliver & Wood 2014a; Pasek, Stark, Krosnik, & Tompson, 2014; Saunders, 2017; Uscinski et al., 2016; Uscinski & Parent, 2014). However, just as people filter events and circumstances through the lens of their underlying political predispositions (i.e., partisanship, political ideology; Berinsky, 2007, 2009; Campbell Converse, Miller, & Stokes, 1960; Zaller, 1992) they also interpret information through the lens of their underlying view about the role of conspiracies in political events (e.g., Brotherton et al., 2013). In a survey experiment in which researchers attempted to convince Americans of a media conspiracy, Uscinski et al. (2016) showed that only nonpartisans who scored high on a measure of conspiracy thinking were affected by information suggesting a conspiracy because Republicans were already likely to believe that the media was conspiring against them, and Democrats were already likely to not believe this. This holds with predispositions outside politics. New Age believers are more likely to believe Da Vinci Code conspiracy theories than are Catholics (Newheiser et al., 2011), and sports fans are more likely to believe that other teams engage in shenanigans rather than their favorites (Carey, Nyhan, Valentino, & Liu, 2016). The literature strongly suggests that conspiracy theories must align with a person’s existing set of predispositions to be adopted. Are Conspiracy Theories for Losers? Situational factors, such as being on the losing end of a power asymmetry, could lead to increased belief in conspiracy theories (Uscinski & Parent, 2014). Uscinski and Parent (2014) argue that conspiracy theories are for “losers” and tend to accuse those in power and their coalitions. Examining letters to the editor of the New York Times spanning 1890–2010, they found that when a Republican was president, the resonant conspiracy theories tended to accuse Republicans and big business of conspiring, but when a Democrat was in office, the conspiracy theories tended to accuse Democrats and socialists of conspiring. They also found

that during declared wars and the Cold War conspiracy theories focused on foreign enemies more than during other times. Edelson et al. (2017) found that electoral losers were more likely than winners to believe that fraud had occurred (see also Nyhan, 2017). To Uscinski and Parent (2014, Chap. 6), these findings indicate that: [The] targets and timing of resonant conspiracy theories follow a strategic logic, based on foreign threat and domestic power. In this way, conspiracy theories are used by vulnerable groups to manage perceived dangers: they are early warning systems that keep watch over the most sensitive areas and prepare solutions to potential attacks. At bottom, conspiracy theories are a form

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Conspiracy Theories 13

of threat perception, and fears are fundamentally driven by shifts in relative power. Because defeat and exclusion are their biggest inducements, conspiracy theories are for losers. (p. 131)

One assumption of the “losers” idea is that conspiracy theories communicate information to generate collective action in the face of threat. To test this, Smallpage et al. (2017) asked an Mturk sample in the United States to match a series of partisan and nonpartisan conspiracy theories to the party most associated with each one. They found that partisans—even those who did not believe in the conspiracy theories themselves—correctly matched which conspiracy theories were “owned” by which party. They concluded that conspiracy theories function like calling cards sending clear signals to copartisans. By doing this, conspiracy theories could generate collective action. With this said, more work needs to investigate the effect of conspiracy theories on collective political actions such as voting (e.g., Atkinson & DeWitt, 2018; Swami, Barron, Weis, & Furnham, 2018).

How Are Conspiracy Theories Communicated?

The communication of conspiracy theories is of vital interest to anyone who wants to understand how they are spread, become established, and affect individuals, groups, society, and politics. In this section, we discuss why people communicate conspiracy theories, the media they use, and the ways in which they communicate those theories.

Motives to Communicate Conspiracy Theories

One of the challenges in studying the motives to communicate conspiracy theories is to tease these apart from motives to believe in conspiracy theories. While the psychological, social, and political factors that cause people to believe in conspiracy theories are almost guaranteed to shape the communication of conspiracy theories, much of the research seems to overlook any divergence. This is a difficult enterprise and as much as possible, we shall concentrate on research that focuses specifically on communication per se. Nefes (2017) underlines that important social events, such as big-scale protests, lead to the prevalence of conspiracy talk. In Taiwan, after an assassination attempt on the Taiwanese President Chen Shui-bian in 2004 one day before the general election, conspiracy theories about the event were ubiquitous (Nefes, 2014). To understand the communication pattern of these accounts, Nefes conducted an online content analysis of people’s comments on the assassination attempt. Perceptions of threat were associated with greater expressions of conspiracy theories, and people proposed conspiracy theories in line with their political arguments. Nefes (2013, 2015a, 2015b) uncovered similar findings in an analysis of the communication of anti-Semitic conspiracy rhetoric in Turkey. Further, using both quantitative and qualitative content analysis, Nefes (2017) analyzed the relationship between people’s political views and online responses to the Turkish government’s conspiracy rhetoric about the Gezi Park protests in 2013. The findings illustrated that people’s political views predicted their acceptance or rejection of the conspiracy rhetoric. Conspiracy theories therefore appear to be communicated about events that are perceived to be important and

relevant to people's political interests. In a similar vein, Raab, Ortlieb, Auer, Gunthmann, and Carbon (2013) argue that conspiracy theories could be viewed as a way of constructing and communicating a personal set of values and moral feelings, and Klein, Clutton, and Dunn (2018) show that anger is a precursor to the sharing of conspiracy theories. A distinct psychological motivation, with a more social and political flavor, was identified by Franks et al. (2013). They argued that conspiracy theories spread as devices for making sense of events that threaten existing worldviews. They draw on social representations theory (Moscovici, 1961) to argue that conspiracy theories help groups to symbolically cope with threatening events by making abstract risk more concrete and by focusing blame on a set of conspirators. Franks and 14679221, 2019, S1, Downloaded from <https://onlinelibrary.wiley.com/doi/10.1111/pops.12568> by University Of South Africa, Wiley Online Library on [13/04/2026]. See the Terms and Conditions (<https://onlinelibrary.wiley.com/terms-and-conditions>) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

14 Douglas et al. colleagues (2013) argue that the spread of conspiracy theories therefore allows people to challenge abstract expert-dominated discourses about important events. They further propose that conspiracy theories are communicated as devices to cope with collective trauma. In a more political vein, Sapountzis and Condor (2013) argue that conspiracy narratives are used to dispute dominant political and ideological assumptions (see also Uscinski, 2018). A sample of Greek political party members were asked a series of questions in an interview. In the interviews, participants were encouraged to talk freely with occasional prompts concerning conflicts in the Balkans. Results revealed that conspiracy narratives were typically used to challenge assumptions concerning Greece's majority status, suggesting that conspiracy theorizing may therefore be used as a way to construct causal arguments about intergroup relations and to dispute dominant ideological assumptions about political legitimacy and social hierarchy (see also Gosa, 2011). Also, parents may use conspiracy theories to explain difficult events to their children, such as when their group has been marked out as responsible for a terrorist attack (Jamil & Rousseau, 2011). Studies of political messages advocating conspiracy theories about the Islamization of the United Kingdom (and Europe and the West more generally) articulate the political purposes for which conspiracy theories are used. Wood and Finlay (2008) conducted a discourse analysis of articles written by prominent members of the British National Party in the months following the London 7/7 bombings. They found that these articles promoted conspiracy theories about the intentions of Muslim immigrants to the United Kingdom. By casting even moderates as part of a conspiracy, the rhetoric is used to represent all Muslims as a potent threat to civic life and to justify radical, exclusionary politics—in this case the mass, forced deportation of Muslims. Lee (2017) found that published statements by prominent figures in the so called "counter jihad" movement, which casts itself as the unofficial opposition to the Islamization of the West, seldom use conspiracy theories explicitly to justify extremist political action. Rather, they use conspiracy theories to create the ideological conditions for extremism and political violence. These include fear of Muslims and radical distrust of political leaders and institutions which are represented either complicit with Islamists or their dupes—beliefs that inspired Anders Breivik's massacre of left-wing youth in Oslo (Fekete, 2012). Leaving aside the advocacy of particular political objectives, Allen (2016) suggests another important communicative motivation for conspiracy theories. Allen examined the conspiracy theorizing by rival Palestinian political factions in the occupied West Bank (i.e., Fatah and Hamas). In an analysis of political advertising, Allen suggests that conspiracist representations of each side reflect an underlying "semantic ideology" that communication, even in politics, should be sincere. The carefully crafted, hedged, and often evasive quality of

conventional political discourse (Bhatia, 2006; Clementson, 2016; Mearsheimer, 2011) may strike contemporary audiences as evidence that politicians are concealing secret agendas. The Internet and Social Media There has been much concern about how specific communication media—most notably the Internet—may promote the spread of conspiracy theories (Southwell, Thorson, & Sheble, 2018). While there is some suggestion that conspiracy theories may be flourishing in the age of the Internet (Morello, 2004), others suggest that it is not that straightforward (Uscinski, Atkinson, & DeWitt, 2018; Klein, Clutton, & Polito, 2018). Clarke (2007) argued that while the Internet may facilitate the rapid spread of more conspiracy theories, this does not mean that it also helps the development of the conspiracy theories. The speed of dissemination may even retard the progress of conspiracy theories into coherent arguments. Clarke further argues that the Internet may be responsible for limiting conspiracy theories since billions of potentially critical voices are available to immediately refute conspiracy claims with evidence. 14679221, 2019, S1, Downloaded from <https://onlinelibrary.wiley.com/doi/10.1111/pops.12568> by University Of South Africa, Wiley Online Library on [13/04/2026]. See the Terms and Conditions (<https://onlinelibrary.wiley.com/terms-and-conditions>) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Conspiracy Theories 15

Uscinski et al. (2018) argue that for several reasons, the Internet may not necessarily be as big a boon to conspiracy theories as many think. First, in Western countries, websites with the most traffic are not devoted to conspiracy theories, and conspiracy theory websites are not highly visited. Mainstream sources of news far outpace conspiracy sources in terms of reach and audience (Vosoughi, Roy, & Aral, 2018). There are many websites dedicated to conspiracy theories, but it is likely that the only people seeking out these websites are those who are already predisposed. Second, in terms of the online information environment, Uscinski and Parent (2014) examined news and blog posts over the course of a year to see how the Internet discusses conspiracy theories. Much of the content was negative, suggesting that if one were to simply seek out news from the Internet, one would get a negative vision of conspiracy theories. Third, there is no evidence that people are more prone to conspiracy thinking now than they were prior to the invention of the Internet. Thus, it cannot be asserted that there has been an overall rise in conspiracy theorizing or that the Internet is responsible for such a rise in a straightforward way. Finally, Uscinski et al. (2018) argue that conspiracy theories do spread on the Internet, but rarely in the ways popularly assumed. Conspiracy theories do not bounce indiscriminately from person to person through social media as is often assumed (DeWitt, Atkinson, & Wegner, 2018). Instead they tend to stay concentrated within the communities who already agree with them (Metaxas & Finn, 2017; Sunstein & Vermeule, 2009). Nonetheless, research points to the crucial role of the Internet in fostering distinct and polarized online communities (e.g., Bessi et al., 2015). The polarization of communities on the Internet is crucial to understanding the dynamics of conspiracy communication. Highlighting the difficulties of rational and civil communication between polarized communities, Zollo et al. (2015) found that the sentiment of users' comments and posts became more negative as they became more active, and that the sentiment of communication threads between communities was especially negative, and became more negative as conversation threads persisted (see also Bessi, Zollo, Del Vicario, Scala, Caldarelli, & Quattrociocchi, 2015; Del Vicario et al., 2016). Communication within conspiracy communities may be more civil but not necessarily more rational. Bessi et al. (2015) examined reactions to posts that deliberately parody conspiracy information. They found that approximately 80% of the comments and likes on these posts were from conspiracy users. This indicates that conspiracy users are uncritically distributing and endorsing even deliberately false, highly implausible material (see also Bessi, Caldarelli, Del Vicario, Scala, &

Quattrociocchi, 2014). Arts and Media The Internet is far from the only medium in which conspiracy theories are aired. Mainstream news media expose people to conspiracy theories on a regular basis (Stempel et al., 2007; Stieger et al., 2013). Other media include film, in which there is a recognized genre known as “conspiracy cinema” (Dorfman, 1980; Jameson, 1992), and television (Arnold, 2008; Letort, 2017). Exposure to conspiracy theories in these mediums increases receptivity to conspiracy theories (e.g., Butler et al., 1995; Mulligan & Habel, 2013; Robertson, 2015) and is entertaining for those who already believe in conspiracy theories (Nera, Pantazi, & Klein, 2018). Conspiracy theories can also be communicated through music. Popular bands like Muse are known for alluding to conspiracy theories in their lyrics (Ward & Voas, 2011). More fringe genres, like White Power music, postulate that whites are being undermined by internationalist conspiracies (Corte & Edwards, 2008). White power musicians see themselves as victims and attempt to explain their own lack of success as the result of multicultural conspiracies (see also Johnson [2018] on the radicalization of white men with conspiracy theories). Gosa (2011) studied the role of hip-hop in conspiracy theorizing, particularly as a way to explain and mobilize action against the perpetual disadvantages experienced by blacks in the United States and across the globe. Gosa demonstrated that conspiracy theories are advanced at three levels—in 14679221, 2019, S1, Downloaded from <https://onlinelibrary.wiley.com/doi/10.1111/pops.12568> by University Of South Africa, Wiley Online Library on [13/04/2026]. See the Terms and Conditions (<https://onlinelibrary.wiley.com/terms-and-conditions>) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License 16 Douglas et al. the musical lyrics themselves, in interview statements by prominent hip-hop artists that are reproduced on TV, radio, magazines, and academic books, and in ongoing interactions between hip-hop artists and their fans (e.g., in concerts and on blogs). Tellingly, indicating the cross-fertilisation of fiction, arts, and politics, the conspiracy theories uncovered by Gosa are influenced by books and films including the Da Vinci Code and “V” (which, before Icke, 2001, portrayed a world in which the world is ruled by shape-shifting lizards in human form). Thus, prominent artists including Jay-Z and Kanye West are held to belong to a “Hip Hop Illuminati,” who “in exchange for record sales and stardom... agree to poison the minds of the black masses” (p. 194). Styles of Communicating Conspiracy Theories Thus far, we have considered why and where conspiracy messages are communicated. Next, we consider the communicative, linguistic, and persuasive devices employed by those communicating conspiracy theories. Some emerging research has examined the communication of conspiracy theories about vaccines on social media (Dredze, Broniatowski, & Hilyard, 2016; Safford, Hamilton, & Whitmore, 2017; Sharma, Yadav, Yadav, & Ferdinand, 2017). For example, Grant et al. (2015) examined the content of two provaccination and two “vaccine-skeptical” websites to examine what might make antivaccination communication tactics successful. They found that vaccine-skeptical sites had links to both pro- and antivaccination material, creating the impression that both sides of the argument were being presented openly. In addition, the vaccine-skeptical sites were highly interactive, with spaces for community discussion, and oriented towards the creation of people affected (or think they are affected) by vaccination. The authors argue that vaccine-skeptical websites are more effective in fostering community building to achieve their ends. In contrast authoritative provaccination sites offer limited interactivity and focus on imparting evidence-based knowledge. Unfortunately, this format may fuel the conspiracist view of elites as aloof and dictatorial (see also Kata, 2010; Moran, Lucas, Everhart, Morgan, & Prickett, 2016). Other lines of research also suggest that advocates of conspiracy theories are careful to appear rational and open-minded. A content analytical study by Wood and Douglas (2013) examined the comments made by 9/11 Truthers and their

opponents on a large sample of comments from four mainstream news sites in 2011. The majority of the comments were from a conspiracist position, again suggesting that conspiracy advocates are disproportionately active in sharing and disseminating their views online. More interestingly, the conspiracist and conventionalist comments used different communication techniques—specifically that conspiracist arguments showed a tendency to spend more time arguing against the official explanation of 9/11 rather than offering any alternatives. Anticonspiracy rationalists, on the other hand, showed the opposite pattern, advocating their own “official” explanation more than arguing against the conspiracy position. They also used a more hostile tone (see also Golo & Galam, 2015) which may contribute to the sense, among conspiracy theory believers, that they comprise a bullied, principled minority whose opponents are using orthodox levers of power and authority to cow them. Further insights into how conspiracy theories are communicated online have been yielded by text-based analysis. This methodology analyzes the frequency of individual words that have been categorized by expert raters (e.g., as emotion words, analytic words, as indicative of authenticity). Faasse, Chatman, and Martin (2016) applied this technique to 1,500 comments on a provaccination Facebook post by Mark Zuckerberg. The analysis revealed that antivaccination and provaccination comments tend to use different kinds of language. Antivaccination posts used more analytical, but less authentic, less anxious, and less tentative language. These findings suggest that online opponents, compared to proponents of vaccines, use more authoritative, confident, assured, and manipulative language. 14679221, 2019, S1, Downloaded from <https://onlinelibrary.wiley.com/doi/10.1111/pops.12568> by University Of South Africa, Wiley Online Library on [13/04/2026]. See the Terms and Conditions (<https://onlinelibrary.wiley.com/terms-and-conditions>) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Conspiracy Theories 17

To sum up, research suggests that people recruit conspiracy theories largely to justify their own political positions, and they do this even when their political leanings are radical or exclusionary. The Internet and social media are useful in these efforts but the conspiracy theories may not reach their potential impact because people tend to consume information from their own “bubbles” and dismiss what is not relevant to them personally. Scholars should make efforts to integrate studies of the communication of conspiracy theories with studies that look at the psychological and other factors that drive individuals’ beliefs.

What Are the Consequences of Conspiracy Theories?

Beliefs can drive actions, therefore in this section, we examine the potential consequences of conspiracy theories.

Potential Benefits of Conspiracy Theories

First, conspiracy theories may allow individuals to question or challenge dominance hierarchies and query the actions of powerful groups. One positive consequence of these challenges could be that governments are encouraged to be more transparent (e.g., Clarke, 2002; Swami & Coles, 2010). Conspiracy theories can also reveal inconsistencies in government or official versions of events (e.g., Clarke, 2002; Olmstead, 2009), may open up issues for discussion that would otherwise be closed (Miller, 2002), and may even uncover real conspiracies (Swami & Coles, 2010). Various scholars view conspiracy theories as results of people’s and groups’ attempts to understand social and political reality (Radnitz & Underwood, 2017). For example, Knight (2001) understands conspiracy theories as symptoms rather than causes of social dysfunction and proposes that conspiracy theories could be seen as a part of a class-based alienation from contemporary neo-liberalism (see also Knight, 2002, 2008). Spark (2001) agrees and accepts conspiracy theories as a part of the mainstream culture and that they voice the discontent in contemporary politics. Further, Jameson (1992) claims that conspiracy theories function as cognitive maps for people to comprehend social and political realities. Others go further arguing that since elites do engage in conspiracy, conspiracy

theories are a crucial instrument for holding authorities accountable (Basham, 2003; Dentith, 2016a, 2016b; Dentith & Orr, 2017). Singh (2016) argues that globalization has resulted in the increasing power of informally rather than formally networked elites, meaning that conspiracist understandings of the world order may increasingly reflect political realities. Conspiracy theories may have some benefits, so we would caution against a demonization of conspiracy theories and the people who believe and communicate them. Some conspiracy theories may raise issues in society that need to be addressed. Indeed, it is possible to view conspiracy theories as an important ingredient of democratic discourse (Moore, 2016a, 2016b). However, as we will review in the following section, conspiracy theories have been predominantly linked to harmful social, health, and political consequences. It is also debatable whether or not conspiracy theories meet the psychological needs that people adopt them for (Douglas et al., 2017).

Attitude Effects One of the first investigations of the effects of conspiracy theories demonstrated that they change people's attitudes. Butler et al. (1995) surveyed American adults at a cinema screening the Oliver Stone film JFK, which presented a conspiracy hypothesis about the assassination of President John F. Kennedy. Half of the participants were surveyed before seeing the film, and half were surveyed afterwards. It was found that the film significantly influenced endorsement of the conspiratorial narrative. Those who had viewed the film were more strongly in favor of the idea of conspiracy than those who had not yet seen it. A similar investigation by Mulligan and Habel (2013) found that participants who had watched the outlandish conspiracy film *Wag the Dog*, about how a government 14679221, 2019, S1, Downloaded from <https://onlinelibrary.wiley.com/doi/10.1111/pops.12568> by University Of South Africa, Wiley Online Library on [13/04/2026]. See the Terms and Conditions (<https://onlinelibrary.wiley.com/terms-and-conditions>) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

18 Douglas et al. stages a fake war in a Hollywood studio, were more likely to respond positively to statements such as "How likely is it that a US president will stage a fake war in the future?" than those who had not watched the film. Douglas and Sutton (2008) corroborated these findings with respect to conspiracy theories about the death of Diana, Princess of Wales. They further investigated whether people were aware that their attitudes had changed as a result of exposure to conspiracy theories, finding that they were not. Research also suggests that conspiracy theories can influence political attitudes. However, this may depend on people's existing predispositions. Uscinski et al. (2016) embedded the word "conspiracy" within a survey about media coverage during the 2012 U.S. presidential election for half of the participants, and half did not receive this cue. The inclusion of the conspiracy only influenced people who scored high in conspiracy thinking. Conspiracy theories may therefore influence people's attitudes, but the level of influence appears to depend on preexisting attitudes and possibly other factors that remain to be investigated. What effects might they have on social and political behavioral intentions? **Prejudice** Conspiracy theories have been linked to negative attitudes about groups. For example, Swami (2012) asked a sample of Malaysian participants to complete a scale of conspiracy belief, a scale specifically concerning anti-Jewish conspiracy theories (e.g., "Jews are attempting to establish a secret world government") and various ideological attitudes. It was found that belief in Jewish conspiracy theories was associated with anti-Israeli attitudes and also racism toward Chinese people. Further, Golec de Zavala and Cichocka (2012) found in a Polish sample that belief in specific conspiracy theories about Jewish domination of the world (e.g., Kofta & Sędek, 2005) were associated with more general anti-Semitic attitudes. In a Polish representative sample, Bilewicz et al. (2013) found that belief in the Jewish conspiracy was a better predictor of anti-Semitic behavioral intentions (e.g., legal discriminatory intentions against Jews; social distance toward Jews) than traditional anti-Semitism. Further, Imhoff and

Bruder (2014) found that among a U.S. sample, a tendency toward conspiracy theorizing was associated with prejudice against a variety of high-power groups (e.g., Jews, Americans and capitalists). Finally, in a sample of white Americans, reports of negative contact with African Americans was associated with expressed doubts about Barack Obama's American citizenship and eligibility to be president (Barlow et al., 2012). This research suggests that in some cases, conspiracy theorizing may be associated with prejudice toward particular groups (Pasek et al., 2014). In further support of this idea, Rousseau and Jamil (2008) conducted ethnographic research among Pakistani immigrants in Canada and Pakistani residents of Karachi about the events surrounding the 9/11 attacks. Respondents in both countries overwhelmingly supported the conspiracy theory that the United States orchestrated the attacks and that therefore Muslims were not responsible. Conspiracy beliefs might therefore appear to reinforce the "us" versus "them" dichotomy. By questioning the official explanation, minority groups—and not just majority groups—could potentially reinforce differences between groups.

Health-Related Choices

Several correlational studies have shown that belief in health-related conspiracy theories is associated with the choice to use contraception and practice safe sex. Specifically, one conspiracy theory alleges that birth control is a form of genocide against Africans and African Americans (see Ball, 2016; Ford, Wallace, Newman, Lee, & William, 2013). This conspiracy theory is believed widely in both the United States and South Africa (Hogg et al., 2017; Nattrass, 2013). Thorburn and Bogart (2005) found that belief in this conspiracy theory among African Americans was positively associated with negative attitudes toward contraceptive methods and less use of contraceptive methods. Another study, also testing an African-American sample, found that conspiracy beliefs and 14679221, 2019, S1, Downloaded from <https://onlinelibrary.wiley.com/doi/10.1111/pops.12568> by University Of South Africa, Wiley Online Library on [13/04/2026]. See the Terms and Conditions (<https://onlinelibrary.wiley.com/terms-and-conditions>) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Conspiracy Theories 19 perceived discrimination against the group both predicted contraceptive behavior (Bogart & Bird, 2003; see also Bogart & Thorburn, 2005; Bogart, Wagner, Galvan, & Banks, 2010; Bogart, Galvan, Wagner, & Klein, 2010; Hoyt et al., 2012). In similar work conducted in South Africa, Grebe and Nattrass (2012) found that the odds of using condoms were halved among female African AIDS conspiracy believers. Oliver and Wood (2014b) demonstrated a strong relationship between medical conspiracy beliefs and people's health choices. People who endorsed medical conspiracy theories (e.g., "Health officials know that cell phones cause cancer but are doing nothing to stop it because large corporations won't let them") were less likely to engage with medical professionals, were more likely to trust medical advice alternative sources, and were more likely to choose unconventional medicines. Observations from medical professionals (e.g., Chung, 2009) suggest that conspiracy theories, mistrust of medial authority, and nonexpert celebrities are associated with vaccine refusal among parents. One challenge of all of this research is that it is correlational. It is therefore impossible to determine the direction of causality. For example, conspiracy beliefs might drive vaccine refusal, or vaccine refusal may fuel conspiracy beliefs. However, Jolley and Douglas (2014a) provided experimental evidence of the potentially negative effects of antivaccine conspiracy theories on vaccine intentions. Participants were presented with common antivaccine conspiracy theories, arguments against the conspiracy theories, or no information (control). Findings showed that participants who had been exposed to conspiracy theories were reluctant to vaccinate compared to the other two conditions. Other researchers used focus groups and interviews to understand why some Romanian parents refuse to put their daughters forward for the HPV vaccination (Craciun & Baban, 2012). It was found that two of the key reasons for not

vaccinating were the perception that the vaccine is an attempt to reduce the world's population, and the perception that it is an experiment to allow pharmaceutical companies to make large profits (see also a field study of Pakistani parents by Khan & Sahibzada, 2016). Science Denial Goertzel (2010) ties ideology and political commitments to conspiracy theories about science, including HIV/AIDS conspiracy theories, Genetically Modified Food (GMO) conspiracy theories, "anti-vax" conspiracy theories, and climate change conspiracy theories (see also Weigmann, 2018). One recent survey showed that over a third of Americans agree that global warming is a hoax (Public Policy Polling, 2013), making climate skepticism very much a mainstream belief. In general, climate skeptics argue that climate change either is not occurring, or at least that humans are not the cause. More extreme climate skeptics assert that climate scientists are involved in data faking and fraud so that they ensure that they keep receiving research funding. In the United Kingdom, the "climategate" scandal concerning climate scientists at the University of East Anglia demonstrates the importance of beliefs about climate change and the lengths that people are prepared to go to (e.g., hacking emails) to attempt to discredit climate science. These conspiracy theories continue to resonate long after the claims were discredited (Anderegg & Goldsmith, 2014; Bricker, 2013; Jacques & Connolly-Knox, 2016; McCright & Dunlap, 2011). There is ample evidence that conspiracy theorizing about climate change goes hand in hand with conspiracy thinking and science denial more generally (e.g., Lahrach & Furnham, 2017; Lewandowsky, Cook, Oberauer, Brophy, & Marriott, 2015; Lewandowsky, Oberauer, et al., 2013; Lewandowsky, Gignac, & Oberauer, 2013; Uscinski, Douglas, & Lewandowsky, 2017; Uscinski and Olivella, 2017, see also Rutjens, Heine, Sutton, & van Harreveld, 2017). Some experimental research suggests that climate change conspiracy theories influence people's environmental intentions. Jolley and Douglas (2014b) exposed a sample of British undergraduate students to a narrative about climate change conspiracy theories (e.g., that climate change is a hoax designed by climate scientists to obtain research funding), arguments refuting the conspiracy 14679221, 2019, S1, Downloaded from <https://onlinelibrary.wiley.com/doi/10.1111/pops.12568> by University Of South Africa, Wiley Online Library on [13/04/2026]. See the Terms and Conditions (<https://onlinelibrary.wiley.com/terms-and-conditions>) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License 20 Douglas et al. narrative, or no arguments (control). Participants who had been exposed to the conspiracy narrative showed lower intentions to engage in the climate friendly behaviors. Although this research has not used behavioral dependent measures (e.g., whether people actively reduce their carbon footprint), it suggests that conspiracy theories at least inform what people intend to do on important matters such as climate change and vaccination as discussed earlier (see also van der Linden [2015] for similar findings). It should be noted, however, that not all climate change conspiracy theories are antiscience. In fact, some of these conspiracy theories side with scientists against alleged governmental and corporate interference. Douglas and Sutton (2015) examined conspiracy theories on both "sides" of the climate debate and argued that some of the more debatably left-wing conspiracy theories are very much in favor of the scientific consensus, arguing that scientific evidence is being hidden or at least watered down. Specifically, some environmental groups suggest that solid, scientific information about climate change is being deliberately hidden for political reasons, as when information was omitted from the 2014 IPCC report about China's gas emissions. Other conspiracy theories cite support for the idea that large corporations with interests in the fossil fuel industry are suppressing climate science findings. Such conspiracy theories receive much less airtime than the right-wing antiscience versions, and their consequences are therefore unexplored. Political Engagement Conspiracy theories have also been linked to political attitudes and behaviors.

Jolley and Douglas (2014b) found that participants who were exposed to antigovernment conspiracy theories— compared to those who were presented with refuting information— showed less intention to vote in the next election. Another negative outcome is decreased political trust. Einstein and Glick (2013) exposed participants to conspiracy claims, or a narrative disputing such claims. Exposure to the conspiracy theories negatively affected trust in government and institutions, even when the institutions were not connected to the allegations (see also Kim & Cao, 2016). Further, Butler et al. (1995) found that participants who had viewed the conspiracy film JFK showed lower intentions to engage in the political process by voting or making political contributions. Uscinski and Parent (2014) also showed that people higher in conspiracy thinking were less likely to register to vote, to actually go out and vote, to donate money to candidate, or to put up political signs at their homes. In different contexts however, conspiracy theories may be associated with intentions to engage in political action against elites. Imhoff and Bruder (2014) examined conspiracy thinking and intentions to act in support of a nuclear phase-out following the Fukushima nuclear power plant disaster in 2011, by showing an intention to engage in protests. Among a sample of German respondents, conspiracy thinking was significantly and positively associated with the intention to engage in political actions in support of a nuclear phase-out. Although these findings are correlational, they suggest that conspiracy theorizing may sometimes trigger behaviors aimed at challenging the status quo and those in power (Atkinson et al., 2017; see also Chayinska & Minescu, 2018; Franks et al., 2013). Violence, Radicalization and Extremism Conspiracy theories may be associated with increased radicalized and extremist behavior. Bartlett and Miller (2010) analyzed the content of a broad range of extremist groups and found that conspiracy theories are not only prevalent throughout, but that there is a great deal of overlap between the conspiracy theories mentioned, even across extremist groups at opposite ends of the political spectrum. This evidence is consistent with van Prooijen et al.'s (2015) analysis. For instance, they found that anti-Jewish capitalist conspiracy theories were features of both right- and left-wing extremist groups. Bartlett and Miller argued that conspiracy theories play important social and functional roles for extremist groups. Specifically, they may be a “radicalizing multiplier” (p. 4) that contributes and reinforces the ideologies and psychological processes within the group. 14679221, 2019, S1, Downloaded from <https://onlinelibrary.wiley.com/doi/10.1111/pops.12568> by University Of South Africa, Wiley Online Library on [13/04/2026]. See the Terms and Conditions (<https://onlinelibrary.wiley.com/terms-and-conditions>) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Conspiracy Theories 21 More generally, conspiracy belief has been linked to violent intentions. Uscinski and Parent (2014) conducted a nationally representative survey in the United States in which they separated participants who were high and low in conspiracy thinking. Results showed that those who were more generally inclined toward conspiracy theories were more likely to agree that “violence is sometimes an acceptable way to express disagreement with the government” than those less inclined. Those inclined toward conspiracy belief are also in favor of lax gun ownership laws (Uscinski & Parent, 2014), show a willingness to conspire themselves (Douglas & Sutton, 2011), and show greater intentions to engage in everyday crime (Jolley, Douglas, Leite, & Schrader, in press). Again, we must caution that findings from correlational research do not imply causality (but see Jolley et al., [in press] for experimental findings). Sadly, however, the world is all too familiar with cases of people who have committed violence on the basis of conspiracy ideas (e.g., Timothy McVeigh, Anders Breivik) and of governments committing violence based on conspiracy theories and propaganda (e.g., Nazi Germany, Stalin’s Russia). Workplace Engagement DiFonzo, Bordia, and Rosnow (1994) discuss the detrimental

consequences of “questionable information” such as rumors, in the workplace. They argue that despite appearing to be trivial notions shared around the water fountain, rumors can drain productivity, create stress in the workplace, reduce profits, and denigrate a company’s image. Although rumors and conspiracy theories differ in one crucial element—rumors do not necessarily imply the collusion of individuals and groups— some important parallels can be drawn. For example, both can reduce trust in authorities, both more often than not lack proof, and both are often relied upon when reliable information is not available or endorsed in particular under conditions of some uncertainty. Douglas and Leite (2017) carried out an experimental investigation of the effects of conspiracy theorizing in the workplace. Participants who were asked to imagine a conspiratorial workplace were more likely want to leave that workplace than those in a control condition. This effect was driven by lower feelings of commitment and lower job satisfaction (see also van Prooijen and de Vries [2016] for similar findings). Sharing suspicions around the water fountain might therefore be damaging to the workplace.

Future Directions The current research on conspiracy theories is broad and interdisciplinary, and as such, we believe we have a unique opportunity to consider what, from here, are the key directions that future research should take. First, we argue that some methodological issues need to be addressed. Specifically, to be more confident in the power of research findings, we would recommend the use of larger, more representative samples. While the use of student populations and crowdsourced samples may be convenient and inexpensive, these samples do not provide an overall picture of conspiracy beliefs among the general population, nor are they able to tell us how different groups in society are likely to embrace conspiracy theories compared to others. Field experiments could also add value to the literature. Studying conspiracy beliefs in specific contexts and at specific points in time can give a detailed account of the factors that determine those beliefs and what effects they may have. Furthermore, since much of the literature to date has been correlational, future efforts must focus on experimental and longitudinal research designs to examine the causes and effects of conspiracy theories more directly. Next, there are several different measures of conspiracy beliefs and conspiracy thinking, but no one accepted measure (see Swami et al., 2017). Although scales correlate very highly with each other, the literature could benefit from more standardized measurement as exists in other research areas. Further, more work must examine how these scales translate across geographic context, particularly into closed societies where the conspiracy theories about government are likely to be more

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22 Douglas et al. rational. The study of conspiracy theories is beginning to traverse geographic boundaries; for example, see works on Turkey (Nefes, 2015b), Russia (Yablokov, 2018), Europe (Drochon, 2018), the Middle East (Nyhan & Zeitzoff, 2018; Siddiqui, in press), Latin America (Filer, 2018), and Thailand (Greenhill & Oppenheim, 2017). Studies should begin integrating these various findings to develop broader theories. Also, it is important to note that the majority of studies examining beliefs in conspiracy theories have relied on self-report survey measures. These measures raise the possibility of expressive responding—endorsing ideas to express opposition to policies and politicians rather than reflecting genuine beliefs (e.g., Bullock, Gerber, Hill, & Huber, 2015). Some scholars argue that responses to political statements are rife with expressive responding and that participants’ responses can therefore not be relied upon as their true beliefs (Prior, Sood, & Khanna, 2015). Other scholars, however, have found no evidence for expressive responding and argue that survey responses therefore serve as a

“window into the underlying beliefs and true preferences of the mass public” (Berinsky, 2018, p. 211). This is an important issue to consider in the case of political conspiracy theories, and researchers should consider additional alternative methods (e.g., interviews, discourse analysis) to tap into these beliefs. However, it is also important to note that not all conspiracy theories are political, and therefore expressive responding is unlikely to be a significant concern in all studies. Nevertheless, this is an important issue to consider in future research. Further, although research has uncovered many personality, social, and political factors that contribute to conspiracy belief, some important controversies have emerged and some lines of research are yet to yield conclusive answers. For instance, some research has demonstrated a relationship between pattern perception and belief in conspiracy theories (van Prooijen et al., 2018; van der Wal et al., 2018), but other studies have found no relationship (Dieguez et al., 2015). More research is required to examine the role of people’s ability to process information. The role of education in conspiracy belief is becoming clearer (e.g., Douglas et al., 2016; van Prooijen, 2017), but further delineating the role of both crystalline and fluid intelligence (Catell, 1971) is required if we are to know whether conspiracy belief arises from a cognitive deficit or instead from a lack of skills that education provides. Also, research and theory on the relationship between political conviction and conspiracy belief is clear, and even settled, on some points but not on others. As we have seen, it is clear that people on both sides of the left-right political spectrum entertain conspiracy beliefs about the other side. However, some scholars maintain that conspiracy theories are more characteristic of the right than the left. Others dispute this and suggest that conspiracy theories are overwhelmingly bipartisan—found on both sides of any political debate (Berlet, 1992; Citrin, McClosky, Shanks, & Sniderman, 1975; Graumann, 1987; Hollander, 2017). Still others find that conspiracy theories are stronger at the political extremes (van Prooijen et al., 2015). A great deal more work involving comparative studies of conspiracy theories in different political epochs, of conspiracy theories in different contemporary polities, and different varieties of conspiracy belief, is required. Further research is also needed to understand the communication of conspiracy theories. The development of automatic coding of web content, of social networks in Web 2.0, and analyses of communication dynamics opens up many opportunities to study the large-scale communication of conspiracy theories and its implications for social and political processes. These technologies have much to offer the conspiracy theory literature. One of their advantages is their ecological validity—they allow researchers to directly observe the unfolding and sharing of conspiracy theories in real time and in real life, rather than through the medium of self-report surveys and laboratory simulations. A related and very important advantage is that these technologies allow access to large numbers of conspiracy believers who can be very hard to reach for survey and experimental studies. These methods will allow researchers to address crucial research questions that are impossible to address in other ways, such as examining patterns of conspiracy communication alongside political movements and political events. In terms of small-scale communication of conspiracy theories, many 14679221, 2019, S1, Downloaded from <https://onlinelibrary.wiley.com/doi/10.1111/pops.12568> by University Of South Africa, Wiley Online Library on [13/04/2026]. See the Terms and Conditions (<https://onlinelibrary.wiley.com/terms-and-conditions>) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Conspiracy Theories 23 research questions also remain ripe for investigation using the traditional survey, interview, and experimental methodologies of the social sciences. One core theoretical question concerns the relationships between producing conspiracy theories, believing in them, and actively communicating them to others. As political leaders such as Donald Trump and Viktor Orbán increasingly use conspiracy theories to discredit the opposition and win votes, these questions

have never been more important. As the research on conspiracy theories has developed, it has become increasingly clear that conspiracy theories are likely to affect important social and political outcomes. But, since most research has focused on the causes rather than the consequences of conspiracy theorizing, much more work is needed. For example, there is surprisingly little research into how people who espouse conspiracy theories are viewed, and whilst some research has revealed that people fear social exclusion from expressing conspiracy beliefs (Lantian, Muller, Nurra, Klein, Berjot & Pantazi, 2018), one study suggests that labelling statements as “conspiracy theories” may not lower their perceived credibility (Wood, 2016). Future research could examine the social consequences that face people who adopt conspiracy theories. Taking the opposite perspective, research could also examine the social consequences that face people who are viewed as the victims of conspiracies or those who are alleged to have been involved in conspiracies. Further, a good deal of research has explored the ideological variables and worldviews that contribute to conspiracy belief. Future research could begin to examine the interplay between ideology and conspiracy belief—how conspiracy theories may shape ideological variables, and how conspiracy and ideological variables may interact with each other to affect social and political behavior. For example, future research could also explore the consequences of conspiracy theories for political engagement and collective action. Past work has yielded mixed evidence showing that on the one hand, exposure to conspiracy theories decreases political engagement (Jolley and Douglas, 2014b), but on the other it may stimulate collective action against the powerful elites (Imhoff and Bruder, 2014). It is possible that conspiracy beliefs decrease normative forms of political engagement, but stimulate disruptive forms of political engagement. Finally, more research is needed to determine how it is possible to successfully intervene on conspiracy theories. Existing research has shown that presenting counterconspiracy information may sometimes be effective, even among high conspiracy believers (Warner & Neville-Shepard, 2014). Jolley and Douglas (2017) showed that presenting counterconspiracy information before conspiracy information—in other words “inoculating” people against conspiracy theories—can reduce belief. Orosz, Krekó, Paskuj, Tóth-Király, Bothe, and Roland-Lévy (2016) showed that counterarguing and even ridiculing conspiracy claims could be effective in reducing conspiracy belief. In future efforts, researchers may consider some of the techniques used to address misinformation more generally (e.g., counterarguing, retraction, prewarning; see Flynn et al., 2017 for an overview). However, research in this area will need to take into account that arguments against conspiracy theories are often ignored or even absorbed into the conspiracy theory (Stojanov, 2015). Interventions may therefore backfire (Nyhan & Reifler, 2010). Other methods, not designed as interventions but to facilitate experimental tests of the bases of conspiracy theory, show promise in small-scale settings. Education may combat conspiracy beliefs as well (Wilson, 2018). Encouraging analytical rather than intuitive thinking has been shown to reduce conspiracy belief (Swami et al., 2014), as has encouraging people to think of themselves as personally moral (Douglas & Sutton, 2011). Future research is needed to determine whether these techniques are scalable for use as interventions to reduce belief in conspiracy theories.

Final Remarks Scholarly efforts to understand the appeal and consequences of conspiracy theories have yielded a diverse and interdisciplinary literature. We have argued that conspiracy theories are 14679221, 2019, S1, Downloaded from <https://onlinelibrary.wiley.com/doi/10.1111/pops.12568> by University Of South Africa, Wiley Online Library on [13/04/2026]. See the Terms and Conditions (<https://onlinelibrary.wiley.com/terms-and-conditions>) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Douglas et al. much more than trivial notions and should be taken seriously for several reasons. First, there are a

variety of reasons why a person might adopt conspiracy theories, ranging from personality traits to satisfying complex social needs. People communicate conspiracy theories by many different means, satisfying a broad set of political, psychological, and social motives. Finally, conspiracy theories have effects on both individuals and important societal institutions. Their risks (and benefits) are far-reaching, and much more research needs to be conducted to fully understand the importance of this pervasive psychological, political, and social phenomenon, especially on the vulnerable and disadvantaged groups that have been identified as most expected to benefit from them.

TWELVE.

Psychometric assessment of the Generic Conspiracist Beliefs Scale.

Abstract The Generic Conspiracist Beliefs Scale (GCBS) is the most widely used measure of general belief in conspiracy theories. The scale comprises five related but distinct factors (Government Malfeasance, Extraterrestrial Cover-up, Malevolent Global Conspiracies, Personal Wellbeing, and Control of Information). Despite this, investigators have typically treated the GCBS as unidimensional by referencing only overall total. Although, the GCBS possesses established psychometric properties, critics question its factorial structure, suggest alternative models, and recommend routine examination of GCBS dimensions as part of analysis. Through two studies, the present paper assessed GCBS factorial structure, internal reliability, convergent validity, and invariance. This involved comparing the original five-factor solution with alternative one, two, and three-factor models. To ensure that the best fitting model was robust, the authors conducted analysis in two independent samples (Study one, N = 794, UK university-based sample; and Study two, N = 418, UK respondents collected via a market research company). Results in both studies indicated superior fit for the correlated five-factor solution. This solution demonstrated invariance across gender, and samples (Study one and two). Furthermore, the total scale and five subfactors evinced good alpha and omega total reliability. Convergent validity testing exhibited associations of an expected strength between conspiracist beliefs, reality testing, and cognitive insight. Large intercorrelations existed among GCBS subfactors, suggesting that the measure reflects a narrow set of interrelated conspiracist assumptions. These findings support the use of overall scale scores as an index of belief in conspiracy theories.

Introduction.

Although the term ‘conspiracy theory’ has no single, agreed definition, conceptual delimitations share core characteristics [1]. Thematically, these centre on the belief that powerful, multiple actors manipulate events/actions in order to achieve malevolent goals [2]. A further key feature of conspiracy theories is that their narratives, despite lacking a robust evidential basis, usually cite supporting scientific evidence [3]. Accordingly, conspiracy theories can provide apparently, credible (reasoned) alternatives to mainstream, official explanations [4–6]. Conspiracy theories become particularly compelling when either an authorised account appears inadequate, or an event has no definitive explanation [7–8]. In this context, individuals engage with conspiracies because they facilitate comprehension of the origins and consequences of significant novel, or threatening events [9]. Thus, despite being dismissed by critics as fallacies [10], fringe notions (lay beliefs), and simplified views of the social and political world [11], conspiracy theories are regularly validated by members of the general population. Illustratively, in a nationally representative survey of U.S. adults, 55% of respondents endorsed at least one of several presented conspiracy theories (e.g., “The U.S. invasion of Iraq was not part of a campaign to fight terrorism, but was driven by oil companies and Jews in the U.S. and Israel”) [12]. Likewise, significant numbers of U.S. and U.K. citizens believe that their respective governments assisted or distorted information about terrorist attacks (i.e., 9/11 and 7/7 respectively) [13]. Conspiracy theories endure largely because they are resistant to falsification. Explicitly, it is difficult for detractors to establish that alleged covert activities/actions did not occur [14–15]. Furthermore, in response to disconfirming evidence conspiracy believers characteristically add layers of intrigue to legitimise theories [16]. A related issue that hinders dismissal of conspiracies is that theories are not always false (e.g., the Watergate scandal, which involved a series of intertwining illegal political actions

overseen by the administration of U.S. President Richard Nixon). For believers, such exceptional instances provide justification for the authenticity of conspiratorial accounts, regardless of their inherent veracity and the implausibility of conspiracy theories generally. Noting the societal and political importance of conspiracy theories within modern-day culture, academic interest in the topic has flourished over the past decade. Researchers contend that psychological understanding is essential because conspiratorial narratives can influence/ bias individual and collective perceptions of important current (e.g., vaccinations) and historical events (e.g., moon landings). Notable negative consequences of belief in conspiracy theories are reduced involvement with and faith in social institutions (e.g., democratic, governmental and security systems) [17].

Discussion.

The present study examined the psychometric properties of the Generic Conspiracist Beliefs Scale (GCBS) [29], which is a recognised, widely used measure of belief in conspiracy theories (e.g., [32]). In this context, researchers typically assume the GCBS provides a global, unidimensional solution. This interpretation ignores alternative factorial solutions, and important conceptual concerns about GCBS content (see [26,29,35,39]. Indeed, justification for GCBS scoring extends rarely beyond a cursory citing of the original development and validation report (e.g., [23,37,72]). Acknowledging these issues, this paper evaluated the structure and measurement properties of the GCBS. This not only helps to legitimise previous findings, but also ensures that subsequent work scores the instrument appositely. The original five-factor solution [29], comprising Government Malfeasance, Extraterrestrial Cover-up, Malevolent Global Conspiracies, Personal Wellbeing, and Control of Information, produced good data-model fit in two independent samples (i.e., university-based and market research company; participation panel). Further analysis revealed that high internal reliability (alpha and omega total) existed for full-scale and subfactor scores. Moreover, the five-factor solution demonstrated superior fit to competing models (unidimensional; two-factor [26]; and three-factor [35]). In line with Brotherton et al. [29], large intercorrelations existed between factors. This finding was consistent with the view that GCBS dimensions reflect associated assumptions. The presence of related factors provides some justification for using the full-scale score as a global index of belief in conspiracy theories. From a practical perspective, this also provides a rationale for employing the GCBS as a brief, expedient measure. Study two, where correlations between GCBS subfactors were generally consistent across convergent measures, provided further vindication for the use of the full-scale score. In the case of BCIS, all correlations across Self-Certainty and Self-Reflectiveness dimensions were in the small ($r = .10$) to medium ($r = .30$) range [73]. Concerning IPO-RT, the correlation with Control of Information ($r = .29$) was weaker than associations with Government Malfeasance, Malevolent Global Conspiracies, Extraterrestrial Cover-up, and Personal Wellbeing (these ranged from $r = .45$ to $.52$). This outcome is difficult to interpret. Looking at Control of information, the subfactor indexes unethical control and suppression of information by organizations, including the government, the media, scientists and corporations. At face value, this outcome tentatively suggests that notions of scientific concealment and technological manipulation are less intuitively appealing. Clearly, further work in this domain is required. GCBS full-scale scores correlated weakly with BCIS dimensions Self-Certainty and SelfReflectiveness, and moderately with the IPO-RT. Self-certainty findings concurred with those of Barron et al. [43], who found a moderate positive correlation between the factor and endorsement of conspiracist beliefs (Belief in Conspiracy Theories Inventory, BCTI, [22]). Existence of a weaker correlation between self-reflectiveness and GCBS scores compared to self-certainty and GCBS scores supports the

view that self-reflectiveness would be less prominent among believers in conspiracy theories [43]. Additionally, the positive correlation between IPO-RT aligned with that reported by Drinkwater et al. [8]. Collectively, these results concur with the view that belief in conspiracy theories is concomitant with overconfidence in the validity of personal beliefs [43] and higher levels of subjective-intuitive thinking [see 50]. Support for the five-factor GCBS solution did not accord with recent work by Swami et al. [26, 39] and Atari et al. [35]. Looking at the composition of their samples (i.e., crowd sourcing and general population from public places) and comparing them to the present paper (i.e., university-based and market research provider), there were no obvious or systematic differences that could explain the observed variations in factorial structure. Furthermore, articles producing and replicating the five-factor solution have employed a range of recruitment techniques (i.e., blog post, online forums, and emailing list) [22]. These sampling approaches are representative of self-report studies investigating belief in conspiracy theories generally (see [38]). Within the current paper, the GCBS demonstrated invariance of form, factor structure and intercepts across gender in both independent samples. Moreover, satisfactory invariance existed when comparing across the UK-based samples (i.e., studies one and two). Overall, consideration of present and previous work suggests that the GCBS five-factor structure is not an artefact arising from a particular sample type. Although, further research into potential measurement bias is required since the original validation and present validation studies were UK-focused, whereas Swami et al. [26] and Atari et al. [35] used samples drawn from the USA and Iran respectively. Noting this, subsequent work should examine scale invariance across wider ranging contexts in order to delimit situations where the five-factor and one-factor solutions are most appropriate. This includes extensive cross-cultural comparisons because variations in societal norms are likely to influence belief in conspiracy theories. A recent example of this is the Japanese Version of the Generic Conspiracist Beliefs Scale (GCBS-J) [36], which supported a twofactor structure comprising General Conspiracist Beliefs and Extraterrestrial Conspiracist Beliefs. Tellingly, the authors suggested this two-factor structure emerged due to differences in the nature of conspiracy beliefs among Japanese vs. Western societies. Widespread cross-cultural comparison would extend the process initiated by the present paper with British samples to other countries. An additional academic benefit is that this comparison will reveal cultural differences in prevalence and content of conspiracy theories. The observation that the factorial structure of the GCBS may be prone to contextual variation is consistent with Bruder et al. [31], who contend that the use of specific content-related detail gives rise to cultural response variations. This issue pertains to the GCBS because it contains items that refer to explicit topics, such as technology (i.e., “New and advanced technology which would harm current industry is being suppressed”) and terrorism (i.e., “The government permits or perpetrates acts of terrorism on its own soil, disguising its involvement”). This specificity introduces the potential for contextual bias. For instance, views of technological advance vary across societies. Democratic countries generally regard technological advance as progressive and financially necessary, whereas autocratic states often frustrate technical development for political/economic reasons. Similarly, social, religious and geographical factors can influence perceptions of terrorism. Illustratively, it is common knowledge that the U.S. government planned a false flag operation (Operation Northwoods) in 1962 [74]. This recommended staging an attack on American soil in order to provide a justification for attacking Cuba. In this instance, individuals with awareness of Operation Northwoods, who endorse the notion of orchestrated terrorist attacks, are indicating political and historical awareness rather than belief in conspiracy theories. This point concurs with Stojanov and Halberstadt [48], who contend that the presence of factors that refer to explicit conspirators (i.e., government and powerful people) may undermine the generic

nature of the GCBS. The inclusion of thematic specificity within the GCBS also introduces possible temporal instability. This arises from the fact that belief in particular theories changes over time. Some theories increase in popularity, whereas others decline. In the case of terrorism for instance, awareness of false flag operations fluctuates because of media attention. Tentatively, this may explain the structural variations observed by Swami et al. [26,39]. Future studies could examine this by comparing item endorsement across multiple time points. Such repeated test-retest would establish the extent to which factors and items possess temporal stability. These criticisms suggest that the measurement of belief in conspiracy theories benefits from adopting a focus on overarching thematic ideology and concepts. From this perspective, the multidimensional GCBS is better suited for exploring domain-specific differences in conspiracy beliefs. The extent to which these are generalizable depends on ensuing work establishing scale invariance. The issue of factorial stability is not unique to the GCBS. Other psychometric instruments experience similar difficulties. For example, questions concerning stability exist for the Mental Toughness Questionnaire 48 (MTQ48, [75]), which is a measure of the capability to cope with difficulties and to achieve self-defined aims [76–77]. The scale authors report that four highorder dimensions (i.e., 4Cs: Challenge, Commitment, Control and Confidence) exist. Perry, Clough, Crust, Earle, and Nicholls [78] provided support for this solution. However, other researchers have reported large degrees of misspecification with samples comprised of elite, amateur and non-athletes [79]. Other studies have also failed to reproduce the 4C solution, and questioned its appropriateness [77,80]. Explicitly, Gucciardi et al. [80] was unable to demonstrate good data fit in athlete and workplace samples. Finally, subsequent studies could attempt to explain observed variations in GCBS factor structure by testing the various models in a large, heterogeneous sample. Investigators could achieve this by aggregating publicly available data. Increasing sample size will reduce the potential influence of random factors, and should result in the production of a purified factorial structure. Ultimately, this may result in the modification of existing items and recommend the generation of new questions. This process, consistent with points raised in this paper will facilitate the further development of generic, culture free content.

THIRTEEN.

Beliefs about the nature of knowledge shape responses to the pandemic: Epistemic beliefs, the Dark Factor of Personality, and COVID-19–related conspiracy ideation and behavior.

Abstract.

Objective: Global challenges such as climate change or the COVID-19 pandemic have drawn public attention to conspiracy theories and citizens' non-compliance to science-based behavioral guidelines. We focus on individuals' worldviews about how one can and should construct reality (epistemic beliefs) to explain the endorsement of conspiracy theories and behavior during the COVID-19 pandemic and propose the Dark Factor of Personality (D) as an antecedent of posttruth epistemic beliefs. **Method and Results:** This model is tested in four pre-registered studies. In Study 1 (N = 321), we found first evidence for a positive association between D and posttruth epistemic beliefs (Faith in Intuition for Facts, Need for Evidence, Truth is Political). In Study 2 (N = 453), we tested the model proper by further showing that post-truth epistemic beliefs predict the endorsement of COVID-19 conspiracies and disregarding COVID-19 behavioral guidelines. Study 3 (N = 923) largely replicated these results at a later stage of the pandemic. Finally, in Study 4 (N = 513), we replicated the results in a German sample, corroborating their cross-cultural validity. Interactions with political orientation were observed. **Conclusion:** Our research highlights that epistemic beliefs need to be taken into account when addressing major challenges to humankind. **KEYWORDS** conspiracy theories, COVID-19, Dark Factor of Personality, epistemic beliefs, post-truth.

1 | INTRODUCTION It is crucial for democratic societies that their members act upon evidence, not least when faced with global challenges such as climate change or the COVID-19 pandemic (Lewandowsky et al., 2020). The popularity of conspiracy theories and the widespread failure to follow behavioral guidelines informed by science has fueled academic research investigating the antecedents of such thinking and behavior (e.g., Boot et al., 2021; Pennycook et al., 2020). Individuals' convictions or worldviews about how one can and should develop a sense of what is true could be a key to understanding post-truth phenomena (Hyman & Jalbert, 2017; Lewandowsky et al., 2017; Scheufele & Krause, 2019). Our focus here is on individual differences in epistemic beliefs, that is, people's concepts about knowledge and evidence (Schommer, 1990). Among other aspects, epistemic beliefs refer to the validity of truthiness (Colbert, 2005)—the belief that truth rightfully derives from one's gut feeling rather than facts. Building upon a three-dimensional framework of epistemic beliefs (Garret & Weeks, 2017), we examined the Dark Factor of Personality as an antecedent to the endorsement of epistemic beliefs and COVID-19 conspiratorial thinking and the (non-)adherence to WHO health behavioral guidelines during the pandemic as consequences of epistemic beliefs. We start with a brief introduction on epistemic beliefs.

1.1 | Epistemic beliefs

Imagine reading the abstract of a recently published study on COVID-19. Furthermore, imagine that you find the authors' results and conclusions intuitively plausible. Do you believe that you can trust your gut feeling—or do you rather find it necessary to take a closer look at the study before drawing any conclusions? Also, do you think that science provides objective facts or do you rather hold that scientific conclusions are influenced by those in power? These questions refer to your epistemic beliefs. Epistemic beliefs can be defined as beliefs about the nature and generation of knowledge (Muis, 2007). The concept of epistemic beliefs emerged in educational psychology (see, e.g., Hofer & Pintrich, 1997; Kuhn et al., 2000; Schommer, 1990), but has since also been adapted to study the general public. In contrast to the concept of motivated reasoning (Kruglanski, 1996; Kunda, 1990), which is the process of producing justifications or

decisions based on individual motives, goals, and attitudes instead of evidence, epistemic beliefs refer to one's general attitude toward the concept and generation of knowledge itself (Hornsey et al., 2020). It has been demonstrated that epistemic beliefs are related to the accuracy of peoples' opinions (Garrett & Weeks, 2017). What does that mean? To capture the impact of epistemic beliefs on cognition and behavior, three different aspects need to be distinguished (see Garrett & Weeks, 2017). First, the degree to which people have Faith in Intuition for Facts, that is, the degree to which people believe that they can trust their gut feeling when evaluating information. Intuition can be an important source of knowledge (see, e.g., Damasio, 2005; Kahneman, 2011), especially when taken as a starting point for further careful and thorough consideration. If faith in one's intuition is not accompanied by analytic thinking however, people tend to ignore and disregard existing evidence, which can lead to severe misperceptions (e.g., Swami et al., 2014). Second, the degree to which people have a Need for Evidence, that is, the degree to which people believe that their opinions need to be based on externally validated data. People with a high Need for Evidence will try to ensure that their opinions align with the known facts. On the contrary, people with a low Need for Evidence hold opinions that are driven by their ideological convictions, even if they know that these convictions conflict with the current scientific consensus (e.g., Garrett et al., 2016; Hindman, 2009). Third, the degree to which people believe that “facts” are shaped by those in power, that is, the degree to which people believe that Truth is Political. In the social sciences, it has been emphasized that the generation of knowledge is always embedded in historical and societal circumstances (e.g., Hacking, 1999). Such a social constructionist perspective can easily be misunderstood as entailing a disregard for the truth (Holtz, 2020). People who believe that facts do not exist independently from the political context tend towards this misunderstanding (Garrett & Weeks, 2017). Based on the observation that there are different interpretations of reality and that the scientific consensus shifts over time, it is concluded that “truth” is nothing but a matter of power. To sum up, there is a distinct set of epistemic beliefs that we call post-truth epistemic beliefs because they shield individuals from questioning their opinions and from engaging in a rational discourse. In other words, people with a strong Faith in their Intuition for Facts, a low Need for Evidence and a strong conviction that Truth is Political will show little inclination to commit to “the unforced force of the better argument” (Habermas, 1996, p. 305). Instead, they will deliberately choose to believe what they want to be true. In the following, we argue that epistemic beliefs are closely connected to and an expression of a broader personality disposition, the Dark Factor of Personality. 1.2 | The Dark Factor of Personality (D) and epistemic beliefs The Dark Factor of Personality (D) is defined as “the general tendency to maximize one's individual utility—disregarding, accepting, or malevolently provoking disutility for others—accompanied by beliefs that serve as justifications” (Moshagen et al., 2018, p. 657). Utility refers to any form of material success or hedonistic feelings such as power or pleasure. The concept of D can be understood as an equivalent to G, the core factor of intelligence, explaining common variance between dark traits such as egoism, Machiavellianism, and psychopathy (Moshagen et al., 2018). Individuals high in D embrace a relativist and cynical worldview, which enables them to bend moral values and to refrain from injunctive norms, whenever it suits their agenda (e.g., Ajzen, 1991; Jonason et al., 2015; Moshagen et al., 2018, 2020; Zeigler-Hill et al., 2020). Thus, it is to be expected that the stronger D, the stronger is the tendency to approve external information that justifies an individual's antagonistic, malevolent or socially aversive behavior while disregarding information criticizing it. We argue that epistemic beliefs serve as tools to construct and maintain convictions that serve as justifications for this behavior. Furthermore, we assume that individuals high in D use epistemic beliefs to fend off information contradicting their worldviews

even if these worldviews are not directly linked to justifying antagonistic, malevolent or socially aversive behavior, as threats to any worldview may cause disutility. In addition, as individuals high in D are likely to hold positive, but fragile self-concepts (e.g., Doerfler et al., 2021), epistemic beliefs serve as a means to shield these self-concepts from critical, self-threatening information. In terms of the three aspects of epistemic beliefs, individuals with high levels in D are expected to trust their intuition when evaluating the accuracy of any information, implying a strong Faith in Intuition for Facts. As evidence bears the risk of contradicting one's worldview, we expect a negative association between D and Need for Evidence. The disregard of evidence can be supported by endorsing the idea that facts, including scientific evidence, are partially or completely constructed by society which allows for multiple perspectives on what is to be regarded as true (Kata, 2012). Accordingly, we expect that individuals with high levels in D tend to hold the belief that Truth is Political. To sum up, we argue that a pronounced Dark Factor of Personality should be linked to post-truth epistemic beliefs.

1.3 | COVID-19 conspiracy theories and protective behavior

We assume that D and post-truth epistemic beliefs are associated with specific cognitions and behavior in response to societal and political phenomena such as the handling of the COVID-19 pandemic. Conspiracy theories attribute the actual cause of an event to the intrigues of several powerful actors who are working towards a common goal that is contrary to the interests of large sections of the population (Swami & Furnham, 2014). Conspiracy theories about COVID-19 range from downplaying its danger while suspecting others to profit from exaggerating the severity of the disease, to explicitly assuming that malevolent forces spread COVID-19 as a bioweapon (e.g., Imhoff & Lamberty, 2020). The central idea of conspiracy theories, namely powerful actors secretly working towards a common goal against the will of the majority of the people, fits within the self-serving worldview of individuals high in D (Moshagen et al., 2018). Ruthlessly prioritizing one's individual utility as the core motif of individuals with high levels in D, could well lead to the assumption that others think and behave similarly. Accordingly, Machiavellianism has been linked to a tendency to believe in conspiracy theories and increased willingness to conspire (Douglas & Sutton, 2011). More recently, Machiavellianism, narcissism, and psychopathy were found to be associated with the endorsement of generic (Kay, 2021) and COVID-19 specific conspiracy theories (Ahadzadeh et al., 2021). Following our line of argument, individuals high in D should trust their intuition when confronted with conspiratorial ideas and refrain from relying on evidence. The idea that what is regarded as "true" is dependent on politics and society, could further enhance conspiratorial thinking (Garret & Weeks, 2017). Compliance with countermeasures against COVID-19, including handwashing, wearing hygienic face masks and social distancing, is highly dependent on trust in government and science (Plohl & Musil, 2021). As described above, individuals high in D should only rely on evidence and hence trust scientific recommendations, if it suits their agenda. In the context of COVID-19, however, this seems highly unlikely, as countermeasures rely on the engagement in prosocial behavior (Anderson et al., 2020; Han et al., 2021), which is in stark contrast to the very definition of D (Moshagen et al., 2018). Research has linked D as well as individual dark traits such as Machiavellianism, narcissism and psychopathy to less protective behavior against COVID-19 (Blagov, 2021; Nowak et al., 2020; Ścigala et al., 2021; Zettler et al., 2021). Again, following our line of argument, individuals high in D should rely on post-truth epistemic beliefs to neglect scientific evidence regarding COVID-19 and devalue it, for example by trusting their intuition about its accuracy. They could also assume that recommendations aiming at the implementation of countermeasures are merely the result of one of multiple (scientific) points of view. Much of the available research has demonstrated that dark traits are more common in the right-wing political spectrum (Duspara & Greitemeyer, 2017; Jonason, 2015) and were linked to

traditionally conservative stands on major societal topics (Arvan, 2013). Not all studies, however, corroborated these relationships. It appears that these associations depend on various factors, such as the particular traits considered and the measures applied (see, e.g., Vize et al., 2018; Zeigler-Hill et al., 2020). In terms of epistemic beliefs, both Faith in Intuition for Facts and Truth is Political were linked to conservatism (Garret & Weeks, 2017). Additionally, conservatism has been shown to be associated with the endorsement of COVID-19 conspiracy theories as well as less protective behavior (e.g., de Bruin et al., 2020; Freeman et al., 2020). In addition to these associations, political orientation could moderate the paths between D, epistemic beliefs, and both COVID-19 variables. More specifically, the joint occurrence of high scores on D and a right-wing political orientation could provide particularly fertile ground for strong inclinations to endorse post-truth epistemic beliefs, conspiracy ideation, and harmful behavior. For left-leaning individuals high in D, such inclinations could be weaker, as their social environment is likely more critical towards these stands, thereby reducing their utility. Moreover, post-truth epistemic beliefs could relate to the outcome variables in different ways, with stronger links for individuals with a more right-leaning political orientation.

1.4 | The present research

Despite its theoretical plausibility, the connection between dark traits and epistemic beliefs has not been investigated yet and empirical evidence for the link between epistemic beliefs and the endorsement of conspiracy theories rests on one study (Garret & Weeks, 2017). The latter authors showed that all three epistemic beliefs were associated with the score on a conspiracist ideation scale, but the results were somewhat mixed when relationships to conspiracy-related assertions about specific topics were examined (e.g., “Vaccines cause autism”). Although Machiavellianism and psychopathy have been linked to endorsing COVID-19 conspiracy theories (Hughes & Machan, 2021) and engaging in less protective behavior (Triberti et al., 2021), research on the characteristic handling of evidence associated with dark traits is still missing. Additionally, we intend to corroborate as well as to extend prior research using a measure of the core of dark traits. Our studies are not only the first to investigate the link between dark traits and epistemic beliefs, but also to propose a model taking into account the complex interactions between dark traits, epistemic beliefs and political orientation as well as their collective effect on COVID-19-related cognitions and behavior (for an overview, see Figure 1). Four studies are presented: In Study 1, we investigated the relationship between D and epistemic beliefs, while in Studies 2–4 we included links to the endorsement of COVID-19 conspiracy theories and engagement in COVID-19 protective behavior, both inside and outside the United States over the course of the pandemic. We expected D to be positively associated with Faith in Intuition for Facts and Truth is Political and negatively associated with Need for Evidence (Studies 1–4). We further expected D to be positively associated with the endorsement of COVID-19 conspiracy theories and negatively associated with COVID-19 protective behavior (Studies 2–4). We hypothesized that these associations would be mediated by Faith in Intuition for Facts, Need for Evidence and Truth is Political, with Faith in Intuition for Facts and Truth is Political being positively and Need for Evidence being negatively associated with the endorsement of COVID-19 conspiracy theories. For COVID-19 protective behavior, we expected the reverse pattern of correlations (Studies 2–4). In Studies 2–4, we also investigated the potential moderating role of political orientation on the associations described above. Following preliminary results (Study 2), we expected that the associations between D and the endorsement of COVID-19 conspiracy theories and engagement in COVID-19 protective behavior would increase with a more conservative political orientation. We expected the same pattern for the association between D and Truth is Political. Additionally, we expected both the association between D and Need for Evidence and the association between Need for Evidence and the endorsement of COVID-19 conspiracy theories

to increase with a more liberal political orientation (Studies 3 and 4). For all studies presented in this article, we report how we determined our sample size, all data exclusions, and all measures in the study, and we follow the Journal Article Reporting Standards (JARS; Kazak, 2018). All data, analysis code, research materials are available at <https://osf.io/g3xkw/>. All studies were preregistered (Study 1: <https://aspredicted.org/6886q.pdf>; Study 2: <https://aspredicted.org/3mp8c.pdf>; Study 3: <https://aspredicted.org/44q7j.pdf>; Study 4: <https://aspredicted.org/958ad.pdf>).

6.4 | Conclusion Post-truth phenomena such as conspiracy theories and related behavior are widely considered to be a major threat to individual and societal prospering. We present consistent and cross-cultural evidence for the pivotal role of post-truth epistemic beliefs, rooted in the Dark Factor of Personality, in explaining the endorsement of COVID-19 conspiracy theories and non-adherence to behavioral recommendations throughout the pandemic.

Our research highlights that individuals' worldviews about how one can and should construct reality need to be taken into account when addressing major challenges to humankind.

FOURTEEN.

Introducing the Short Dark Triad (SD3): A Brief Measure of Dark Personality Traits.

Abstract.

Three socially aversive traits—Machiavellianism, narcissism, and psychopathy—have been studied as an overlapping constellation known as the Dark Triad. Here, we develop and validate the Short Dark Triad (SD3), a brief proxy measure. Four studies (total $N = 1,063$) examined the structure, reliability, and validity of the subscales in both community and student samples. In Studies 1 and 2, structural analyses yielded three factors with the final 27 items loading appropriately on their respective factors. Study 3 confirmed that the resulting SD3 subscales map well onto the longer standard measures. Study 4 validated the SD3 subscales against informant ratings. Together, these studies indicate that the SD3 provides efficient, reliable, and valid measures of the Dark Triad of personalities.

Despite their distinctive theoretical roots, the literatures on three socially aversive personalities—narcissism, Machiavellianism, and psychopathy—have become so expansive that the distinctions have become muddled. As a result, some observers concluded that the three variables are interchangeable in normal samples (e.g., McHoskey, Worzel, & Syzarto, 1998). Disputing that allegation, Paulhus and Williams (2002) coined the term Dark Triad to encourage researchers to study the three traits in tandem: Only then can their distinctiveness be clarified. If studied alone, any observed correlates may actually reflect overlap with one of the other Dark Triad members. Although research on the triad has continued to expand (for a review, see Furnham, Richards, & Paulhus, 2013), some researchers may have been deterred by the combined length of the available measures. Consider the popular questionnaire measures of psychopathy. The widely used Self-Report Psychopathy (SRPIII) scale requires 64 items (Mahmut, Menictas, Stevenson, & Homewood, 2011; Williams, Paulhus, & Hare, 2007). Even longer is the Psychopathic Personality Inventory– Revised, which has more than 100 items (Lilienfeld & Andrews, 1996). Abbreviated versions of these two measures have been whittled down to 29 and 56 items, respectively— just to measure psychopathy. The standard measure of Machiavellianism (Mach-IV; Christie & Geis, 1970) has 20 items and the most popular measure of narcissism, the Narcissistic Personality Inventory (NPI; Raskin & Hall, 1979) has 40. Also available is a validated short version, the NPI-16 (Ames, Rose, & Anderson, 2006). Given the length of these instruments, it is understandable why some researchers may be reluctant to include all three traits in a single study. Even with the shortest versions of each construct, the total number of items is 65—still taxing when time and space are at a premium. For practical use, a valid and reliable short measure of the Dark Triad is needed. That need motivated our development of the Short Dark Triad (SD3) scale. The Dirty Dozen Currently, the only brief measure of the Dark Triad is the “Dirty Dozen” (DD) scale (Jonason & Webster, 2010). Unfortunately, it appears to be too short—only four items per construct. As a result, the instrument has been critiqued in several recent reports (Lee et al., 2013; Miller et al., 2012; Rauthmann, 2013). At a minimum, short measures should line up with the gold standard measures (see Credé, Harms, Niehorster, & Gaye-Valentine, 2012; Hubleby & Zumbo, 1996). To date, research on the DD indicates only a weak correspondence (Jonason & Webster, 2010). According to Miller et al. (2012), the reason may be that shortening the DD subscales required removal of some essential content.

The DD cannot be faulted for the reliabilities of its subscales—they are all respectable. However, high reliabilities for four-item measures can only be achieved via repetitive wording of

narrow content (Credé et al., 2012; John & Seto, 2007). Even more damaging is the fact that crosscorrelations are often stronger than convergent correlations with the corresponding gold standard measures (Jonason & Webster, 2010; Rauthmann, 2013). Finally, the DD Mach scale showed strong positive correlations with measures of short-term orientation (Jonason & Tost, 2010). Unfortunately the finding that Machiavellians are impulsive is inconsistent with the original conception (Jones & Paulhus, 2009). As far as we know, only one published report has directly compared the SD3 to the DD (Lee et al., 2013). The authors concluded that the SD3 adequately captures the nuances of each construct whereas the DD taps only limited elements. In sum, the empirical literature does not favor use of the DD. Nonetheless, as the only competitor for the SD3, the DD was included in the present research for in-depth comparisons at both the conceptual and empirical levels.

Distinct Theoretical Roots Item generation for the SD3 began by consulting a recent review of the seminal sources for each construct (see, Jones & Paulhus, 2011b). Our assumption was that clarification of the classic conceptions would permit operationalization of the three constructs without building in redundancy or forcing independence. In sum, we sought to develop subscales that were loyal to their theoretical roots and then evaluate their empirical associations.

Machiavellianism. In introducing the concept into the personality literature, Christie and Geis (1970) were primarily influenced by the political strategist, Niccolo Machiavelli (1513/1981). As a result, the popular Mach-IV items include cynical worldview, lack of morality, and manipulateness (see, review by Fehr, Samsom, & Paulhus, 1992). The more recent review by Jones and Paulhus (2009) also drew attention to a neglected predecessor, namely, the first-century military strategist, Sun Tzu (Shibing & Duyvendak, 1998). Along with themes similar to Machiavelli's, Sun Tzu added planning, coalition formation, and reputation building. The latter qualities turn out to be important in distinguishing psychopathy from Machiavellianism. Whereas psychopaths act impulsively, abandon friends, and family, and pay little attention to their reputations (Hare & Neumann, 2008), Machiavellians plan ahead, build alliances, and do their best to maintain a positive reputation. When overlap is controlled, research has supported these assertions: Machiavellians are strategic rather than impulsive (Jones & Paulhus, 2011a). They avoid manipulating family members (Barber, 1998), and any other behavioral tactics that might harm their reputation, for example, feigning weakness (Shepperd & Socherman, 1997). In sum, the key elements of Machiavellianism appear to be (a) manipulateness, (b) callous affect, and (c) a strategic-calculating orientation. This last element is often overlooked by researchers.

Psychopathy. Seminal researchers (Cleckley, 1941/1976; Hare, 1970; Lykken, 1995) have pointed to two key elements of psychopathy—deficits in affect (i.e., callousness) and self-control (i.e., impulsivity). The self-control deficit has remained central to criminal (Hare & Neumann, 2008; Hicks et al., 2007) as well as noncriminal conceptions of psychopathy (Hall & Benning, 2006; Lebreton, Binning, & Adorno, 2006). Consequently, psychopaths manifest their callousness in a short-term fashion (Jones & Paulhus, 2011a; Visser, Bay, Cook, & Myburgh, 2012). For example, they lie for immediate rewards, even if those lies compromise their long-term interests¹ (Paulhus & Jones, 2012). Thus callous manipulation combines with other short-term traits (i.e., recklessness, and thrill seeking) to engender bold and relentless criminal behavior (Hare & Neumann, 2008). The element of impulsivity is key in distinguishing psychopathy from Machiavellianism and influenced our item selection for the SD3. Our emphasis on impulsivity renders our conception closer to secondary than to primary psychopathy (Hicks et al., 2007; Newman, McCoon, Vaughn, & Sadeh, 2005).

Narcissism. As the seminal sources for their review, Jones and Paulhus (2011b) drew on Kernberg (1975) and Kohut (1978). Both those sources argued that narcissistic behavior was marked by manipulation and callousness, much like Machiavellianism and psychopathy. Intrapsychically,

however, narcissism was defined by a clash between a grandiose identity and underlying insecurity. This malignant version remains the concern for clinicians dealing with pathological cases of narcissism (see, Morey et al., 2011; Pincus et al., 2009). The advent of the NPI (Raskin & Hall, 1979) directed the research energy toward subclinical narcissism (e.g., Emmons, 1987). When compared with other measures, the key element in the NPI appears to be grandiosity (Miller & Campbell, 2008). In two-factor solutions, one is variously labeled (self-attributed) leadership or authority, and the other entitlement (Kubarych, Deary, & Austin, 2004). Although grandiosity can certainly be maladaptive (Morf & Rhodewalt, 2001), there is little support for the role of inner insecurity as the driving force (Campbell & Foster, 2007). To reify that distinction, Pincus, Wright, and their colleagues have developed an instrument that separates grandiose from vulnerable narcissism (Pincus et al., 2009; Wright, Lukowitsky, Pincus, & Conroy, 2010). Other than insecurity, the clinical manifestations are also evident in subclinical narcissism. For example, grandiosity leads narcissistic individuals on a never-ending quest for ego-reinforcement (Morf & Rhodewalt, 2001), often resulting in self-destructive behaviors (Vazire & Funder, 2006). Rather than deliberate, the cognitive processes of narcissists are more self-deceptive: They seem to believe their boasts even when it can be verified that they exaggerate their competence (Paulhus & Williams, 2002). Narcissistic grandiosity also promotes a sense of entitlement (Bushman, Bonacci, van Dijk, & Baumeister, 2003), even aggression, if that grandiosity is threatened (Bushman & Baumeister, 1998; Jones & Paulhus, 2010). In contrast, the notion of narcissistic self-hate has little support (Campbell & Foster, 2007). It is this grandiose variant of narcissism that is represented in the Dark Triad. Whereas ego-reinforcement is the all-consuming motive behind narcissistic behavior, psychopaths and Machiavellians are more motivated by instrumental or material gain. Of course, the goals of the different Dark Triad members may sometimes align, thereby precipitating similar behavior. The reason, we argue, is that they share a common callousness that encourages interpersonal manipulation (Jones & Figueredo, 2012; Wai & Tiliopoulos, 2012). Thus, similar instances of callous manipulation would be evident in all three Dark Triad traits.² In other cases, the three traits exhibit unique behavior: Ego-promoting outcomes will be best predicted by narcissism, those involving reckless antisocial behavior will be best predicted by psychopathy, and outcomes predicted by a strategic orientation will be best predicted by Machiavellianism. In sum, Jones and Paulhus (2011b) concluded the following: (a) ego-identity goals drive narcissistic behavior, whereas instrumental goals drive Machiavellian and psychopathic behavior (b) Machiavellianism differs from psychopathy with respect to temporal focus, (c) all three have a callous core that encourages interpersonal manipulation. It was with these guiding principles that we selected items for the new instrument.

Overview of the Present Studies

Although the process of establishing construct validity is never finalized (Furr & Bacharach, 2008; Messick, 1995), several steps are considered essential. In this preliminary report, we focus on structure, reliability, and concurrent validity to build the SD3 instrument. Guided by the Jones and Paulhus (2011b) review of the seminal literatures, we assembled a large item pool to ensure coverage of the key aspects of each concept. Item refinement and structural analyses finally winnowed this item set down to the final set of 27 items. We then advanced the construct validity of the final instrument by demonstrating that the subscales possessed acceptable internal consistencies and concurrent validities with established measures. We went on to show coherent patterns of convergent and discriminant relations with other relevant variables. Finally, we confirmed that informant perceptions corroborate the self-reports. The final instrument was labeled the Short Dark Triad or SD3.

General Discussion.

This report has described the creation and preliminary validation of the SD3 questionnaire. After a review of the seminal literature, we generated items, subjected them to a variety of analyses, and found support for their differentiation into the expected three factors. To represent them, we formed three 9-item composites, and examined their external correlates. Our four studies suggest that the SD3 achieves an optimal compromise between instrument brevity and respectable reliability and validity. Using a variety of approaches, we showed that the SD3 subscales provide useful proxies for the established Dark Triad measures they were meant to replace. We confirmed that the three subscales fell in the theoretically appropriate circumplex locations and provided full coverage of the classic constructs. Gender differences paralleled those of the longer measures. Of particular importance, we demonstrated external validity by showing that the SD3 scales predicted corresponding informant-ratings. Hence, the Dark Triad constructs are not just artifacts of self-report variance. The SD3 questionnaire has already drawn support from other research groups (e.g., Arvan, 2011; Ashton-James & Levordashka, 2013; Baughman, Dearing, Giammarco, & Vernon, 2011; Giammarco, Atkinson, Baughman, Veselka, & Vernon, 2013; Holtzman, 2011; Lee et al., 2013). For example, Ashton-James and Levordashka (2013) used the SD3 to demonstrate discriminant validity at the behavioral level: Narcissists, but not psychopaths or Machiavellians, mimic high-status others. In sum, empirical support for the SD3 extends well beyond cross-sectional in our research and elsewhere. Limitations Although they were inconsistent, some cross-loadings appeared in our latent variable procedures. They were not unexpected, given that we hypothesized overlap among our three constructs. For that reason, we turned to the hybrid method, ESEM, held to be superior for multifactor instruments such as ours (see Asparouhov & Muthén, 2009; Marsh et al., 2009). That method helped address the limitation and jibes with the fact that the SD3 scales perform well in both concurrent and predictive validity. A second limitation has to do with our informant rating scales. Of the three, the psychopathy measure showed the highest correlations with the SD3. We traced part of this advantage to a substantially higher alpha for psychopathy. Even after adjusting for differential alphas, the psychopathy scale showed the highest correlations. Future research should include development of improved informant rating scales. In addition, future research should go beyond rating measures to concrete behavior. We have already begun to study some possible behavioral outcomes (Paulhus & Jones, 2013). Alternatives For researchers with sufficient space and time, the standard measures remain an option for measuring the Dark Triad. Other brief measures are also available. Best researched is the 12-item “Dirty Dozen” (Jonason & Webster, 2010). Unfortunately, the consequences of its extreme brevity have drawn criticism (see our introduction). Two other brief measures are also noteworthy (Harms, Roberts, & Kuncel, 2004; MacNeil, Whaley, & Holden, 2007). Unfortunately, the authors of these conference presentations have yet not followed up on these measures. Future research may support their utility.

The SD3, we have argued, meets acceptable psychometric standards while capturing the classic conceptions of the Dark Triad traits. At the same time, its brevity will permit researchers to pursue Dark Triad research even when time and space are at a premium.

FIFTEEN.

Evaluating the Psychometric Properties of the Mental Health Continuum-Short Form (MHC-SF)
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There is a growing consensus that mental health is not merely the absence of mental illness, but it also includes the presence of positive feelings (emotional well-being) and positive functioning in individual life (psychological well-being) and community life (social well-being). We examined the structure, reliability, convergent validity, and discriminant validity of the Mental Health Continuum Short Form (MHC-SF), a new self-report questionnaire for positive mental health assessment. We expected that the MHC-SF is reliable and valid, and that mental health and mental illness are 2 related but distinct continua. This article draws on data of the LISS panel of CentERdata, a representative panel for Longitudinal Internet Studies for the Social Sciences (N = 1,662). Results revealed high internal and moderate test-retest reliability. Confirmatory factor analysis (CFA) confirmed the 3-factor structure in emotional, psychological, and social well-being. These subscales correlated well with corresponding aspects of well-being and functioning, showing convergent validity. CFA supported the hypothesis of 2 separate yet related factors for mental health and mental illness, showing discriminant validity. Although related to mental illness, positive mental health is a distinct indicator of mental well-being that is reliably assessed with the MHC-SF. © 2010 Wiley Periodicals, Inc. *J Clin Psychol* 67:99–110, 2011.

Keywords: positive mental health; psychometric properties; confirmatory factor analysis; subjective well-being; mental illness.

Concepts of mental health have changed in recent years. Mental health has long been described as the absence of psychopathology. Today, the World Health Organization (WHO) focuses on mental health as a positive state that is defined as “a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community” (WHO, 2004, p 12). There are three core components in this definition: well-being, effective functioning in individual life, and effective functioning in community life, which together make up mental health. This definition builds on two longstanding traditions in studies on a life well lived (Deci & Ryan, 2008; Ryff, 1989): the hedonic tradition concerns feelings of happiness whereas the eudaimonic tradition focuses on optimal functioning in individual and social life (Keyes, 1998; Waterman, 1993). According to the hedonic tradition, well-being comprises happiness and the experience of pleasant emotions. Mental health is increased by maximizing positive, pleasant feelings while minimizing negative, unpleasant feelings. Research on emotional well-being reflects this affective aspect of the hedonic tradition. In addition to a positive balance of pleasant to unpleasant affect, emotional well-being includes a cognitive appraisal of satisfaction with life in general (Diener, Suh, Lucas, & Smith, 1999; Keyes, 2009; Table 1). The eudaimonic tradition considers optimal psychological functioning in life and has been measured using two multidimensional models—psychological well-being and social-well-being—that reflect the extent to which individuals view themselves as functioning well in life (Keyes, 2002). Ryff (1989) developed a model of psychological well-being that comprises six dimensions, based on work of humanistic and lifespan psychologists, such as Jung, Maslow, Allport, Rogers, and Erikson. These dimensions (self-acceptance, personal growth, purpose in life, positive relations with others, autonomy, and environmental mastery; Ryff; Table 1) reflect the challenges that individuals encounter as they strive to realize their potential. Besides this assessment of optimal functioning in private life, optimal functioning should be measured in

community life (WHO, 2004). Therefore, Keyes (1998, 2002) proposed a model of social wellbeing based on the work of sociologists such as Durkheim and Marx. This model has five dimensions (social integration, social contribution, social coherence, social actualization, and social acceptance; Keyes, 1998; Table 1), and focuses on the individuals' evaluations of their public and social lives. Taking both the hedonic and the eudaimonic approaches into account, positive mental health can be defined as the presence of emotional, psychological, and social well-being (Keyes, 2002), in accordance with the definition of the WHO (2004). The two-continua model of mental health states that positive mental health is related to, but different from, mental illness (Keyes, 2005). An individual experiencing many symptoms of psychopathology has a higher chance on experiencing low well-being, such as few positive emotions, low life satisfaction, or decreased functioning in individual or social life. However, this relation is not perfect. An individual may be suffering from mental illness (e.g., a panic disorder) and have a relatively high positive mental health at the same time. Conversely, the absence of psychopathology is neither necessary nor sufficient to ensure an individual lives a productive, fruitful, and actualized life. The two-continua model has been confirmed in adolescent and adult samples in the United States (Keyes, 2005, 2006, 2007). Confirmatory factor analyses showed the best fit for a model with two related axes, where different measures of emotional, psychological, and social well-being load on a distinct factor that relates to a second factor that accounts for measures of psychopathology. Moreover, a combined diagnosis of mental health and of mental illness predicted psychosocial functioning better than a single diagnosis does, showing mental health and mental illness are complementary (Keyes, 2002, 2005; Keyes & Grzywacz, 2005). Therefore, assessment of positive mental health is an important addition to the assessment of mental illness. To date, there are several questionnaires measuring well-being. However, existing questionnaires are rather long (e.g., WHOQOL-100; WHOQOL Group, 1998) or measure only one or a few aspects of well-being (e.g., PANAS; Watson, Clark, & Tellegen, 1988; SWLS; Pavot & Diener, 1993; CASP-19; Hyde, Wiggins, Higgs, & Blane, 2003). Other questionnaires include not only well-being but also items on psychopathology (e.g., GHQ; Hu, Stewart-Brown, Twigg, & Weich, 2007). Because a brief questionnaire that fully covers all three dimensions of mental health was lacking, the Mental Health Continuum-Short Form (MHC-SF) was developed. The MHC-SF measures emotional, psychological, and social well-being, includes only 14 items, and focuses only on aspects of well-being. It was derived from a number of instruments that assess emotional, psychological, and social well-being in the Survey on Midlife Development in the United States (MIDUS; Keyes, 2002). In the MHC-SF, just one item is used for each dimension of emotional, psychological, and social well-being. Each item, thus, represents one theory-guided dimension, such as "How often did you feel that you liked most parts of your personality?" measuring selfacceptance of psychological well-being (Ryff, 1989). A first evaluation of the MHC-SF was carried out in four communities in South Africa, showing that the instrument is reliable and valid, as well as confirming the two-continua model of mental health and illness (Keyes et al., 2008). The present article expands on the South African study in a number of ways, besides being the first study in a European country. Rather than studying individuals between 30 and 80 years of age in four communities, it covers the total adult lifespan in a sample that is representative of the Dutch population. Furthermore, it includes longitudinal data, allowing for the assessment of test-retest reliability. Data were collected online through the Internet, whereas the South African study used personal interviews. Last, it uses different validation measures, also including a broader assessment of mental illness.

First, we expect to confirm the three-factor structure of emotional, psychological, and social well-being as found in studies with other instruments (Gallagher, Lopez, & Preacher, 2009; Robitschek & Keyes, 2009). Second, we hypothesize that the MHC-SF as well as the three subscales have a high internal reliability, similar to earlier findings in the South African sample and to findings in the United States that used other instruments to measure mental health. Reliability over time should be moderate, because the MHC-SF is intended, as any instrument assessing well-being, to demonstrate temporal stability, yet maintain sensitivity to reflect and detect changes in positive mental health, such as those because of major life events. Moreover, we expect larger test-retest reliability for the direct paths (e.g., emotional well-being at baseline predicting emotional well-being later in time) than for the cross-over paths (e.g., emotional well-being at baseline predicting social well-being later in time). Third, we hypothesize that our study confirms the convergent validity of the MHC-SF, with the subscales emotional, psychological, and social well-being correlating positively with corresponding measures. That is, we expect emotional well-being to correlate with measures of positive affect and life satisfaction, psychological well-being with measurements of individual functioning (e.g., self-esteem), and social well-being to be correlated with measurements of involvement in society (e.g., social engagement). However, we predict the correlations to be low to moderate, because the MHC-SF subscales comprise several dimensions, of which the validity measures only represent a small part. Fourth, we expect to confirm the two-continua model where mental health and mental illness are two related, but distinctive, latent factors. We hypothesize that positive mental health and mental illness belong to two separate latent factors, which have low to moderate negative correlations.

Discussion.

We evaluated the psychometric properties of the MHC-SF, a self-report questionnaire for measuring positive mental health. The current findings confirm the theoretically based arrangement of the 14 items in the three subscales emotional, psychological, and social well-being. These subscales have a good internal reliability and each of the subscales is predictive of the corresponding subscale at follow-up of 3 and 9 months. Furthermore, the direct paths (e.g., emotional well-being predicting emotional well-being later in time) are of larger magnitudes than the indirect paths (e.g., emotional well-being predicting psychological or social well-being later in time), which further confirms the three subscales of positive mental health. In addition, the moderate test-retest reliability suggests that the MHC-SF is both sensitive to change and stable over time. This raises interesting future research questions about the factors that contribute to stability and change of the MHC-SF. The convergent validity of the MHC-SF is good in the current study, suggesting that the MHC-SF is a valid instrument. Because we could use only measures included by CentERdata for validation, some measures were not fully representative for the aspects of the subscale, in particular, those used for psychological well-being. This might explain why self-esteem correlates with not only psychological well-being but also emotional well-being. Selfacceptance, one of the six characteristics of psychological well-being, encloses acceptance of both strengths and weaknesses (Ryff, 1989), whereas the measure for self-esteem focuses on a positive self-judgement (Rosenberg, 1979). This feeling about oneself therefore matches emotional well-being as well, which is about feelings in general. Moreover, the validation measures of Need to Evaluate and Need for Cognition represent only small aspects of psychological well-being. Although our results confirm the expected small partial correlations of these measures to psychological well-being, we suggest further research on the convergent validity of the MHC-SF using validation measures that better fit the subscales emotional, psychological and social well-being. Besides convergent validity,

the present study also confirms discriminant validity of the MHC-SF. Of all models tested, the two-continua model with correlated factors showed the best fit. Thus, mental health and mental illness are distinct indicators of mental well-being, instead of two ends of a single continuum. Put simply, the absence of psychopathology does not necessarily imply the presence positive feelings and optimal functioning in both individual and social life. And, conversely, the presence of psychopathology is not sufficient to conclude that this individual experiences a low emotional, psychological, and social well-being There are a number of limitations to this study that need to be considered. Because of the large sample size, even weak correlations are statistically significant. To account for this, we applied an alpha of .001 instead of the common .05 as a margin of significance in the validation analyses. Furthermore, we examined partial correlations to evaluate whether each correlation remained significant when controlling for the other MHC-SF subscales. Although the pattern of partial correlations confirms our expectations, we recognize that the magnitude of most correlations is low. On the other hand, validation measures were only representative for aspects of the subscale, resulting in low correlations. For further validation of the MHCSF, we suggest using long and broad questionnaires of well-being, such as the WHOQOL-100 (WHOQOL Group, 1998). Although there are several limitations, the findings are comparable to earlier findings in South Africa (Keyes et al., 2008), even though different sampling and interviewing procedures as well as different validation instruments were used. Furthermore, the findings on the twocontinua model mirror earlier research in the United States using different, and much longer, instruments to measure mental health and illness (Keyes, 2005). In conclusion, the MHC-SF is a useful, brief self-report questionnaire for assessment of positive mental health. The findings have important implications for mental health policy and care. Currently, mental health care focuses mainly on psychopathology in diagnostics as well as in treatment. However, with mental health and mental illness being two distinct indicators of mental health, it may be beneficial to focus also on promotion of positive mental health. As Keyes (2007) stated, focusing public health efforts solely on mental illness will not necessarily result in a mentally healthier population. Examples of mental health promotion in health care are well-being therapy (Fava, Rafanelli, Cazzaro, Conti, & Grandi, 1998) and Acceptance and Commitment Therapy (Hayes, Luoma, Bond, Masuda & Lillis, 2006), both psychotherapeutic approaches for increasing well-being. To gain insight in the usefulness and additional value of the MHC-SF in mental health care, we suggest further research on its psychometric properties in patient populations and on the effects of treatment in mental health care on positive mental health.

SIXTEEN.

Individual, intergroup and nation-level influences on belief in conspiracy theories.

Conspiracy theories are part of mainstream public life, with the potential to undermine governments, promote racism, ignite extremism and threaten public health efforts. Psychological research on conspiracy theories is booming, with more than half of the academic articles on the topic published since 2019. In this Review, we synthesize the literature with an eye to understanding the psychological factors that shape willingness to believe conspiracy theories. We begin at the individual level, examining the cognitive, clinical, motivational, personality and developmental factors that predispose people to believe conspiracy theories. Drawing on insights from social and evolutionary psychology, we then review research examining conspiracy theories as an intergroup phenomenon that reflects and reinforces societal fault lines. Finally, we examine how conspiracy theories are shaped by the economic, political, cultural and socio-historical contexts at the national level. This multilevel approach offers a deep and broad insight into conspiracist thinking that increases understanding of the problem and offers potential solutions.

Introduction.

In laying out a case for revolution, the authors of the US Declaration of Independence relied heavily on a conspiracy theory¹: policies such as taxes on tea were not, as Parliament claimed, merely a way of having colonies pay their fair share for the costs of keeping them in the British Empire. Rather, they were part of a hidden agenda to exert an oppressive dictatorship over what later became the United States of America. The Declaration of Independence example illustrates that conspiracy theories do not just reside in the mind or heart of individuals. Frequently, they are positioned within intergroup contests, and are shaped also by sociopolitical, economic and cultural factors. Examples like this are also a reminder that conspiracy theories are not new phenomena. Although it is common wisdom that society is increasingly prone to conspiracy theories — or that society is entering a golden age of conspiracy theories — historical analyses find no support for this notion^{2,3}. Rather, there has been a steady drumbeat of conspiracy theories for centuries, and some have argued that the propensity to engage with them has an evolutionary basis⁴. Although belief in conspiracy theories is not a new phenomenon, what is relatively new is to treat conspiracy theories as an issue worthy of psychological inquiry. More than half of academic publications on conspiracy theories in psychology have been published since 2019. The growth in research interest is partly grounded in the position that conspiracy theories can have serious, negative effects that need to be managed. For example, conspiracy beliefs are implicated in a number of anti-science attitudes, which slow society's ability to respond to challenges associated with climate change^{5–9} and public health crises^{10–16}. Conspiracy theories also trigger political aggression: they are used as tools to derogate political opponents¹⁷, encourage political violence^{18,19}, promote prejudice^{18,20,21} and recruit terrorists²². More generally, conspiracy beliefs help to accelerate and consolidate mistrust of — and anxiety about — established institutions, including government^{23,24}. Although a degree of healthy skepticism about official accounts of events should be encouraged, chronic skepticism becomes a problem as people ignore established facts and resist solutions to societal problems. As such, the 'conspiracy theorist' has become emblematic of what some have called the anti-enlightenment movement²⁵ and others have called the post-truth society²⁶. In this Review, we provide a narrative synthesis of the literature on belief in conspiracy theories organized by level of analysis (Fig. 1). First, we describe the individual-level factors that might predispose individuals to believe conspiracy

theories (micro level of analysis). Next, we review research examining conspiracy theories as an intergroup phenomenon (meso level of analysis), which recognizes that conspiracy theories are reinforced and negotiated among collectives, reflecting and creating societal fault lines. We then examine how belief in conspiracy theories is shaped by economic, political, cultural and socio-historical contexts (macro level of analysis). We conclude by considering how insights at these different levels can be integrated, and offer suggestions for future research. Before beginning, some definitional housekeeping is required. There is debate in both the psychological and philosophical literature about what beliefs warrant the label ‘conspiracy theory’^{27–29}. Here we rely on the definitions typically used in the psychological literature, according to which a conspiracy theory is an explanation for important events and circumstances that involve secret plots by groups with malevolent agendas³⁰. For the sake of conciseness, we use the term ‘conspiracy belief’ to refer to both belief in specific conspiracy theories and the more general worldview that conspiracies are common. We also note that conspiracy theories are conceptually distinct from the broader term ‘misinformation’. For example, the belief that 5G causes COVID-19 is not a conspiracy theory. But the belief that telecommunication companies know that 5G causes COVID-19 and have suppressed the evidence, or that the installation of 5G technology is part of a broader plot to depopulate the Earth, are conspiracy theories. Finally, in line with most academic accounts, we use the term ‘conspiracy theory’ in a way that is agnostic about whether the theory is true. The notion of what constitutes evidence for a theory is subjective, so it would be unsustainable as a definitional practice to draw clear lines separating plausible from implausible conspiracy theories. However, such distinctions are frequently invoked in the literature; indeed, researchers often wish to investigate conspiracy theories precisely because they can be fanciful and so discrepant from consensual accounts of reality that they cause problems. We therefore write this Review sympathetic to the notion that the motives of powerful elites should be interrogated, and fully aware that conspiracy theories might one day be proved to be true, but also guided by the principle that not all subjective truths are equally valid proxies for reality.

Summary and future directions.

In this Review, we have synthesized the literature on the interpersonal, intergroup and nation-level factors that drive conspiracy beliefs. To date, there is far more research documenting the causes of conspiracy beliefs than research that seeks to reduce conspiracy beliefs and their negative effects (Box 3). This is partly because some of the most researched factors lead to an intellectual cul-de-sac: if the problem lies in factors that are relatively hard to influence — such as people’s pathologies, thinking styles or personalities — then this limits the extent to which the problem can be overcome. In addition to providing a more complete understanding of conspiracy beliefs, a multilevel approach suggests possible solutions, and the next generation of research in this space should examine interventions more directly. That is, future research should look for ways to reduce conspiracy theorizing, or at least to break the link between conspiracy beliefs and behaviours that are destructive for individuals and societies. Future research should also test the cross-national generalizability of individual-level predictors that have been established in the existing literature. Testing the extent to which established correlates drawn from exclusively Western samples replicate in other parts of the world is important both theoretically and practically. The few attempts to test such generalizability have been revealing. For example, there is evidence that the link between conspiracy belief and climate scepticism — once considered universal — is especially pronounced in the USA¹³⁹. Theoretically, this finding adds nuance to assumptions that climate scepticism is an expression of a conspiracist worldview, and has implications for understanding the interplay between

individual-level and nation-level factors in shaping climate scepticism. The practical benefit of cross-national research is that it allows practitioners, communicators and policy-makers to understand the psychological correlates of conspiracy theorizing in their own regions so that they are better equipped to devise and implement interventions. Finally, a truly multilevel approach to understanding conspiracy theories requires cosmopolitanism not only in theories, methods and approaches, but also in terms of how academics situate themselves, tonally. Migrating between micro-, meso- and macro-level factors requires an empathic shift as much as an epistemic shift. When scholars have focused on the individual level, the tone has drifted towards a deficit model defined by what those who believe conspiracy theories lack: they have 'dark' personalities, are prone to clinical disorders, demonstrate illogical ways of thinking, and have unmet psychological needs and selfish orientations. At the meso level, there is an emphasis on the destructive nature of conspiracies as a tool of prejudice and conflict. But analysis at the macro level suggests a more compassionate orientation: communities sometimes learn to mistrust elites because those elites cannot be trusted, and people are doing their best in difficult circumstances to make sense of ambiguous events. This emphasizes the importance of being reflective about our academic stance: rather than seeing ourselves as calm and dispassionate arbiters of reasonableness, we must remember that the inherent apparent reasonableness of official accounts of events might shift depending on the sociopolitical culture within which one is situated. This creates a kaleidoscopic moral universe: conspiracy theories are both illogical and logical; truth is both sacred and relative; conspiracy beliefs do harm and they have the potential to meet important psychological needs. Scholars might find themselves toggling between a need to fight against destructive mistruths, and sensitivity to the notion that the best long-term solution to systemic mistrust is to demonstrate authentic trustworthiness in political, economic and institutional systems.

SEVENTEEN

Paranormal belief, conspiracy endorsement, and positive wellbeing: a network analysis.

Using network analysis (NA), this study examined interrelationships between advocacy of scientifically unsubstantiated beliefs (i.e., Paranormal and Conspiracy Endorsement) and positive wellbeing outcomes (i.e., Coping, Meaning in Life, Self-Esteem, and Satisfaction with Life). A total of 1,667 participants completed study measures. Analysis revealed that Paranormal Belief (PB) and Self-Esteem were central variables. Although not directly connected, common relationships existed with Search for Meaning in Life and Avoidant Coping. PB was most strongly linked (positively) with Conspiracy Endorsement, the Cognitive-Perceptual dimension of schizotypy, Search, and Avoidant Coping. Connections indicated that PB potentially mediated relationships between Schizotypy, Search, and Avoidant Coping. Self-Esteem was most strongly linked positively with the Presence of Meaning in Life, Active Coping, and Satisfaction with Life, and negatively with Avoidant Coping and Search. Network examination also revealed that Self-Esteem bridged relationships between Coping (Active and Avoidant), Meaning in Life (Search and Presence), and Satisfaction with Life. While the correlation between PB and Self-Esteem was small, the significance of these nodes suggested that their indirect interaction (through Search and Avoidant Coping) influenced factors related to positive wellbeing. This implied that the connection between PB and enhanced Self-Esteem positively impacted wellbeing. Conversely, PB associated with low Self-Esteem reflected poorer psychological health. Therefore, subsequent research should test this notion using specific belief facets.

Introduction.

Despite lacking an accepted empirical foundation and phenomena contradicting scientific principles, Paranormal Belief (PB) remains significant in contemporary Western societies (Dagnall et al., 2016; Drinkwater et al., 2021a; Drinkwater et al., 2021b). Historically, theorists have viewed supernatural beliefs as maladaptive and/or pathological (Dagnall et al., 2022a). This perspective is flawed, as it overlooks the widespread nature of PB and stems from a limited selection of outdated studies that concentrate on belief subtypes (e.g., superstition) and/or evaluate restricted populations. At the same time, the over-generalization of negative findings has fostered the perception of believers as a uniform group despite differing levels of belief intensity and confidence that predict reduced wellbeing. This characterization is problematic because it is overly simplistic and overlooks the heterogeneous nature of PB (Dagnall et al., 2022b). Therefore, the degree to which PB is (mal) adaptive varies as a function of scores on affiliated factors. This is particularly true regarding the co-occurrence of cognitive-perceptual constructs such as schizotypy (Denovan et al., 2018), manic-depressive experiences (Drinkwater et al., 2024), and transliminality (Dagnall et al., 2022a; Dagnall et al., 2022c). From this perspective, the interaction between PB and cognitive-perceptual factors is crucial since it influences information processing. PB arises from a limited appreciation of scientific wisdom and flawed reasoning (Lawrence and Peters, 2004; Dagnall et al., 2007). Specifically, a preference for subjective (vs. objective) evidence (Williams et al., 2022). In light of this, some theorists consider PB to be a form of sub-clinical psychosis (e.g., Unterrassner et al., 2017), with beliefs acting as everyday delusions (Irwin et al., 2012a; Irwin et al., 2012b). This perspective aligns with the observation that core features of PB resemble attenuated psychotic symptoms (i.e., ideas of reference, odd beliefs, magical thinking, and unusual perceptual experiences). Recent research supports the notion that the interaction between PB and cognitive-perceptual personality factors predicts wellbeing rather than credence itself. One

widely studied factor is schizotypy. Theorists working with general populations view schizotypy as a multidimensional personality construct that encompasses normal variation in a range of cognitive-perceptual, interpersonal, and disorganized traits associated with susceptibility to psychosis (Claridge, 1997). This definition recognizes that schizotypy relates to both adaptive and maladaptive psychological functioning. For example, Dagnall et al. (2024) discovered that interactions between levels of PB and schizotypy were linked to differences in presence and search for meaning in life. At the variable level, PB showed a positive correlation with both presence and search, while schizotypy was positively correlated with search but negatively correlated with presence. Meaning in life refers to the presence of purpose and the search for significance in existence (Steger, 2009). Prior research has robustly linked the balance between presence and search to reduced suffering, improved relationships, and greater life satisfaction (Steger, 2017). Thus, a realized search facilitates presence (Newman et al., 2018), while a frustrated search indicates an absence of purpose (RussoNetzer and Ickson, 2023). This interplay is significant because presence and search are orthogonal and predict health outcomes differently. Presence aligns with positive effects (e.g., flourishing, optimal functioning, and mental health, Seligman, 2011), whereas search is associated with negative factors (e.g., stress and emotional discomfort) (Newman et al., 2022). Additionally, recent studies have shown that PB, in the absence of cognitive-perceptual factors linked to psychopathology (e.g., transliminality, hypersensitivity to psychological material; Dagnall et al., 2022a), is not related to negative wellbeing outcomes (e.g., stress and somatic complaints) (Drinkwater et al., 2024). Another factor that has clouded the relationship between PB and wellbeing is the tendency of researchers to categorize supernatural belief alongside the endorsement of conspiracy theories (CT). This pairing arises from the observation that PB and CT positively correlate and share similar affiliations with various other variables. For instance, the need for cognitive closure (i.e., the desire for certainty and dislike of ambiguity, Kruglanski and Webster, 1996; Imhoff and Bruder, 2014), distrust of authority and institutions (Bruder et al., 2013; Leman and Cinnirella, 2007), feelings of powerlessness or social alienation (Goertzel, 1994; Imhoff and Bruder, 2014), and high openness to experience (Bruder et al., 2013; Imhoff and Bruder, 2014). Additionally, PB and CT share common characteristics. Specifically, both constructs are epistemically unwarranted beliefs (i.e., they exceed the totality of evidence/knowledge) (Lobato et al., 2014), are associated with magical thinking (Oliver and Wood, 2018), and reflect ontological confusion (Rizeq et al., 2021). They arise from mentalizing biases that lead to the inappropriate classification of distinctive properties of superordinate categories (i.e., mental and physical, animate and inanimate, and living and lifeless) (Dyrendal et al., 2021; Lindeman et al., 2015). Focusing on the commonalities between PB and CT has led to the oversight of conceptual differences that affect the formation of relationships around wellbeing. In this context, it is important to note that, although moderately to highly correlated, PB and CT share only 9–25% of variance (Drinkwater et al., 2012; Dagnall et al., 2017). Furthermore, when positioned within the taxonomy of rational thinking problems developed by Stanovich et al. (2008), PB and CT reflect distinct failures in rational thought. Specifically, PB corresponds with mindware gaps (i.e., flawed understanding of scientific knowledge) and CT with contaminated mindware (i.e., problematic data that hinders evaluation, encourages egocentric thought, and fosters maladaptive conditioned beliefs) (Bensley et al., 2020). Consistent with this divergence, PB and CT relate differently to social worldviews (i.e., life representations). PB is positively associated with the belief in a just world (i.e., the notion that people get what they deserve) and negatively linked to a competitive worldview (i.e., the perception of others as cut-throat rather than cooperative) (Grigoryev and Gallyamova, 2023). In contrast, CT is positively related to a dangerous worldview (i.e., an

inclination to sense risk and threat), a competitive worldview, and a zero-sum game belief (i.e., social/ relationship cynicism). The literature reports additional differences, such as PB (vs. CT) believers demonstrating greater environmental control (Van Prooijen and Acker, 2015).

Discussion.

In the network, the central variables were PB and Self-Esteem. Although not directly linked, there were common relationships between Meaning in Life (Search) and Avoidant Coping. PB most strongly linked (positively) with CT, Cognitive-Perceptual, Search, and Avoidant Coping.

The pattern of connections indicated that PB bridged (and potentially mediated) relationships between Schizotypy, Search, and Avoidant Coping. Self-Esteem most strongly linked (positively) with Presence, Active Coping, and Satisfaction with Life, and negatively with Avoidant Coping and Search. The network indicated that Self-Esteem bridged relationships between Coping, Meaning in Life, and Satisfaction with Life. While the correlation between PB and Self-Esteem was small (Gignac and Szodorai, 2016), the importance of these nodes suggested that their indirect interaction (via Search, and Avoidant Coping) influenced factors allied to positive wellbeing. This idea aligns with Maraldi (2014), who found that low Self-Esteem in childhood was associated with increased passivity and avoidance of personal responsibility. Also, that these factors were concomitant with perceived lack of personal control and increased reliance on external agencies, such as paranormal forces and/or agents. In the context of this study, this suggests that PB linked to enhanced Self-Esteem is affiliated with positive wellbeing, whereas PB associated with low Self-Esteem is related to reduced or poorer psychological health. This assertion aligns with subsequent investigations that produced conflicting outcomes (Pérez Navarro and Martínez Guerra, 2020). While some studies indicate an inverse relationship between PB and Self-Esteem, others report a positive correlation (Fitzpatrick and Shook, 1994). The former suggests that supernatural belief empowers individuals with low Self-Esteem, while the latter implies that PB reflects a grandiose sense of personal importance and uniqueness (Pérez Navarro and Martínez Guerra, 2020). Given the inconsistent nature of prior research and the exploratory focus of this paper, future studies should further evaluate how the interrelationship between PB and Self-Esteem impacts wellbeing. This is particularly significant since, in the present study, PB and Self-Esteem are connected differently to Schizotypy, Meaning in Life, Coping, and Life Satisfaction. Specifically, Self-Esteem linked directly to Active Coping (positive), Meaning in Life (presence, positive; search, negative), and Avoidant Coping (negative). Satisfaction with Life linked directly with Presence (positive) and Search (negative). Regarding CT, this strongly connected with PB (the bridging node) and directly linked to Cognitive-Perceptual and Search. Similarly, Search linked with Avoidant Coping, although weaker with Cognitive-Perceptual. Examining the correlations for PB and CT, both constructs displayed similar relationships with Schizotypy, Search, Active Coping, Avoidant Coping, and Self-Esteem. The analysis indicated differences on Presence (PB showed a small positive association while CT showed no relationship) and Satisfaction with Life (PB showed no relationship while CT exhibited a small negative association). Differences on Meaning in Life are conceptually significant because research has shown that these two dimensions relate to different health outcomes. Presence is connected to positive factors such as life satisfaction and is inversely linked to negative aspects (e.g., depression) (Steger et al., 2006). Search is associated with decreased wellbeing and negative emotions (e.g., sadness and rumination) (Dakin et al., 2021). In the case of PB, Presence mitigates the negative outcomes linked to Search (Newman et al., 2018). The lack of an association between CT and Presence suggests that this does not apply to belief in conspiracies. This possibly explains why, despite

the relationship being weak, CT was negatively associated with Satisfaction with Life.

Limitations Since the inclusion of other psychological constructs may influence the system, readers should limit conclusions to the variables considered within the proposed network. Therefore, future investigations should build on the present paper by incorporating related factors. This will enable researchers to evaluate the strength of weak and moderate interrelationships. Simultaneously, to ensure network stability and generalisability, researchers should test the network across various samples. Through this process, analyses will determine centrality indices. Although scholars have previously used NA in the field of individual differences and psychopathology, this approach is novel compared to established statistical methods. Consequently, reliability and fit tests are being developed. To ensure that findings are robust, investigators should conduct further analysis using complementary, established analytical techniques (e.g., latent variable analysis and multidimensional models; Prisciandaro and Roberts, 2009). Consistent with Dagnall et al. (2022a), this study illustrates how the application of NA to PB research furthers psychopathological and clinical understanding. Moreover, NA can also enable researchers to test, refine, and advance emerging belief-based wellbeing models. From a design perspective, the use of a cross-sectional approach limits the generalisability of findings. Data collected at one point provides only a temporally restricted snapshot of the variables under observation. Consequently, despite highlighting nuanced associations between constructs, it is not possible to infer causation. This can only be achieved using experimental and/or longitudinal designs. Indeed, multiple measurements of factors allow investigators to establish stability in constructs and measurements, observe changes over time, and determine cause and effect. Correspondingly, the use of NA does not establish the direction of the relationship. Instead, the authors' suppositions derive from inferences based on theoretical knowledge, previous research, and existing evidence, specifically that schizotypy is trait-based (see Ericson et al., 2011), PB is stable over time (Drinkwater et al., 2024), and investigators typically operationalize wellbeing as a consequence or outcome (Dagnall et al., 2022b). Using Cohen's (2013) guidelines for relationship strengths, several statistically significant correlations observed in this study were found to be negligible or small. While scholars frequently reference these guidelines, critics argue that they are overly stringent. One concern is that the suggested classifications are based on qualitative impressions rather than rigorous analysis. The authors acknowledged this and adopted the recommendations of Gignac and Szodorai (2016): 0.10 for small, 0.20 for medium, and 0.30 for large. These classifications were considered more appropriate as they were derived from large-scale metaanalyses of published results. Since the study was exploratory in nature, readers should interpret the outcomes with caution. While some of the reported relationships align with those found in established literature (e.g., connections between PB, CT, and Schizotypy), others remain underresearched (i.e., variations in factors related to positive wellbeing based on belief type). Thus, researchers should conduct further studies to replicate and expand on the observed outcomes. This should involve considering believers as heterogeneous, especially whether specific Cognitive-Perceptual and affective personality factors affect the relationship between PB and wellbeing/ psychological adjustment. Furthermore, future investigations should utilize a broader range of positive wellbeing measures. Although the researchers evaluated established wellbeing factors in the paper, the constructs examined represented only a limited array of psychological outcomes.

EIGHTEEN.

Measuring belief in conspiracy theories: the generic conspiracist beliefs scale.

The psychology of conspiracy theory beliefs is not yet well understood, although research indicates that there are stable individual differences in conspiracist ideation – individuals' general tendency to engage with conspiracy theories. Researchers have created several short self-report measures of conspiracist ideation. These measures largely consist of items referring to an assortment of prominent conspiracy theories regarding specific realworld events. However, these instruments have not been psychometrically validated, and this assessment approach suffers from practical and theoretical limitations. Therefore, we present the Generic Conspiracist Beliefs (GCB) scale: a novel measure of individual differences in generic conspiracist ideation. The scale was developed and validated across four studies. In Study 1, exploratory factor analysis of a novel 75-item measure of non-eventbased conspiracist beliefs identified five conspiracist facets. The 15-item GCB scale was developed to sample from each of these themes. Studies 2, 3, and 4 examined the structure and validity of the GCB, demonstrating internal reliability, content, criterion-related, convergent and discriminant validity, and good test-retest reliability. In sum, this research indicates that the GCB is a psychometrically sound and practically useful measure of conspiracist ideation, and the findings add to our theoretical understanding of conspiracist ideation as a monological belief system unpinned by a relatively small number of generic assumptions about the typicality of conspiratorial activity in the world.

INTRODUCTION.

A conspiracist belief can be described as “the unnecessary assumption of conspiracy when other explanations are more probable” (Aaronovitch, 2009, p. 5). Substantial numbers of people endorse conspiracy theories proposing that the U.S. government orchestrated the 9/11 terrorist attacks (Stempel et al., 2007; Swami et al., 2010), that the British government is covering up its own role in the 7/7 bombings (Soni, 2007), and that the assassination of President John F. Kennedy was not the work of Lee Harvey Oswald alone (Goertzel, 1994; McHoskey, 1995), to name but a few popular conspiracy theories (see McConnachie and Tudge, 2008). Such beliefs are usually unsubstantiated and implausible, but are often regarded as harmless (e.g., Clarke, 2002). Yet some conspiracy theories are associated with negative outcomes; conspiracist beliefs about the origin and treatment of HIV/AIDS have been found to detrimentally affect attitudes toward preventative measures and adherence to treatment programs (Bogart et al., 2010), and conspiracist fears concerning the safety of childhood vaccinations have played a role in declining vaccination rates (Salmon et al., 2005; Kata, 2010; Offit, 2011). Other conspiracy theories can lead to social and political disengagement (Butler et al., 1995; Jolley and Douglas, 2013) and may help to foster political extremism (Bartlett and Miller, 2010). To date only a small handful of studies have begun to investigate the formation and maintenance of conspiracy beliefs, largely examining the role of individual differences in broad personality traits and cognitive styles (e.g., Goertzel, 1994; McHoskey, 1995; Abalakina-Paap et al., 1999; Lemán and Cinnirella, 2007; Douglas and Sutton, 2008, 2011; Swami et al., 2010, 2011, 2013; Darwin et al., 2011; Swami, 2012). The handful of available findings suggests that conspiracist beliefs are linked with traits such as low interpersonal trust, paranoia, and receptivity to other unusual beliefs. The relationships between conspiracy beliefs and more established psychological measures or general models of personality are largely unknown. Some research has examined correlations between conspiracist ideation and the Big-5. Weak but significant relationships have been reported with higher openness and lower

agreeableness, however some studies have failed to replicate these relationships (see Swami et al., 2010, 2011, 2013; Swami and Furnham, 2012). One robust finding to emerge from the limited existing literature is that individuals who endorse one conspiracy theory tend to endorse others, including unrelated theories (Goertzel, 1994; Swami et al., 2010, 2011, 2013), fictitious theories made up by psychological researchers (Swami et al., 2011), and even mutually contradictory theories (Wood et al., 2012). In total, these findings suggest that endorsement of conspiracy theories is not exclusively a result of rational evaluation of the evidence relating to each specific conspiracist claim; rather it appears there are stable individual differences in the general tendency to engage with conspiracist explanations for events. This trait has been termed “conspiracist ideation” (Swami et al., 2011).

Much more research is required to illuminate the psychology of conspiracist ideation, and the number of recent publications on the topic (e.g., Leman and Cinnirella, 2007; Douglas and Sutton, 2008, 2011; Bogart et al., 2010; Swami et al., 2010, 2011, 2013; Darwin et al., 2011; Newheiser et al., 2011; Swami, 2012; Wood et al., 2012; Jolley and Douglas, 2013) suggests that research is gaining momentum. However, research is limited by the lack of a validated measure of individual differences in conspiracist ideation. To produce a coherent body of research it is necessary to devise a valid and psychometrically sound measure which can be used across a variety of empirical contexts.

PREVIOUS APPROACHES TOWARD MEASURING CONSPIRACIST BELIEFS Several scales have been created in an attempt to measure individual differences in conspiracist ideation. The dominant approach has been to devise a short self-report questionnaire assessing belief in a small number of conspiracy theories concerning real-world events and situations. Measures have consisted of between six and thirty items with each item referring to a specific currently popular claim of conspiracy. Common subjects include the assassination of President John F. Kennedy, the spread of HIV/AIDS, and the moon landing (Goertzel, 1994; Abalakina-Paap et al., 1999; Leman and Cinnirella, 2007; Darwin et al., 2011; Douglas and Sutton, 2011; Swami et al., 2013). Participants rate their endorsement of each item on a Likert-type rating scale ranging from certain disbelief to certain belief. There has been little attempt to assess the psychometric properties of any existing measure; most studies have employed novel measures, with little consideration of the psychometric properties of the measure beyond noting the value of Cronbach’s alpha. In addition, no measure has yet been adopted by researchers other than the original authors. This situation presents practical and theoretical problems. Despite the apparent homogeneity of this approach toward measuring conspiracist ideation, idiosyncrasies in item content could influence participant responses. Each scale represents a unique sub-set of currently prominent conspiracy theories; for example, climate-change conspiracy theories feature in some scales (Douglas and Sutton, 2011) but not others (Swami et al., 2010). In addition, items from different scales referring to the same conspiracy theories may not be directly comparable due to differences in wording. Consider two items concerning conspiracy theories alleging the cover-up of extraterrestrials: “Governments are suppressing evidence of the existence of aliens” (Douglas and Sutton, 2011; Wood et al., 2012), and “Area 51 in Nevada, U.S., is a secretive military base that contains hidden alien spacecraft and/or alien bodies” (Swami et al., 2010). Although both items implicitly refer to the same theory, the differences in tone and specificity may systematically bias responses. It is possible therefore that existing scales do not produce equivalent or directly comparable measures of conspiracist ideation. This practical problem could be resolved if researchers adopted a single standardized measure. However, any such measure would likely be unsuitable for cross-cultural research as responses may be confounded by the cultural familiarity and relevance (or lack thereof) of the selected theories (Byford, 2011). For

example, conspiracy theories concerning the July 7, 2005, bombings in London are relatively well-known within the U.K., but are likely to be less familiar elsewhere. In addition, such a measure would require modification over time as particular conspiracy theories fade from popular awareness and new theories arise in response to world events. A more fundamental theoretical problem is that existing scales assess attitudes toward a limited number of specific conspiracy theories, yet their intended purpose is to provide a measure of individuals' generalized tendency toward conspiracy theorizing. A successful measure of this overall conspiracist ideation ought to reflect the entire spectrum of conspiracism. However, any measure referring to specific conspiracy theories faces the problem of selecting a small and arbitrary sub-set of real-world conspiracy theories out of a virtually infinite pool, with the assumption that the selected items are representative of the individual's overall level of conspiracist ideation. While there is evidence that conspiracist ideation is a unidimensional construct (Goertzel, 1994; Swami et al., 2011; Wood et al., 2012), the content validity of short and potentially unrepresentative measures has thus far gone untested.

MEASURING GENERIC CONSPIRACIST BELIEFS

The issues discussed so far raise concerns over the comparability and generalizability of the handful of existing psychological findings, and the theoretical validity and practical utility of any measure which explicitly refers to prominent real-world conspiracy theories. An alternative and preferable approach toward measuring conspiracist ideation may be to assess generic conspiracist beliefs (GCB). Recent theoretical advances suggest that beliefs in specific conspiracy theories are a product of a smaller set of more GCB. Wood et al. (2012) demonstrated that endorsement of various specific conspiracy theories about the death of Osama Bin Laden is predicted by acceptance of the more general claim that the U.S. government is hiding some important information about the Bin Laden raid. Thus, assessing an individual's attitude toward a single generic statement can provide a valid and economical indication of beliefs about numerous specific conspiracy theories. It would be possible to produce a yet more generic scale item concerning the more abstract idea that governments routinely hide information about the deaths of public figures in order to deceive the public. Endorsement of this abstract claim would presumably provide a valid indication of an individual's beliefs about many popular governmental assassination conspiracy theories, such as those concerning Osama Bin Laden, Princess Diana, and President John F. Kennedy. To take another example, rather than referring explicitly to conspiracy theories of the 9/11 attacks, a non-specific item would have individuals rate their acceptance of the more generic belief that conspiracy within governments to secretly perpetrate terrorist activities on their own citizens is commonplace. In sum, a scale which samples a representative range of these kinds of GCB would assess individuals' beliefs about the typicality of conspiratorial activity in the real world removed from the context of specific historical events. Taking this generic, non-event-based approach toward measuring conspiracist ideation can potentially overcome the previously mentioned theoretical and practical problems associated with measures referring to specific popular conspiracy theories. While constructing a measure which refers to specific real-world conspiracy theories necessitates arbitrarily selecting a small sub-set of conspiracy theories and thus compromising content validity, a generic measure could represent the entire spectrum of conspiracist ideation in an economical way by identifying and reflecting the most important generic beliefs which support beliefs in numerous specific conspiracy theories. While a measure referring to currently popular conspiracy theories will require modification as fashions in popular conspiracy theorizing change, a generic measure will remain an appropriate measurement device over time. In addition, by decontextualizing conspiracist beliefs, a generic measure can provide a measurement device suitable for any sample population. To date, no measure of conspiracist ideation has been designed from the bottom-up, endeavoring to first

identify the most important facets of conspiracism which a successful measure should represent, and to provide a measure which represents these facets. Our research was designed to produce such a measure.

GENERAL DISCUSSION.

The aim of this research was to create and validate a novel measure of individual differences in conspiracist ideation. Previously the dominant approach toward measuring conspiracist beliefs has involved assessing attitudes toward a small number of arbitrarily selected event-based conspiracy theories (e.g. Goertzel, 1994; Abalakina-Paap et al., 1999; Leman and Cinnirella, 2007; Swami et al., 2010; Darwin et al., 2011; Douglas and Sutton, 2011). Numerous scales have been devised, yet there has been little attempt to validate the various measures or to adopt a single measurement device, and there are concerns over the theoretical validity and practical utility of this general approach. To overcome these problems we elected to devise a measure which assesses acceptance of the generic assumptions which support belief in specific conspiracy theories. Study 1 identified five facets of generic conspiracism through exploratory factor analysis: belief in routine governmental malfeasance; belief in the existence of MG conspiracies; belief in the existence and cover-up of extraterrestrials; concerns over the unethical CI; and belief in conspiracies infringing on PW and liberty. The existence of these dimensions is not inconsistent with other research which has found conspiracist ideation to be unidimensional (e.g., Goertzel, 1994; Swami et al., 2010; Wood et al., 2012; Bruder et al., 2013). Indeed, in the present research, the five identified dimensions of conspiracism were highly intercorrelated. We argue that the five identified facets reflect a small set of intercorrelated conspiracist assumptions which collectively serve to promote and sustain beliefs in individual conspiracy theories, resulting in a coherent network of specific conspiracist beliefs. Based on the findings of Study 1, the GCB, a short measure sampling from each of the five identified facets of conspiracism, was produced. Studies 2, 3, and 4 provide evidence of the reliability, content, criterion, convergent, and discriminant validity of this novel measure. The results of confirmatory factor analysis reported in Study 2 demonstrated that the intended five-factor structure is retained in the 15-item GCB, ensuring that each important facet of conspiracism is successfully reflected in the measure. Overall GCB scores correlated strongly with scores on a measure of belief in various event-based conspiracy theories (the BCTI; Swami et al., 2010), as well as measures assessing belief in three specific conspiracy theories (9/11 theories, 7/7 theories, and fictitious Red Bull theories: Swami et al., 2010, 2011). The factor intercorrelations mean that in practical use the GCB can be considered a unidimensional measure; however, Study 2 also presented evidence that the individual factors may differentially predict endorsement of certain event-based conspiracy theories, to the extent that certain theories reflect certain facets of conspiracism to a greater or lesser degree. In sum, these findings indicate criterion-related validity; that is, that the five generic beliefs assessed by the GCB successfully predict endorsement of various real-world conspiracy theories. Study 3 provided further evidence of criterion-related validity, finding GCB scores to predict general belief in various event-based conspiracy theories using an independent sample of the general public. In addition, and largely consistent with previous findings, GCB scores correlated with other related measures including low interpersonal trust, anomie, delusional ideation, paranormal belief, as well as conscientiousness (Goertzel, 1994; Darwin et al., 2011; Swami et al., 2011). Study 4 demonstrated that GCB scores were independent of unrelated psychological constructs including sensation seeking, emotional intelligence, extraversion, and neuroticism. Together, Study 3 and 4 indicate that the GCB possesses convergent and divergent validity. It should be noted that the self-selection recruitment methods used in the current research may

have resulted in unrepresentative samples; however we do not believe this to be the case. In Study 1, 3, and 4, efforts were made to recruit general-population samples diverse in terms of age, nationality, and beliefs. Study 2 allowed these samples to be compared with a sample of university students, as is typical of most psychological research. The GCB demonstrated acceptable psychometric properties when used with university students as well as when used with a self-selected sample drawn from the general population. Consistent with previous research, on the whole our samples indicated modest skepticism toward the existence of conspiracies (e.g., Goertzel, 1994; Abalakina-Paap et al., 1999; Swami et al., 2010, 2011). In addition, the relationships between the GCB and other psychological constructs were largely consistent with previous findings (e.g., Goertzel, 1994; Swami et al., 2010, 2011, 2013; Darwin et al., 2011). Our findings show the GCB to be psychometrically at least as useful as any existing measure of conspiracist ideation which refers to specific event-based conspiracy theories (e.g., Goertzel, 1994; Swami et al., 2010; Douglas and Sutton, 2011). Given the strength of the relationships between the GCB and the BCTI (Swami et al., 2010), which refers to specific real-world conspiracy theories, it may be the case that either measure is equally useful when looking at a range of relatively homogeneous, particularly British and American, samples. However, the GCB has important advantages over these measures. By sampling from the entire range of universal and unchanging assumptions from which all specific conspiracy theories arise we have ensured content validity. In addition, by removing the context of particular historical events, the GCB offers a measurement device potentially suitable for more diverse sample populations and which will endure over time despite changing trends in popular conspiracy theorizing. We believe these practical benefits make the GCB a preferable measurement device for researchers wishing to assess conspiracist ideation. Given the extent to which the results of exploratory factors analysis depend on the items which are created as input, it may have been possible to identify different facets of conspiracism by beginning with a different list of generic items. In Study 1, we aimed to reflect a wide range of the most popular conspiracy theories commonly discussed in the popular and academic literature. We believe the five facets we identified faithfully reflect the spectrum of popular conspiracy theorizing in Western cultures. However, different groups or cultures may be preoccupied with different types of conspiracy theories. In light of this, other measures of generic conspiracist ideation may be preferable in some contexts. Efforts to produce even more generic conspiracist measures than the GCB are underway (Bruder et al., 2013). The GCB specifies the content and objectives of some conspiracies (e.g., the suppression of new technology) while remaining nonspecific about any entities or events involved in the conspiracies. In contrast, Bruder et al.'s Conspiracy Mentality Questionnaire (CMQ) remains largely non-specific in regards to both objectives and entities or events, with the exception of referring to specifically political conspiracies. Both approaches may have advantages and limitations in certain contexts. The relatively more generic approach of the CMQ may have particular advantages when studying non-Western and non-democratic cultures. Future research may seek to compare measures of conspiracist ideation across different cultures directly. In addition to providing a validated measure of conspiracist ideation, the present findings also enhance our theoretical understanding of belief in conspiracy theories. Wood et al. (2012) demonstrated that relatively generic beliefs are important antecedents of specific conspiracy beliefs. The current findings extend upon this, identifying five underlying conspiracist beliefs and showing that these generic assumptions about the world strongly predict endorsement of various specific conspiracy theories. This is consistent with the idea that conspiracist ideation is a monological belief system (Goertzel, 1994; Wood et al., 2012) in which beliefs in many individual conspiracy theories are supported by relatively generic convictions such as the belief that governments

routinely harm and deceive their citizens. Given the intercorrelations between the five conspiracist facets observed here, it is feasible that these convictions are themselves a product of even more abstract ideas, such as an essential distrust of authority. While it may be possible to construct a measure which aims to tap into these abstract sentiments, it is our opinion that the most successful measure of conspiracist ideation will be one which achieves an appropriate balance between specificity and abstractness, as we feel we have achieved with the GCB. In sum, we believe our findings show that the GCB is a successful and psychometrically valid measure of individual differences in conspiracist ideation. The GCB has a number of advantages over existing measures of conspiracist ideation, making it a preferable measurement device for use in future research. The psychology of conspiracist beliefs is thus far a relatively under-researched topic, but recently it appears that more psychologists are turning their attention to conspiracy theories (Leman and Cinnirella, 2007; Douglas and Sutton, 2008, 2011; Bogart et al., 2010; Swami et al., 2010, 2011, 2013; Newheiser et al., 2011; Swami, 2012; Wood et al., 2012; Jolley and Douglas, 2013). It is our hope that the GCB will provide researchers wishing to assess individual differences in conspiracist ideation with a measurement device which can be used across a wide variety of empirical contexts, resulting in a consolidated and cohesive body of research.

NINETEEN.

Does lack of control lead to conspiracy beliefs? A meta-analysis.

Abstract Perceived lack of control is widely believed to motivate, at least partly, belief in conspiracy theories. We question the theoretical foundations of this belief and metaanalyze existing published and unpublished studies to assess the overall effect of lack of control on conspiracy beliefs. The overall effect was small and not statistically significant ($d = -0.05$), and was not moderated by comparison group (baseline vs. control affirmation), type of manipulation used to threaten control, inclusion of a manipulation check, or sample type. However, the predicted effect of control was more likely to be observed when beliefs were measured in terms of specific conspiracy theories, rather than as general or abstract claims. Overall, the present studies to date offer limited support for the hypothesis that conspiracy beliefs arise as a compensatory control.

1 | INTRODUCTION Conspiracy theories, such as the belief that a secretive organization called the New World Order is ruling the world from the shadows, or that the sky is sprayed with harmful chemicals, are becoming increasingly prominent (Collins, 2018). The reasons are multiple: the Internet has vastly increased the ease with which information can be spread, without a corresponding increase in the vetting of information for accuracy (Sharma, Yadav, Yadav, & Ferdinand, 2017); the structure and business models of many social media companies limit exposure to disconfirming information; popular books and movies have shifted fringe theories to the mainstream and increased their social acceptability (KelleyRomano, 2008); trust in authority and expertise has eroded (Stevens, 2019; Tsipursky, 2018). Conspiracy beliefs' migration from the periphery to the mainstream has, however, been accompanied by a growing awareness among researchers of their potentially harmful effects, both for individuals and for societies (Bilewicz, Winiewski, Kofta, & Wójcik, 2013; Douglas & Sutton, 2015, 2018; Jolley, Douglas, Leite, & Schrader, 2019; Jolley, Meleady, & Douglas, 2019), and a growing interest in understanding them (Douglas et al., 2019). Some researchers have explored the motivational roots of conspiracy theory beliefs (Douglas, Sutton, & Cichocka, 2017), proposing links, for example, with the need to see the world as structured and ordered (Landau, Kay, & Whitson, 2015), an idea crystalized in compensatory control theory (Kay, Gaucher, Napier, Callan, & Laurin, 2008). According to the theory, when personal control, people's primary means to perceive the world as ordered and non-random, is frustrated, they will resort to compensatory means of re-establishing order, such as believing in a controlling God (Laurin, Kay, & Moscovitch, 2008), a highly competent government (Shepherd, Kay, Landau, & Keefer, 2011), or even more abstract beliefs such as in meritocracy (Goode, Keefer, & Molina, 2014). From this perspective, despite their often malevolent assumptions, conspiracy theories are an effective means of making sense of events that threaten order (Whitson & Galinsky, 2008). The idea has gained traction among researchers and even in popular culture, featuring recently in documentary series (Pichaske & Alpert, 2020), books (Brotherton, 2015; van Prooijen, 2018) and articles on conspiracy theory beliefs (Oaklander, 2015; Shermer, 2014; Yong, 2008). It is timely to consider formally the strength of the experimental evidence for this claim, especially as it does not follow straightforwardly from compensatory control theory.

1.1 | Control and conspiracy beliefs An argument can be made that conspiracy theory beliefs are not, in principle, well suited to function as a compensatory control mechanism. First, conspiracy theories, by accounting for errant data, connecting seemingly unconnected events, and leaving nothing unexplained (Clarke, 2002; Keeley, 1999), provide too much order and structure. According to compensatory control theory people seek an optimal sense of

control, not a maximum, and Kay and Sullivan (2013) suggest that too much structure is just as aversive as too little. Second, because the conspirators are malevolent by definition (van Prooijen, 2018) and belief in conspiracy theories is accompanied by social stigma (Lantian et al., 2018), they are neither “socially acceptable” nor “culturally accessible”—two important criteria for an effective compensatory control mechanism (Kay & Sullivan, 2013). The reliance on conspiracy theory beliefs is particularly dubious given the multitude of alternative, benevolent, non-stigmatizing, proven substitutes for personal control, such as belief in social progress or in competent authorities (Shepherd et al., 2011). Even if these alternatives are not all equally effective at establishing a sense of control, conspiracy theories would seem to be an option of last resort.

1.2 | The current study Although the claim that conspiracy theories compensate for threatened control has dubious theoretical validity, does it have empirical support? In the current study, we review and meta-analyze the currently available evidence. In addition, we examine potential moderators such as operationalization of conspiracy beliefs, type of experimental manipulation, presence or absence of manipulation check, comparison group, and participant sample. We also examine publication bias by comparing the overall effect of published and unpublished studies.

4 | DISCUSSION.

The current study is the first attempt to systematically review and evaluate the available experimental evidence for conspiracy beliefs as a compensatory control mechanism. The results of our meta-analysis offered very little support for that hypothesis: the overall effect size was -0.05 , not different from chance, and was not strongly moderated by any of several obvious contenders. The most promising moderator was the nature of the dependent variable, with a significant effect detected for specific theories, but not for generic conspiracy beliefs. We can only speculate about the cause of this difference, but one possibility is that generic conspiracy belief reflects a relatively stable personality trait that is insensitive to momentary threats to control. Indeed, Imhoff (2015) argues that conspiracy mentality, unlike belief in specific conspiracy theories, is a relatively robust individual difference. Another possibility is that generic beliefs are too broad for compensatory control purposes, which might require a more specific wrongdoer as a focal point. Looking more closely at specific conspiracies only, for which the effect was significant, the effect appeared to be more likely to be observed if the design did not use a manipulation check (although the difference between studies including vs. excluding a manipulation check was not significant). Future studies should explore this trend further; if robust it could prove both methodologically and theoretically important. It is worth nothing, though, that even the effect observed for specific conspiracy theories is weak, suggesting a limited role for lack of control. Compared to the empirical distribution of effect sizes (Funder & Ozer, 2019; Lovakov & Agadullina, 2017; Richard, Bond, & Stokes-Zoota, 2003) it does not even qualify as a small effect size. Moreover, the p-curve analysis did not demonstrate right skew, suggesting that the significant findings are most likely due to chance. Overall then, the prospects for finding a significant experimental effect of control on conspiracy theory beliefs are not promising. The focus of this meta-analysis was experimental studies manipulating perceived control; correlational data were deliberately omitted. In fact, it appears that the correlational evidence for a negative link between feelings of control and conspiracy beliefs is more robust than the experimental evidence (e.g., Abalakina-Paap, Stephan, Craig, & Gregory, 1999; Jolley & Douglas, 2014a; 2014b; Moulding et al., 2016.) This discrepancy could have several explanations. First, there is some evidence that the causal relationships between control and conspiracy beliefs is the opposite of that implied by the experimental research reviewed here. For example, in one study, participants exposed to pro-conspiracy material,

compared to those exposed to anti-conspiracy material, scored higher on a measure of political powerlessness (Jolley & Douglas, 2014a). Similarly, Douglas and Leite (2017) found that participants were more disengaged (i.e., showed higher turnover intentions) after they were experimentally exposed to organizational conspiracy theories. Second, the discrepancy may lie in the operationalization of perceived control. The construct of “control” has multiple dimensions and interpretations (Chipperfield, Perry, & Stewart, 2012), and it is possible that different “domains” of control have been examined in experimental versus correlational studies. Indeed, most of the correlational studies in the literature focus on political powerlessness, whereas the experimental studies have mostly manipulated general personal control. A recent experimental study that manipulates political powerlessness found an effect on Jewish conspiracy theories (Kofta, Soral, & Bilewicz, 2020). Some researchers (e.g., Imhoff & Lamberty, 2018) offer evidence that conspiracy beliefs are related to political powerlessness, whereas paranoid beliefs are related to personal control. Future studies could certainly systematically test this and other possibilities for reconciling the fact that “control” appears to predict, but not cause, conspiracy thinking. Although the evidence from existing research offers very limited support for the compensatory control hypothesis, it is too soon to reject it. Many experimental manipulations of control have dubious validity. The most common experimental technique—asking participants to recall an uncontrollable situation—is transparent and vulnerable to experimenter demand (Orne, 2009). Even if a change in perceived control is genuine in this paradigm, it is in principle unstable: if a participant’s sense of control can be altered merely by imagining an uncontrollable situation, it should be rectified just as easily, for example by spontaneously recruiting additional, compensatory cognitions. Indeed, some researchers have proposed that simply asking participants about their feelings of control (e.g., in a manipulation check) is sufficient to undo any threat their previous recall produced (Hauser et al., 2018), a trend evident in our data as well. Even at their best, laboratory manipulations that require participants to imagine past threats are likely to pale in comparison to the situations that actually caused the threats. To our knowledge there is no study of such “natural” threats to control, and such a study would be an important complement to the experimental literature. It is important to acknowledge other limitations of the current analyses as well. Although we made every attempt to locate all relevant experimental data, it is possible that we did not identify all the existing records. Furthermore, although the number of studies in the analysis is well within the norm (50% of meta-analyses in the social sciences include fewer than 32 studies; Tipton, 2015), it is still a relatively small absolute number, and conclusions about moderating variables in particular are limited. To conclude, this is the first study to systematically examine the available experimental evidence for the thesis that lack of control leads to conspiracy beliefs. The current literature, both published and unpublished, offers very limited support for the hypothesis that conspiracy theory beliefs are a compensatory control mechanism, with the most promising moderator being the nature of the dependent measure: there was a significant (albeit weak) effect of control manipulation only when conspiracy beliefs were operationalized in terms of specific conspiracies. If conspiracy beliefs are indeed in part a result of compensatory control processes, the experimental studies so far have not convincingly demonstrated it.

TWENTY

Belief in conspiracy theories: Basic principles of an emerging research domain.

Abstract.

In this introduction to the EJSP Special Issue on conspiracy theories as a social psychological phenomenon, we describe how this emerging research domain has developed over the past decade and distill four basic principles that characterize belief in conspiracy theories. Specifically, conspiracy theories are consequential as they have a real impact on people's health, relationships, and safety; they are universal in that belief in them is widespread across times, cultures, and social settings; they are emotional given that negative emotions and not rational deliberations cause conspiracy beliefs; and they are social as conspiracy beliefs are closely associated with psychological motivations underlying intergroup conflict. We then discuss future research and possible policy interventions in this growing area of enquiry.

Social media and the Internet are filled with conspiracy theories. These theories range from highly implausible in light of logic or scientific knowledge (e.g., chemtrail conspiracy theories; flat-earth conspiracy theories) to theoretically possible or even plausible (e.g., allegations that secret service agencies routinely violate privacy laws). In fact, conspiracy theories sometimes turn out to be true (e.g., Watergate; incidents of corporate corruption), although the vast majority of conspiracy theories that citizens have believed throughout history have been false (Pipes, 1997). Conspiracy theories are commonly defined as explanatory beliefs about a group of actors that collude in secret to reach malevolent goals (Bale, 2007). What drives belief in such conspiracy theories? While in earlier decades belief in conspiracy theories often was dismissed as pathological (Hofstadter, 1966), accumulating evidence reveals that conspiracy theories are common among surprisingly large numbers of citizens (Oliver & Wood, 2014; Sunstein & Vermeule, 2009). The potential impact and breadth of conspiracy theories was underscored in 2016, when Donald Trump was elected US President despite propagating a range of highly implausible conspiracy theories throughout his campaign. These theories included allegations that climate change is a hoax perpetrated by the Chinese, that Barack Obama was not born in the US, and that vaccines cause autism. The social sciences have increasingly recognized the importance of understanding conspiracy beliefs, and empirical research on this phenomenon has proliferated in the past decade (for overviews, see Douglas, Sutton, & Cichocka, 2017; Van Prooijen, 2018; Van Prooijen & Van Vugt, in press). The current Special Issue was designed to showcase the study of belief in conspiracy theories as an emerging research domain within social psychology. In putting this issue together, we specifically aimed to capitalize on the momentum that the scientific study of conspiracy theories is currently having, and to give a second generation of conspiracy theory researchers within our field the opportunity to disseminate their novel findings to a professional audience. To introduce this Special Issue, in the present paper we (i) illuminate how the study of conspiracy theories has developed from an unusual object of study to an increasingly expanding research domain over the past few years, and (ii) distill four basic principles that have emerged from past research, in particular that conspiracy beliefs are consequential, universal, emotional, and social. Each of the contributions to this Special Issue considers at least one of these principles. We conclude by proposing a novel research agenda and policy interventions based on these four principles.

Conclusions, Future Research, and Practical Implications In the present contribution, our aims were to review the literature of the emerging research domain of conspiracy theories, and to

distill four basic principles that characterize belief in such theories. These four basic principles follow from a surge of empirical research on this phenomenon that has been conducted in the past decade, and also are reflected in the contributions to this Special Issue. At the same time, more theorizing and research is needed to further develop the psychology of conspiracy theories as a fully-fledged research field. In the following section, we propose some possibilities for future research based on these four organizing principles. Future Research Focusing first on consequences, whilst it is clear that conspiracy beliefs can have major ramifications for perceivers and their social environment, theorizing on this phenomenon would benefit from more carefully crafted experiments that manipulate conspiracy theories (cf. Douglas & Leite, 2017; Jolley & Douglas, 2014a,b). This would enable researchers to establish the exact psychological processes through which conspiracy theories are consequential. This is important, because only a fine-grained understanding of these possible consequences, as well as the conditions under which they are strong or weak, will enable practitioners to estimate the risks of particular conspiracy theories and the need to implement preventive interventions. Furthermore, in experimental studies of conspiracy theories, behavioral measurements are also lacking (for an exception, see Van der Linden, 2015). For instance, does exposure to conspiracy theories influence cooperative behavior in economic games? Likewise, do conspiracy theories causally impact antisocial behaviors such as aggression and egoism, but also prosocial behaviors such as helping and altruism? Experimental studies on such questions would complement existing insights on the consequences of conspiracy theories in significant ways. Next, whilst the available evidence supports the principle that conspiracy beliefs are universal, research needs to more directly and explicitly examine the distal, evolutionary roots of the human tendency to believe conspiracy theories. For instance, while anecdotes exist of conspiracy theories in contemporary hunter-gatherer societies (Chagnon, 1988), and ethnographic studies suggest that citizens in all cultures investigated so far believe conspiracy theories (West & Sanders, 2003), systematic research on conspiracy theories in traditional societies is currently lacking. The Adaptive Conspiracism Hypothesis asserts that conspiracy theories have been functional in ancient hunter-gatherer societies to protect against the perils of intergroup conflict (Van Prooijen & Van Vugt, in press). Such lethal intergroup conflict still characterizes many traditional societies: For instance, Walker and Bailey (2013) examined violence in 11 traditional societies in South America and found that an estimated average of 30% of adults in these societies dies through violence, mostly committed by hostile coalitions. Do citizens of violent traditional societies believe conspiracy theories more strongly than citizens of more peaceful traditional societies? And, how functional are conspiracy beliefs in traditional societies to cope with coalitional dangers, as for instance reflected in survival rates and offspring? While these questions appear to be the domain of evolutionary anthropology, they are important to understand why conspiracy theories are such a universal feature of human psychology. Next, research on the emotional roots of conspiracy belief is restricted to experimentally inducing experiences of threat (e.g., Jolley et al., 2018; Van Prooijen & Acker, 2015; Whitson & Galinsky, 2008) or to measuring threatening or emotional experiences (e.g., Jolley et al., 2018; Federico et al., 2018; Grzesiak Feldman, 2013). We would advocate more sophisticated methodologies to study emotions, and particularly recommend a physiological approach to understand the relationship between emotions and belief in conspiracy theories. For instance, the amygdala is commonly associated with threat experiences, and accordingly, bilateral amygdala volume has been found to predict people's tendency to justify the political system that they live in (Nam, Jost, Kaggen, Campbell-Meiklejohn, & Van Bavel, 2018). As such, brainimaging methodology could test the prediction that amygdala volume is associated with conspiracy thinking. Likewise, the dorsolateral prefrontal cortex (DLPFC) is associated with

higher-order cognitive processes such as analytic thinking (e.g., Sanfey, Rilling, Aronson, Nystrom, & Cohen, 2003), and research therefore might examine whether activation of this region predicts belief in, or rather skepticism of, conspiracy theories. Finally, research may examine if belief in conspiracy theories is related with activation of the sympathetic nervous system, or with the release of hormones associated with stress (i.e., cortisol) and intergroup competition (i.e., testosterone). Regarding the social aspects of conspiracy beliefs, a useful extension would be to focus on actual, real-life conflict between competing groups. While it has been noted that most wars in which humans have fought have been characterized by excessive conspiracy theorizing on both sides of the conflict, the evidence for this assertion comes mainly from historical sources (Pipes, 1997). As such, empirical research could examine conspiracy theories among existing groups that are involved in intractable, and sometimes violent conflict (e.g., Palestinians vs. Israelis). Predictions that would follow from existing research are that (i) many citizens on both sides of the conflict should have substantial conspiracy beliefs about covert activities of the enemy group, (ii) these conspiracy beliefs should be relatively stronger among members of the (military or politically) “weaker” group in the conflict, and (iii) these effects should be particularly pronounced among citizens with a strong ingroup identity. Furthermore, longitudinal designs to investigate how conspiracy beliefs develop over time are currently scarce (for exceptions, see Golec de Zavala & Federico, 2018; Vitriol & Marsh, 2018). For instance, assessing conspiracy beliefs at multiple time points—ideally, pre-conflict, during conflict, and post-conflict—would allow researchers to examine the temporal dynamics of the relationship between conspiracy beliefs and intergroup conflict. Such a longitudinal approach can also establish whether or not conspiracy beliefs cause intergroup conflict or vice versa, and what exact role conspiracy theories play in initiating or prolonging intergroup hostilities (cf. Bartlett & Miller, 2010). Finally, while our discussion of the social qualities of conspiracy beliefs has mainly focused on intergroup conflict, conspiracy beliefs are also social in the sense that they are highly susceptible to social influence. For instance, online communities selectively spread conspiracy theories that confirm the pre-existing beliefs of its members (Del Vicario et al., 2016). Furthermore, through cultural transmission conspiracy theories can turn into historical narratives among citizens, which may perpetuate even when the events that triggered the conspiracy theory are no longer salient or threatening (Van Prooijen & Douglas, 2017). An example is the assassination of President John F. Kennedy: Belief in JFK conspiracy theories within the US has increased over the decades. Given the number of people who believe in them (in recent figures still more than 60% of the US adult population; Swift, 2013), they are likely endorsed by many people who were not even born when JFK was assassinated. Yet, much is still unknown about how social influence shapes conspiracy beliefs. For instance, what determines if conspiracy theories spread to a large audience, and what makes them persuasive? What are the characteristics of “successful” conspiracy theories that people still believe years after the events that inspired them? Particularly in the current digital age where information spreads faster than ever before, examining social influence processes in conspiracy beliefs may be a promising avenue for future research.

Practical Implications An important task of psychology as a scientific discipline is to inform policy-makers how to responsibly influence the behavior of citizens based on empirical findings and theoretical insights. That conspiracy theories are consequential and universal underscores a need for interventions: If most of the consequences of conspiracy theories in modern societies are harmful, and if conspiracy theories are widespread in the population, policy-makers have good reason to take this phenomenon seriously. This does not imply, of course, that our society should abandon efforts to combat actual corruption, or that citizens should

uncritically accept any policy proposal of power holders. But, it does imply that many conspiracy theories are irrational yet impactful and harmful, and hence, it is functional to reduce belief in conspiracy theories that are unlikely to be true. That conspiracy theories are emotional and social offers practical tools for policy-makers to develop evidence-based interventions that help to reduce the appeal of conspiracy theories among citizens. First, because belief in conspiracy theories is to some extent rooted in emotions, interventions could instead promote analytic thinking among the public. Research indeed reveals that experimental manipulations designed to stimulate analytic thinking decrease conspiracy beliefs (Swami et al., 2014). Furthermore, providing rational arguments against specific conspiracy theories reduces belief in them (Orosz et al., 2016), and can improve behavioral intentions (Jolley & Douglas, 2017). This suggests that initiatives to refute implausible conspiracy theories (e.g., informing the public what actual experts and witnesses have to say about pseudo-scientific “9-11 for truth” conspiracy theories; Dunbar & Reagan, 2011) do make a difference. The second is to instill feelings of security among the public, and provide them with a sense of hope and empowerment. For instance, if experiencing a lack of control increases conspiracy beliefs, does experiencing empowerment, that is, a high sense of control, reduce conspiracy beliefs? Research suggests that this is indeed the case. Van Prooijen and Acker (2015) found reduced conspiracy beliefs after activating a high sense of control as compared to a neutral baseline condition. Likewise, Whitson, Kim, Wang, Menon, and Webster (in press) found similar effects of inducing a promotion focus in participants, and these effects were attributable to increased feelings of control. Future research may expand on the ameliorating effects of more discrete positive emotional experiences on conspiracy beliefs: For instance, are citizens less suspicious of governmental information messages that contain humor? And, are citizens more likely to develop conspiracy theories about pessimistic as opposed to optimistic leaders? For now, evidence suggests that interventions designed to increase analytic thinking and decrease negative emotions may effectively reduce conspiracy beliefs. While research focusing on the social dimension of conspiracy theories has not yet directly examined how these motivations may be utilized to reduce citizens’ belief in them, an extensive literature exists on how to reduce conflict between groups. For instance, under some circumstances intergroup contact has been found to improve intergroup relations (Allport, 1954). Based on these insights, research may for instance examine whether direct contact between politicians and citizens decreases belief in political conspiracy theories. Specifically, it might be beneficial for public trust if politicians regularly get out of parliament and discuss policy with citizens directly. In a related fashion, emphasizing a superordinate ingroup identity—for instance by engaging in cooperative tasks—may improve intergroup relations (Gaertner, Dovidio, Anastasio, Bachman, & Rust, 1993). This insight might be relevant for the observation that conspiracy beliefs are particularly prevalent among stigmatized minority groups (Crocker et al., 1999; Davis et al., 2018; Van Prooijen et al., in press). Furthermore, among majority group members many conspiracy theories exist in which minority groups are the suspected conspirators (e.g., Pipes, 1997). Efforts to reduce prejudice and discrimination hence are likely to decrease belief in conspiracy theories both among and about minority group members. While preliminary at this point, these considerations suggest that the social qualities of conspiracy theories provide promising avenues for policy interventions.

Concluding Remarks The scientific study of belief in conspiracy theories has developed rapidly in the past decade. This development has taken place in the wake of a growing public awareness that conspiracy theories are not exclusive to a few fringe groups or eccentric individuals, but are widespread and have a major impact on society. By organizing the present Special Issue, and by articulating the four basic principles of this research domain in the present contribution, we hope to further stimulate research and

inspire other researchers to start working on this important topic. As illuminated in our agenda for future research and policy interventions, there is still much unexplored territory to be discovered in the psychology of conspiracy theories, and scientists and policy-makers need to collaborate closely to address this phenomenon effectively. We hope that in the end, the empirical contributions to this Special Issue will contribute to decreased conspiracy thinking, and an increased emphasis on logic and reason, among citizens in our society.

TWENTY-ONE.

Connecting the dots: Illusory pattern perception predicts belief in conspiracies and the supernatural.

Abstract.

A common assumption is that belief in conspiracy theories and supernatural phenomena are grounded in illusory pattern perception. In the present research we systematically tested this assumption. Study 1 revealed that such irrational beliefs are related to perceiving patterns in randomly generated coin toss outcomes. In Study 2, pattern search instructions exerted an indirect effect on irrational beliefs through pattern perception. Study 3 revealed that perceiving patterns in chaotic but not in structured paintings predicted irrational beliefs. In Study 4, we found that agreement with texts supporting paranormal phenomena or conspiracy theories predicted pattern perception. In Study 5, we manipulated belief in a specific conspiracy theory. This manipulation influenced the extent to which people perceive patterns in world events, which in turn predicted unrelated irrational beliefs. We conclude that illusory pattern perception is a central cognitive mechanism accounting for conspiracy theories and supernatural beliefs.

People often hold irrational beliefs, which we broadly define here as unfounded, unscientific, and illogical assumptions about the world. Although many irrational beliefs exist, belief in conspiracy theories and belief in the supernatural are particularly prevalent among ordinary, nonpathological citizens, and are frequent topics of scientific research (Oliver & Wood, 2014; Sunstein & Vermeule, 2009; Swami et al., 2013; Wiseman & Watt, 2006). Conspiracy theories are commonly defined as the assumption that a group of people colludes together in secret to attain evil goals (e.g., Zonis & Joseph, 1994). While conspiracies can and do occur, and hence not all conspiracy theories are irrational (e.g., Watergate; The Iran-Contra-Affair), many conspiracy theories that citizens believe are unlikely in light of logic or scientific evidence, including theories that 9–11 was an inside job, that the pharmaceutical industry deliberately spreads diseases, or that climate change is a lie fabricated by scientists. Supernatural beliefs are defined as beliefs that violate scientifically founded principles of nature, including superstition, belief in the paranormal, horoscopes, and telepathy (Lindeman & Aarnio, 2007). Such irrational beliefs are not necessarily harmless. Belief in conspiracy theories predicts maladaptive perceptions and behaviors such as withdrawal from politics, decreased civic virtue, hostility, and radicalization (Abalakina-Paap, Stephan, Craig, & Gregory, 1999; Goertzel, 1994; Jolley & Douglas, 2014a, 2014b; Swami et al., 2011; Swami, Chamorro-Premuzic, & Furnham, 2010; Van Prooijen, Krouwel, & Pollet, 2015). Supernatural beliefs may lead people to consult spiritual healers instead of qualified medical specialists to treat dangerous illnesses, or to base important life decisions (e.g., whether to buy a house, or get a divorce) on information derived from horoscopes or a random draw of tarot cards (Asser & Swan, 1998; Ernst, 2000; Mazur, 2008; Nahin, Barnes, Stussman, & Bloom, 2009; Shermer, 2011). These considerations suggest that it is important to investigate how such beliefs originate in the human mind. In the present research we investigate the overarching cognitive basis of the many types of irrational beliefs that people hold. It has frequently been suggested that irrational beliefs are rooted in pattern perception, that is, the automatic tendency to make sense of the world by identifying meaningful relationships between stimuli (Zhao, Hahn, & Osherson, 2014). This is a functional process, as it enables people to recognize basic patterns that are real, and that are important to internalize (e.g., a red traffic light signals danger; drinking water quenches one's thirst; being unfriendly to a stranger may elicit an unfriendly response). Sometimes, however, there are

distortions to this otherwise functional process as people may connect dots that are in fact unrelated, leading to illusory pattern perception—misperceiving meaningful patterns in what are in fact random stimuli. Such illusory pattern perception emerges because people often have difficulty recognizing when stimuli do or do not occur through a random process. For instance, truly random sequences typically display less variation—and hence form more clusters—than people intuitively expect, creating the feeling of meaningful patterns that in fact occurred at random (Falk & Konold, 1997). Put differently, a random process often generates sequences that appear nonrandom to the human mind, and that may even contain occasional symmetries or esthetic regularities. As a result, it is difficult for people to appreciate the role of coincidence in generating these pattern-like sequences (Williams & Griffiths, 2013). But whereas co-occurring stimuli may be generated through either a nonrandom (i.e., actual patterns) or a random process, only nonrandomly generated stimuli can be considered meaningful as they have actual predictive value for what future stimuli the same process will generate. Illusory pattern perception occurs when people mistakenly perceive randomly generated stimuli as causally determined through a nonrandom process, and hence as diagnostic for what future stimuli to expect. A common assumption, then, is that illusory pattern perception is at the core of many of the irrational beliefs that people hold (e.g., Shermer, 2011; Wiseman & Watt, 2006; Whitson & Galinsky, 2008). Given how fundamental and widely accepted this assumption is, however, it is surprising how little direct empirical evidence there is available to support the role of illusory pattern perception in irrational beliefs in general, and particularly in the domain of conspiracy theories. The current program of research is designed to fill this void.

Illusory Pattern Perception and Irrational Beliefs

In numerous life domains, people make predictions of future outcomes by searching for patterns in random stimuli. For instance, illusory pattern perception shapes people's expectations during sports matches. In a study of the "hot hand in basketball", both spectators and players believed that the chance of players hitting a shot was related to the success of their previous shot. In reality, the relationship between hits and misses of succeeding shots by the same player did not statistically deviate from chance (Gilovich, Vallone, & Tversky, 1985). Related to this, habitual gamblers are more likely than non-habitual gamblers to detect patterns in random stimuli (Wilke, Scheibehenne, Gaissmaier, McCanney, & Barrett, 2014). Even pigeons seem subject to illusory pattern perception. In a classic study by Skinner (1948), hungry pigeons received food at regular time intervals, and as a result, the pigeons increasingly started doing whatever they were doing the last time that they received food. As noted by Skinner, "The experiment might be said to demonstrate a sort of superstition. The bird behaves as if there were a causal relation between its behavior and the presentation of food, although such a relation is lacking" (p. 171). Pattern perception thus enables people to predict an uncertain future by 'connecting the dots' and establishing meaningful relations between stimuli. Such predictions of future outcomes are also inherent in irrational beliefs, which are frequently construed as ways to cope with uncertain and complex life situations. One common proposition is that belief in conspiracy theories often constitutes attempts to understand distressing events that are difficult to understand otherwise (Hofstadter, 1966; see also Bale, 2007). Consistently, impactful and threatening societal events increase people's sense-making motivation—as reflected in feelings of worry and a desire to find out what happened—which subsequently increases belief in conspiracy theories (Van Prooijen & Van Dijk, 2014). In a similar vein, supernatural beliefs help people to make sense of their life and to predict the future. Supernatural beliefs have been argued to imbue the world with meaning and purpose, and therefore help people cope with the basic uncertainties that are inherent to life (e.g., Mazur, 2008; Shermer, 2011). These arguments suggest that irrational beliefs help people make sense of their world by increasing a

subjective sense of predictability, and pattern perception is a key element of this process. The desire to make sense of the world is of particular importance to people when they lack control (Park, 2010) or when they are uncertain (Van den Bos, 2009). Consistently, empirical findings reveal that people are particularly likely to believe conspiracy theories when they lack control or are uncertain (Newheiser, Farias, & Tausch, 2011; Marchlewska, Cichočka, & Kossowska, in press; Sullivan, Landau, & Rothschild, 2010; Van Prooijen, 2016; Van Prooijen & Acker, 2015; Van Prooijen & Jostmann, 2013; for a review, see Kossowska & Bukowski, 2015). Likewise, lacking control or experiencing feelings of uncertainty have been found to increase supernatural beliefs, in the form of superstition (Whitson & Galinsky, 2008), belief in horoscopes (Wang, Whitson, & Menon, 2012), and increased religiosity (Hogg, Adelman, & Blagg, 2010; Kay, Gaucher, McGregor, & Nash, 2010). These findings are consistent with the idea that irrational beliefs are rooted in pattern perception, as establishing relevant patterns makes an unpredictable, uncertain, and potentially threatening environment more predictable. Indeed, control threats have been found to increase the extent to which people misperceive patterns in randomness, and these findings closely mirrored the effects of control threats on irrational beliefs in consecutive experiments (Van Harreveld, Rutjens, Schneider, Nohlen, & Keskinis, 2014; Whitson & Galinsky, 2008). These studies render further plausibility to the idea that pattern perception and irrational beliefs are grounded in a similar psychological function, namely, to imbue the world with order. Various complementary lines of research are consistent with the general idea that irrational beliefs are related to a tendency to misperceive patterns in randomness. For instance, conspiracy beliefs are correlated with constructs such as paranormal beliefs (Barron, Morgan, Towell, Altemeyer, & Swami, 2014; Darwin, Neave, & Holmes, 2011; Lobato, Mendoza, Sims, & Chin, 2014; Newheiser et al., 2011; Swami et al., 2011), the tendency to attribute agency and intentionality where it does not exist (Douglas, Sutton, Callan, Dawtry, & Harvey, 2016; Imhoff & Bruder, 2014), and the conjunction fallacy (Brotherton & French, 2014; for illustrations of the relationship of the conjunction fallacy with paranormal belief, see Rogers, Davis, & Fisk, 2009; Rogers, Fisk, & Wiltshire, 2011). Although these studies indicate links between conspiracy theories and a variety of heuristics and cognitive biases, and are therefore suggestive of a link between pattern perception and conspiracy belief, direct evidence is currently lacking. Indeed, one recent study tested the relationship of conspiracy beliefs with people's subjective perception of randomness in binary strings that varied in their actual level of complexity. This study found no relationship between conspiracy beliefs and subjective randomness (Dieguez, Wagner-Egger, & Gauvrit, 2015). The relationship between illusory pattern perception and supernatural beliefs has been tested more extensively, and results are suggestive for such a relationship. For instance, Valdesolo and Graham (2014) found that supernatural beliefs were associated with agency detection, that is, the belief that events are caused intentionally by purposeful agents. Furthermore, supernatural beliefs correlate with a tendency to misperceive patterns in randomness (e.g., Blackmore & Trościanko, 1985; Bressan, 2002; Brugger, Landis, & Regard, 1990; Dagnall, Parker, & Munley, 2007; Musch & Ehrenberg, 2002; for a review, see Wiseman & Watt, 2006). Also for supernatural beliefs, however, this association does not emerge in all studies (Roberts & Seager, 1999) and under all circumstances (Blagrove, French, & Jones, 2006; Bressan, 2002). In the present research, therefore, our aim was to expand on these insights through a program of research designed to test the assertion that irrational beliefs—both in conspiracies and the supernatural—are empirically connected with a tendency to perceive patterns in randomly generated stimuli.

General Discussion Although people hold many different conspiracy and supernatural beliefs, psychological theories have assumed such beliefs to be rooted in largely similar underlying cognitive processes, specifically illusory pattern perception—that is, a tendency to perceive meaningful patterns in stimuli that were actually generated through a random process (Shermer, 2011; Whitson & Galinsky, 2008; Wiseman & Watt, 2006). Given how fundamental this assumption is within this research domain, it is surprising to find how little direct evidence exists for this assertion, particularly in the context of conspiracy theories. In the present study, our aim was to offer firmer empirical grounds for the role of pattern perception in irrational beliefs. Study 1 revealed significant correlations between conspiracy beliefs, supernatural beliefs, and a tendency to perceive patterns in randomness. In Study 2 we manipulated participants' intuitive pattern search, and results revealed an indirect effect such that intuitive pattern search predicted pattern perception, which in turn predicted irrational belief. Study 3 focused on visual stimuli. We found that only seeing patterns in chaotic stimuli predicted irrational beliefs, and not detecting patterns in structured stimuli. In Study 4, we manipulated whether participants read either a paranormal, conspiracist, or skeptic blog, and results revealed that only agreement with the paranormal and conspiracist blogs positively predicted pattern perception. Finally, in Study 5 we tested how pattern perception connects conceptually unrelated beliefs. Following a manipulation of belief in one conspiracy theory, people saw events in the world as more strongly causally connected, which in turn predicted unrelated irrational beliefs. Taken together, these findings support the assumption that illusory pattern perception is a basic cognitive aspect of the conspiracy and supernatural beliefs under investigation here. One might note that randomly generated stimuli sometimes produce sequences that appear to contain actual patterns. Indeed, some of our coin toss sequences contain relatively long chunks of the same outcome (Heads or Tails), making it difficult for people to discriminate between real and illusory patterns (Williams & Griffiths, 2013). We propose, however, that this is precisely one reason why people hold irrational beliefs. People often fail to appreciate how likely it is that a random process generates stimuli that appear nonrandom (Falk & Konold, 1997). As a consequence, people tend to underestimate the likelihood that the patterns they perceive occurred through a random process. In a similar vein, people often encounter cooccurring events in their daily life that appear nonrandom or purposeful, but that in fact were entirely coincidental (e.g., thinking of an old friend who then suddenly calls). The difficulty of distinguishing between sequences that were generated through a random vs. nonrandom process mirrors the difficulty of distinguishing between events that did vs. did not co-occur through coincidence. At first blush, the present findings seem inconsistent with a study that did not find significant correlations between pattern perception in binary outcomes and conspiracy beliefs (Dieguez et al., 2015). Closer inspection suggests two possible ways in which these diverging findings may be integrated by future research. As a first observation, the binary outcomes presented to participants in the study by Dieguez and colleagues (strings of 12) were not produced by a random generator, but instead were chosen to vary in their level of complexity. Indeed, one of their research goals was to assess how well subjective randomness correlates with actual randomness, and correspondingly, some of their strings were highly unlikely to occur through a random process (e.g., a string with 12 times the same outcome). We speculate here that people who are good at detecting randomness are also likely to be good at detecting nonrandomness. Hence, their measure of subjective randomness combined misperception of patterns in random sequences with correct detection of patterns in nonrandom sequences, within the same score. It is conceivable that the inclusion of nonrandom sequences suppressed correlations with conspiracy beliefs. As a second observation, at least in two of the studies by Dieguez et al.

(2015), participants were undergraduate students (in their third study, education level of participants was not reported). Previous research found that probability biases and paranormal beliefs are correlated in general population samples but not in university samples (Blagrove et al., 2006; Bressan, 2002), suggesting that the relationship between illusory pattern perception and irrational beliefs does not emerge in the highly educated strata. This is consistent with the observation that people with high education levels, or with strong analytic thinking skills, are less susceptible to irrational beliefs than people with low education levels or weak analytic thinking skills (Aarnio & Lindeman, 2005; Douglas et al., 2016; Gervais & Norenzayan, 2012; Musch & Ehrenberg, 2002; Swami, Voracek, Stieger, Tran, & Furnham, 2014; Van Prooijen, 2017). Clearly, more research is needed to fully establish the conditions under which pattern perception does, and does not, predict irrational beliefs. Our research suggests, however, that it would be premature to dismiss illusory pattern perception as a cognitive mechanism underlying irrational beliefs on the basis of only one set of studies that did not find evidence for this mechanism.

Limitations and Future Research

In Study 2, and for some of the dependent variables in Study 5, we only found an indirect effect, and not a direct effect of the manipulation on irrational beliefs. We suspect that the relatively large base-rate variance in these variables precludes a direct influence of relatively subtle manipulations in between-subjects designs. Specifically, from the outset people differ substantially in how strongly they endorse conspiracy theories and supernatural beliefs, with some people being convinced skeptics and others being highly susceptible to such beliefs. People are also likely therefore to vary significantly in their sensitivity to subtle experimental manipulations. Although the lack of a direct effect precludes strong conclusions about cause and effect, one should bear in mind that the main purpose of this research was to illuminate the extent to which illusory pattern perception is part of the underlying cognitive processes that support irrational beliefs. As the results reveal, illusory pattern perception was quite susceptible to the experimental manipulations, which subsequently accounted for people's irrational beliefs. These findings were highly robust across studies, and were observed on two different measures of conspiracy beliefs (i.e., real and fictitious conspiracy theories), and on an extensive and validated measure of supernatural belief (Eckblad & Chapman, 1983). In the present contribution we predominantly focus on the cognitive similarities between conspiracy beliefs and supernatural beliefs. Illusory pattern perception is one of the processes that binds these types of irrational beliefs, and is likely part of the reason why these beliefs are strongly correlated (Barron et al., 2014; Darwin et al., 2011; Lobato et al., 2014; Newheiser et al., 2011; Swami et al., 2011). Study 5 empirically examined whether the relationship between unrelated irrational beliefs is attributable to the assumption that seemingly unrelated events in the world are causally connected (i.e., perceiving patterns in world events). One might argue that our measure of perceiving patterns in world events conceptually overlaps with the irrational beliefs under investigation here, as both conspiracy theories and supernatural beliefs inherently assume causal connections between world events. Note, however, that in Study 4 our measure of patterns in world events correlated significantly with other indicators of pattern perception, suggesting good construct validity (see Table 4). Furthermore, in Study 5 our measure of patterns in world events correlated moderately but not strongly with irrational beliefs (see Table 6; $r = .22$; see Table 4).

TWENTY-TWO.

Subtle and blatant prejudice in western Europe.

Abstract.

This paper develops, measures, and tests two types of intergroup prejudice—blatant and subtle. Blatant prejudice is the traditional, often studied form; it is hot, close and direct. Subtle prejudice is the modern form; it is cool, distant and indirect. Using data from seven independent national samples from western Europe, we constructed 10-item scales in four languages to measure each of these varieties of prejudice. We report the properties, structure and correlates of both scales across the seven samples, and make initial checks on their validity. The cross-nationally consistent results support the value of the blatant-subtle distinction as two varieties of prejudice. While they share many correlates, their distinctive differences suggest better specification of these correlates of prejudice. And the blatant-subtle distinction also aids in more precise specification of the effects of prejudice on attitudes toward immigrants. The paper closes with a normative interpretation of Subtle Prejudice.

INTRODUCTION.

Primary attention to intergroup prejudice has focused upon the more blatant, traditional forms of the phenomenon. But in recent decades indirect forms of prejudice have come to preserve racial, ethnic and religious stratification. These more subtle forms are similarly described though variously named. In France it is called ‘. . . a new under-the-skin racism’ (Freriks, 1990); in Germany, ‘latent’ prejudice (Bergmann & Erb, 1986); in Britain, ‘the new racism’ (Barker, 1984); in the Netherlands, ‘everyday racism’ (Essed, 1984); and in the U.S., ‘aversive’ (Kovel, 1970), ‘symbolic’ (Sears, 1988), or ‘modern racism’ (McConahay, 1983; Pettigrew, 1989). The common theme across all these new forms is that they are covert means of expressing prejudice that differ from the old-fashioned forms. Otherwise, quite diverse conceptualizations are advanced. Thus, Essed (1984) emphasizes the commonplace quality of the phenomenon; Kovel (1970) views it as a defence against recognizing one’s own bigotry; McConahay (1983) sees it as an attempt to attribute outgroup disadvantage to causes other than discrimination; and Sears (1988) traces it to early socialization. Given the varying conceptualizations, the domain’s measurement remains problematic. From a wide domain of possibilities, investigators have drawn on distinctive subsets of elements aimed at their own particular emphasis. Thus, though various measures have been proposed, no indicators of these newer prejudice forms have won general acceptance in the literature. Indeed, conflicting measures have detracted from the empirical evidence for the phenomenon (Pettigrew, 1989). This paper addresses these problems in two ways. First, it offers an explicit three-component conceptualization of this newer form of prejudice. Second, it presents scales with solid psychometric properties to measure the two prejudice types. In *The Nature of Prejudice*, Allport (1958, p. 10) defined prejudice as ‘an antipathy based upon a faulty and inflexible generalization’. To this useful approach that involves both affect and cognition, we would add that prejudiced attitudes tend to form ideological clusters of beliefs that justify discrimination. What we shall label blatant and subtle prejudice are two contrasting expressions of this central phenomenon. Blatant prejudice is hot, close and direct. Subtle prejudice is cool, distant, and indirect. The components of these two varieties of prejudice uncovered in social psychological research reflect these differences in style. Two components repeatedly emerge in work on blatant prejudice (Allport, 1958). The first involves perceived threat from and rejection of the outgroup. In its full racist form, blatant prejudice includes belief in the genetic inferiority of the

outgroup. Such a belief explains away any outgroup disadvantage in the society, and thus denies that discrimination exists. The second component of blatant prejudice involves opposition to intimate contact with the outgroup. This anti-intimacy component focuses upon an emotional resistance against any intergroup sexual contact or intermarriage. It also contains a power element. Hence, working under the supervision of an outgroup member is rejected. We propose that subtle prejudice is revealed by three more covert components, each of which is expressed in ways deemed normative and acceptable in western societies. The first is the defence of traditional values. Victim blaming is often involved. Outgroup members are seen to act in unacceptable ways, and not to perform in ways necessary to succeed. What is regarded as acceptable and necessary behaviour is construed in terms of the ingroup's traditional values. The second component entails the exaggeration of cultural differences. Instead of invoking genetic inferiority, subtle prejudice attributes outgroup disadvantage to cultural differences. These differences are often genuine; but subtle prejudice exaggerates them through gross stereotypes. The third component denies positive emotional responses toward the outgroup. This feature does not admit negative feelings toward the outgroup only the more covert denial of positive emotions. Extensive research has focused on each of these components, though our conception of subtle prejudice is the first to bring these literatures together. Consider each in detail.

DISCUSSION.

Two types of prejudice These data from 38 10 European respondents across four nations provide evidence for the cross-national importance of the distinction between blatant and subtle prejudice. There are four types of evidence: the scalability of the two types; the confirmatory factor analytic results; the specificity of the correlates of the two types; and the specificity of the effects of the two types. The two 10-item Likert measures are moderately correlated, have adequate reliabilities, and yield an exploratory factorial structure that mirrors earlier findings about intergroup prejudice. The two subscales of blatant prejudice-threat and rejection and anti-intimacy-are well-studied phenomena. The Subtle Scale's three subscalesthe defence of traditional values, the exaggeration of cultural differences, and the denial of positive emotions-also relate to substantial research literatures. The socially acceptable rejection of minorities for ostensibly non-prejudicial reasons is the key ingredient that links these components. The confirmatory factor analytic results further support the blatant-subtle distinction. The two-factor models across the seven samples uniformly produce superior fits to the correlational matrix than a one-factor model. But more experience with the scales is necessary before a choice can be made between three possible structures. The confirmatory analyses favour an hierarchical model in which blatant and subtle prejudice are first-order latent factors that relate equally to a second-order latent factor of generalized prejudice. But the correlated two-factor model does almost as well. Moreover, the relations between the two scales and preferences regarding immigration policy suggest a third, Guttman-like model in which subtle prejudice constitutes an intermediate position between blatant prejudice and egalitarian tolerance. Specified correlates of prejudice Several theories of intergroup relations garner support in these cross-national data. In particular, one aspect of authoritarian personality theory (Adorno et al., 1950; Allport, 1958; Altemeyer, 1988) receives confirmation. The strength of the ETHNOCENTRISM predictor reveals the generalized nature of prejudice against outgroups-a central tenet of authoritarian theory apart from its psychoanalytic orientation. Moreover, the predictive value of the measures of POLITICAL CONSERVATISM, APPROVAL OF RACIST MOVEMENTS, NATIONAL PRIDE and the lack of POLITICAL INTEREST also lends evidence for the characterization of the authoritarian

personality. These findings also support contact theory. Even with the other predictors controlled, the breadth of one's friendship network is a significant contributor to explaining scores from both scales-particularly the Subtle Scale. Two factors underlie this impressive consistency. The specification of a 'friend', not just an 'acquaintance', makes it more likely that the theory's critical conditions are met (equal status in the situation, common goals, interdependence, and authority sanction; Allport, 1958). Moreover, the causal sequence is two-way: more tolerant people seek diverse friendships as well as such contact leads to less prejudice. These cross-sectional data do not permit an evaluation of the two paths. These results also specify the effects for prejudice of relative deprivation. Group relative deprivation contributed significantly to the prediction of blatant prejudice in six samples. But it attained statistical significance in only two samples as a predictor of subtle prejudice. Individual relative deprivation did not relate with either type of racism. This latter finding casts doubt on 'riff-raff' and mass society theories of prejudice-namely, that prejudice flourishes largely among the deprived and alienated pockets of industrial societies. Moreover, a five-item scale of political efficacy failed to correlate with either the Blatant or Subtle Scales (analyses not shown). To be sure, the less educated and less politically interested are more prone to prejudice; but these relationships are not dominant in Table 3. For subtle prejudice especially, there is no indication that the prejudiced are marginal segments of their societies. The specification of the correlates of prejudice made possible by this differentiated approach is enhanced when analyses are done with the five subscales. Conservatives score higher on the Subtle Prejudice Scale, because they are defending traditional values against the new ways of the outgroup. Older people score higher on the Blatant Prejudice Scale, because of their fear of intimacy with the outgroup. And those respondents with many types of friends are unusually open to intimacy with the outgroup, and more readily report having felt admiration and sympathy for outgroup members. Specified effects of prejudice The blatant-subtle distinction also helps to specify how prejudice shapes attitudes toward the treatment of immigrants. On all three dependent variables, the blatant, subtle and equalitarian types show distinctive patterns. Bigots, who score high on both scales, want to restrict immigrants' rights further, send most or all of them back to their 'home country', and do little to improve immigrant-native relations. Equalitarians, who score low on both scales, present a sharp contrast. They wish to enlarge immigrants' rights, allow most or all of the immigrants to remain, and act forcefully to improve immigrant-native relations. Social psychology has long studied the bigots and equalitarians. What is important about this approach are the subtles-those who score low on the Blatant but high on the Subtle Scale. They adopt intermediate positions that reject minorities in socially acceptable ways. Thus, they would neither restrict further nor enlarge immigrants' rights. They would not send all immigrants 'home', but would send 'home' those for whom there is an ostensibly non-prejudicial reason to do so. They reject forceful means of improving immigrant-native relations; yet support 'soft' measures that place the burden on others. It is subtle prejudice that deserves more research attention in future work. So we close with a tentative interpretation of the phenomenon.

A normative interpretation of subtle prejudice We recognize the critical importance for prejudice of structural and cultural differences among the four nations surveyed. Such recognition makes the cross-national generality of these psychological dimensions of prejudice even more impressive. Yet a robust theory of subtle prejudice requires a wide social context, one that considers the normative structure within which it is embedded. We believe these results are best explained by a normative perspective (Pettigrew, 1991). Three decades ago, Kelman (1961) made critical distinctions between three processes of social influence:

compliance, identification, and internalization. Compliance involves the instrumental expression of opinion for gaining rewards and avoiding punishment. Identification occurs when one adopts opinions based on a self-defining relationship with another person. Internalization occurs when an individual accepts influence because it is congruent with one's value system. We posit that western European countries have been developing a norm against blatant prejudice. Consistent with our data, this norm is stronger and more deeply established in some nations, such as the Netherlands, than in others. Equalitarians internalize this norm, bigots ignore or reject it. Subtles comply with the norm, and express their negative intergroup views only in ostensibly non-prejudiced ways that 'slip in under the norm'. Devine (1989) shows that this tendency of subtles is not only possible but routine. She first showed that negative cultural stereotypes of the outgroup were equally well known to her low- and high-prejudice subjects. Both types employed stereotypecongruent evaluations of ambiguous behaviours when controlled inhibition of the stereotype was precluded. Then she employed a consciously directed thought-listing task and found only low-prejudice subjects tend to inhibit the automatically activated stereotypes and replace them with negations of the stereotype and thoughts about equality. Applied to our conjectures, we propose that equalitarians (low on both scales) perform like Devine's low-prejudice subjects. The subtle respondents (low on the Blatant, high on the Subtle Scale), like the equalitarians, are also inhibiting automatically activated prejudiced responses-but only when blatantly prejudiced stimuli are presented. Our conjecture is that the subtles have a higher threshold than equalitarians (but lower than bigots) before their inhibition of prejudiced responses is activated. Thus, subtles tend to accept items of the Subtle Scale that equalitarians reject. This is not a conscious, 'self-presentation' technique to hide prejudice from others (Gaertner and McLaughlin, 1983). Indeed, the careful behaviour of subtles appears to serve principally the need to protect oneself from the realization that one harbours prejudiced attitudes. To this extent, the anti-blatant prejudice norm has been partially accepted and internalized by subtles-witness their low scores on blatant prejudice. But they have not as yet internalized the norm deeply enough to prevent the indirect 'leaking' of anti-minority attitudes captured by the items on the Subtle Scale. Note that this analysis does not posit an anti-subtle prejudice norm. The full internalization of equalitarian values by equalitarians leads them to be the only ones who routinely reject even the socially acceptable items of the Subtle Prejudice Scale. In this sense, their responses, like those of the bigots, are less governed by the society's norms on intergroup relations. These are the groups that have long been the objects of personality-oriented explanations of prejudice. A rounded understanding of the subtles, however, requires more attention to the relevant intergroup norms, which we believe have been shifting in recent years.

TWENTY-THREE

The Psychology of Conspiracy Theories.

Abstract.

What psychological factors drive the popularity of conspiracy theories, which explain important events as secret plots by powerful and malevolent groups? What are the psychological consequences of adopting these theories? We review the current research and find that it answers the first of these questions more thoroughly than the second. Belief in conspiracy theories appears to be driven by motives that can be characterized as epistemic (understanding one's environment), existential (being safe and in control of one's environment), and social (maintaining a positive image of the self and the social group). However, little research has investigated the consequences of conspiracy belief, and to date, this research does not indicate that conspiracy belief fulfills people's motivations. Instead, for many people, conspiracy belief may be more appealing than satisfying. Further research is needed to determine for whom, and under what conditions, conspiracy theories may satisfy key psychological motives.

Over a third of Americans believe that global warming is a hoax (Swift, 2013), and over half believe that Lee Harvey Oswald did not act alone in the assassination of John F. Kennedy (Jensen, 2013)—these are examples of conspiracy theories—explanations for important events that involve secret plots by powerful and malevolent groups (e.g., Goertzel, 1994). In recent years, there has been growing interest in the psychological factors that drive the popularity of conspiracy theories, and in this article, we draw together and organize findings from this burgeoning research. This research suggests that people may be drawn to conspiracy theories when—compared with nonconspiracy explanations—they promise to satisfy important social psychological motives that can be characterized as epistemic (e.g., the desire for understanding, accuracy, and subjective certainty), existential (e.g., the desire for control and security), and social (e.g., the desire to maintain a positive image of the self or group). This taxonomy, derived from system-justification theory (Jost, Ledgerwood, & Hardin, 2008), serves as a useful heuristic to classify the motives associated with conspiracy belief. However, the comparatively scarce research examining the consequences of conspiracy theories does not indicate that they ultimately help people fulfill these motives.

Summary, Caveats, and Future Research.

Research thus far has successfully articulated some of the motivations that, together with deficiencies in available information, cognitive ability, and motivation to think critically, may contribute to conspiracy belief. Although scholars have theorized about the consequences of conspiracy beliefs for their adherents and the community, relatively little empirical research has been done to explore them. Nevertheless, preliminary work suggests that despite the allure of conspiracy beliefs for people who have heightened epistemic, existential, and social motives, they may ultimately thwart those motives further. In this sense, conspiracy theories might be seen as an ironic or self-defeating manifestation of motivated social cognition. There are grounds to expect further research to corroborate this preliminary picture since, as we have seen, conspiracy theories have some attributes that do not lend themselves to the fulfillment of these motives—for example, they are generally speculative and contrarian, represent the public as ignorant and at the mercy of unaccountable powers, and impute highly anti-social and cynical motives to other individuals. Nonetheless, there are also grounds to expect future

research to show that conspiracy theories fulfill the needs of some people. The experimental research conducted thus far has sampled from populations (undergraduate students and survey panelists) that are not particularly disadvantaged or threatened and that generally do not endorse conspiracy theories. For these people, conspiracy theories are likely to be experienced as unsettling, destabilizing, and potentially alienating. However, these people are not whom scholars have had in mind when they have argued that conspiracy theories may sometimes be adaptive. They include groups and individuals who are already alienated from society and for whom conspiracy theories may offer some compensation. These include disempowered groups who may use conspiracy theories to subvert dominance hierarchies by formulating their own understanding of realities (Sapountzis & Condor, 2013) and by fostering solidarity and collective action (Adams, O'Brien, & Nelson, 2006). In these communities, and indeed in online communities in which conspiracy theories represent normative or even official positions (e.g., the 9/11 Truth movement), conspiracy belief may offer an important source of belonging and shared reality. Furthermore, history has repeatedly shown that corporate and political elites do conspire against public interests. Conspiracy theories play an important role in bringing their misdeeds into the light. To conduct fair tests of the utility of conspiracy belief, controlled longitudinal and experimental investigations of disadvantaged and threatened populations are needed. In particular, future research needs to examine individuals whose psychological needs are chronically or experimentally threatened and determine whether conspiracy belief moves them closer to or further away from the fulfillment of these needs. In one such design, Jolley, Douglas, and Sutton (2017) exposed people to threats to the legitimacy of their social system. They found that the deleterious effects of these threats on satisfaction with the status quo were eliminated when participants were also exposed to conspiracy theories. Conspiracy theories therefore appeared to buffer people from the effects of threats to the status quo.

Conclusion.

We have reviewed the current literature on the psychological factors that appear to drive conspiracy belief. We conclude that conspiracy belief appears to stem to a large extent from epistemic, existential, and social motives. Research has yet to demonstrate that it effectively serves those motivations, and early indications are that it may often thwart them. It is possible, therefore, that conspiracy belief is a self-defeating form of motivated social cognition. However, important questions remain open, and more controlled research on the consequences of conspiracy beliefs is needed, particularly on the vulnerable and disadvantaged populations that have been identified as most likely to benefit from them. We hope that this review will serve as an organizing schema for future research on the psychology of conspiracy belief.

TWENTY-FOUR.

Exposure to intergroup conspiracy theories promotes prejudice which spreads across groups.

This research experimentally examined the effects of exposure to intergroup conspiracy theories on prejudice and discrimination. Study 1 (N = 166) demonstrated that exposure to conspiracy theories concerning immigrants to Britain from the European Union (vs. anti-conspiracy material or a control) exacerbated prejudice towards this group. Study 2 (N = 173) found the same effect in a different intergroup context – exposure to conspiracy theories about Jewish people (vs. anti-conspiracy material or a control) increased prejudice towards this group and reduced participants' willingness to vote for a Jewish political candidate. Finally, Study 3 (N = 114) demonstrated that exposure to conspiracy theories about Jewish people not only increased prejudice towards this group but was indirectly associated with increased prejudice towards a number of secondary outgroups (e.g., Asians, Arabs, Americans, Irish, Australians). The current research suggests that conspiracy theories may have potentially damaging and widespread consequences for intergroup relations.

Conspiracy theories explain the ultimate causes of significant events as the secret actions of malevolent groups, who cover up information to suit their own interests (e.g., Douglas, Sutton, & Cichocka, 2017; Goertzel, 1994; McCauley & Jacques, 1979). For example, popular conspiracy theories propose that climate change is a hoax orchestrated by the world's scientists to secure research funding, that Diana, Princess of Wales, was murdered by members of the British government, and that Jewish people have a controlling and sinister influence over world affairs. A growing body of research suggests that conspiracy theories are popular (Oliver & Wood, 2014), that they are associated with a variety of psychological traits (e.g., Abalakina-Paap, Stephan, Craig, & Gregory, 1999; Swami, Chamorro-Premuzic, & Furnham, 2010), and that they have important political, social, and health-related consequences (e.g., Jolley & Douglas, 2014a,b). In the current research, we focus on the consequences of conspiracy theories for relations between groups. We argue that exposure to intergroup conspiracy theories may be damaging not just because they serve to increase prejudice and discrimination towards the implicated group, but because this prejudice then has the potential to spread across multiple social outgroups.

GENERAL DISCUSSION.

Across three studies, the current research has provided experimental evidence of the impact of conspiracy theories on intergroup attitudes. In Study 1, exposure to conspiracy theories about immigrants increased prejudice towards this group. Study 2 replicated these results in a different intergroup context where prejudice translated into biased behavioural tendencies towards Jewish people. Study 3 then showed that exposure to Jewish conspiracy theories not only increased prejudice towards this group but also indirectly increased prejudice towards a range of other groups. These findings make a number of important advances on previous work. First, previous examinations of the association between conspiracy theories and prejudice have relied on cross-sectional data (e.g., Bilewicz & Sedek, 2015; Golec de Zavala & Cichocka, 2012; Kofta & Sezdek, 2005;). Here, we offer the first experimental demonstration of the causal impact of exposure to conspiracy theories on prejudice towards the implicated outgroup. Findings were replicated in two different intergroup contexts, not just examining prejudice and conspiracy theories regarding Jewish people as in previous studies (e.g., Golec de Zavala & Cichocka, 2012; Kofta & Sezdek, 2005), but also European immigrants who represent another group that has been the subject of conspiracy theories in recent years. In both intergroup

contexts, we provided novel experimental evidence that simply being exposed to conspiracy theories can impair intergroup relations. Second, we have demonstrated that exposure to intergroup conspiracy theories can lead to discriminatory action – in this case, an anti-Jewish voting bias. This finding extends previous cross-sectional findings (e.g., Bilewicz et al., 2013) and provides evidence for the assertion by Bilewicz and Sedek (2015) that Jewish conspiracy theories are a strong predictor of discriminatory intentions. This effect was mediated by increased prejudiced attitudes. It is clear, therefore, that this research demonstrates the practical consequences of conspiracy theories in a new domain (e.g., Jolley & Douglas, 2014a,b). The work extends the psychological work examining conspiracy theories and prejudice by uncovering the wider impact that exposure to conspiracy theories may have on intergroup relations. Third, and perhaps most importantly, the current research demonstrates how the prejudice-enhancing effects of intergroup conspiracy theories are not limited to the group targeted by the conspiracy but can spread to other, uninvolved groups. In Study 3, exposure to conspiracy theories relating to the actions of Jewish people was found not only to increase prejudice towards this group, but also to indirectly increase prejudice towards other social groups such as Americans, Asians, and Arabs. This effect occurred via a process of attitude generalization in which conspiracy theories about a particular outgroup increased prejudice towards them, and these negative attitudes then generalized to other, secondary outgroups. The fact that we did not find a direct effect of exposure to conspiracy theories on secondary outgroup attitudes does not undermine the validity of our results. It is the indirect path, in which exposure to conspiracy theories increases prejudice towards secondary groups through prejudice towards the primary outgroup that provides evidence of attitude generalization. These findings remind us of the secondary transfer effects of intergroup contact (e.g., Pettigrew, 2009; Tausch et al., 2010), where this pattern of indirect effects in the absence of direct effects is similarly common (e.g., Brylka et al., 2016; Drury, Abrams, Swift, Lamont, & Gerocova, 2017; Harwood et al., 2011; Vezzali & Giovannini, 2012). Importantly, our findings suggest that conspiracy theories not only have the potential to increase prejudice towards the group at the centre of the alleged conspiracy but can transfer to other, uninvolved groups. There is also some evidence that the magnitude of the effects was stronger in general for groups perceived to be similar (e.g., highly competent) to the alleged conspirators. Finding strategies that can break this negative spiral will represent an important challenge for future research. There are some limitations to the present work that should be acknowledged. First, although we demonstrate that exposure to conspiracy theories can fuel prejudice and discrimination; this effect – although small – appears to be stronger for affective versus cognitive dimensions of prejudice. In Study 2, we found that exposure to conspiracy theories did not change the stereotypes of Jewish people, nor did exposure to conspiracy theories lead to the dehumanization of a Jewish person. Research in other areas has uncovered similar discrepancies between different dimensions of prejudice. For example, positive intergroup contact has been shown to primarily produce more favourable outgroup evaluations (affective), which scholars argue is because cognitive dimensions (e.g., stereotypes) of prejudice are more resistant to change (e.g., Aberson, 2015; Wolsko, Park, Judd, & Bachelor, 2003). In future research, the differences between these dimensions of prejudice and conspiracy exposure could be further explored. Further, whilst we did have a measure of discrimination in these studies, we relied on a measure of behavioural intentions. We know that intentions do not always correlate strongly with behaviour (Sheeran, 2002). Future research should, therefore, examine whether exposure to Jewish conspiracy theories leads to measurable behavioural change towards the outgroup, such as maintaining social distance or withholding resources (e.g., Bilewicz et al., 2013, who examined a measure of preventing Jewish people from buying

land). Participants in both the pro- and anti-conspiracy conditions read negatively valenced information about the outgroup in question, specifically their involvement in conspiracies designed to harm the ingroup. In the pro-conspiracy condition, the text included statements supporting the validity of the conspiracy theory, whilst the anti-conspiracy condition included statements refuting the conspiracy. The fact that prejudice was increased in the pro-conspiracy condition relative to the anti-conspiracy condition suggests that results are not simply due to an information availability bias, as, in both conditions, participants are reminded that the outgroup can do harmful things. We were also able to show that the pro-conspiracy manipulation enhanced conspiracy beliefs (relative to the control and anti-conspiracy condition) and that these beliefs mediated the effect of the manipulation on outgroup prejudice, further increasing confidence in our account. Of course, however, people are not literalists when completing surveys (McCrae & Costa, 2003); it is possible that the manipulation check items themselves do not measure genuine conspiracy beliefs so much as a general fear of foreigners. Future research should include a manipulation of intergroup threat that is non-contingent upon the conspiracy in pursuit of divergent validity. In a similar vein, the conspiracy manipulations used throughout this investigation concerned specifically immigrants or Jewish people involved in terrorist organizations, yet we measured prejudice towards immigrants and Jewish people generally. Whilst this could be considered a limitation, the results could be considered further evidence of a generalization effect where exposure to conspiracy theories relating to one (sub)group subsequently generalizes to other, related groups. In the current investigation, we were also unable to examine whether the experimental manipulation has a long-lasting effect on people's prejudice and discrimination towards groups. We know that conspiracy beliefs can remain heightened after 2 weeks following exposure to conspiracy theories (vs. control; Kim & Cao, 2016). It is possible, therefore that exposure to intergroup conspiracy may lead to similar prolonged effects on outgroup prejudice. Future research could test this possibility. Future research could also examine the mechanisms underlying the effect of exposure to conspiracy theories on prejudice. Whilst previous research has argued that perceptions of intergroup threat drive endorsement of conspiracy narratives (Unal, 2016; Swami & et al., 2018), we argue that increased perceptions of threat may also represent a mechanism through which exposure to conspiracy theories increases prejudice. Moderators of the relationship between conspiracy theories and prejudice should also be explored. For example, the influence of exposure to conspiracy theories on prejudiced attitudes may be moderated by prior prejudice held towards the target group (cf. Dhont & Van Hiel, 2011; Hodson, 2011). One may expect that the effect of exposure to conspiracy theories about the target group may be even more pronounced for people who hold stronger initial prejudice. In a similar vein, prior held conspiracy beliefs may moderate the effect of simple exposure to conspiracy theories on prejudice. Future research could test this possibility. Our research demonstrates that exposure to conspiracy theories can increase prejudice towards the target group, which can then generalize to other, uninvolved groups. Future research should endeavour to examine avenues to limit the negative impact of conspiracy theories on intergroup relations. For example, Jolley and Douglas (2017) found that if participants are exposed to anti-conspiracy material before exposure to conspiracy theories, this can reduce the negative behavioural consequences of the conspiracy theories. Perhaps the negative impact of intergroup conspiracy theories could be lessened when people are aware of anti-conspiracy arguments at an earlier point in time.

Conclusion In summary, the current research has demonstrated that exposure to intergroup conspiracy theories can directly increase prejudice and discrimination. These effects have been established in two contexts: (1) concerning immigrants and (2) concerning people of the Jewish faith. Exposure to intergroup conspiracy

theories can also lead to an attitude generalization effect – we showed that Jewish conspiracy theories led to increased prejudice towards other groups such as Americans and Arabs. Together, this research suggests that conspiracy theories can have a widespread negative impact on intergroup relations. Efforts to reduce prejudice and defuse negative intergroup relations should, therefore, consider the contribution of popular and pervasive conspiracy theories.

TWENTY-FIVE.

Trust and Commitment in the United States and Japan.

A distinction is proposed between trust as a cognitive bias in the evaluation of incomplete information about the (potential) interaction partner and assurance as a perception of the incentive structure that leads the interaction partner to act cooperatively. It is hypothesized that trust in this sense helps people to move out of mutually committed relations where the partner's cooperation is assured. Although commitment formation is a rather standard solution to the problems caused by social uncertainty, commitment becomes a liability rather than an asset as opportunity costs increase. Facing increasing opportunity costs, trust provides a springboard in the attempt to break psychological inertia that has been mobilized to maintain committed relations. In conjunction with an assumption that networks of mutually committed relations play a more prominent role in Japanese society than in American society, this hypothesis has been applied to predict a set of cross-national differences between the United States and Japan in the levels of trust and related factors. The results of a cross-national questionnaire survey (with 1,136 Japanese and 501 American respondents) support most of the predictions, and indicate that, in comparison to Japanese respondents, American respondents are more trusting of other people in general, consider reputation more important, and consider themselves more honest and fair. In contrast, Japanese respondents see more utility in dealing with others through personal relations. When people talk about Japanese society and, in particular, Japanese business, trust comes out in the limelight. ² Despite considerable variations, Japanese social and business-relations are generally described in many scholastic as well as impressionistic writings to involve strong mutual trust (e.g., Ouchi, 1981; Sako, 1991; Sullivan & Peterson, 1982; Sullivan, Peterson, Kameda, & Shimada, 1981; Vaughan, 1971). We are challenging this widely shared view of the role of trust in Japanese society and business. We argue and provide empirical evidence that the general level of trust is higher among Americans than among Japanese, a proposition opposite to the conventional characterization of interpersonal and interorganizational relations in Japanese and American societies. In so doing, we formulate a theory of trust from which we derive a set of predictions to be tested in a cross-national questionnaire survey. Our research on trust was originally prompted by a peculiar and yet consistent finding in our previous research that Americans are more trusting than Japanese (T. Yamagishi, 1988a; M. Yamagishi & Yamagishi, 1989). For example, using an 8-item trust scale, T. Yamagishi (1988a) demonstrated that the average trust score of the 852 American respondents was about two thirds of the pooled standard deviation higher than the average trust score of 212 Japanese respondents. A similar difference was replicated by M. Yamagishi & Yamagishi (1989). ³ Although these studies conducted by Yamagishi and his associates used students as samples, a more systematic study conducted by the Institute of Statistical Mathematics (ISM) (C. Hayashi, Suzuki, Suzuki, & Murakami, 1982) using representative national samples reports a similar cross-national difference. Fortyseven percent of the American sample (N = 1,571) responded that "people can be trusted" to the question; "Do you think you can put your trust in most people, or do you think it's always best to be on your guard?" In contrast, only 26% of the Japanese sample (N = 2,032) gave the same response. We believe that this seeming inconsistency between the above survey results and the conventional image of Japanese society as one characterized by strong mutual trust is a result of our inability to distinguish trust from related concepts which on the surface resemble trust. Trust and Assurance Trust is an elusive concept. This is more true in the English language than in the Japanese language. The most comprehensive definition of trust would be taken-for-grantedness of the reality (Holzner, 1973; Luhmann, 1988; Zucker, 1986) or "expectation of the

persistence and fulfillment of the natural and the moral orders" (Barber, 1983; p. 9). This definition of trust, however, would not apply in the Japanese language. There are two words in Japanese, *shinryō* and *shinrai*, roughly corresponding to trust in English. Neither word refers to natural order; they refer only to human (and organization's) traits. This comprehensive definition makes sense only when trust is considered a psychological mechanism for reducing complexity in the environment (Luhmann, 1979, 1988). As discussed later, we assign trust a more positive role; instead of simply reducing cognitive loads, trust provides a solution to the problems caused by social uncertainty. Thus, we limit our attention to trust in other human beings and organizations. Barber (1983) argues for the need to distinguish two types of more specific trust. One is "expectation of technically competent role performance from those involved with us in social relationships and systems," and the other is "expectation that partners in interaction will carry out their fiduciary obligations and responsibilities, that is, their duties in certain situations to place others' interests before their own" (Barber, 1983, p. 9). In brief, the former is expectation of partner's competence and the latter is expectation of partner's goodwill and benign intent. We agree with Barber who argues that inability to make a clear distinction between these two types of trust is one major source of confusion surrounding discussions of trust. There may be an empirical correlation between the two, but they are logically independent. Even those feeling unsafe on a small plane because the pilot has had only a few hours training would not suspect that the pilot will intentionally crash the plane. The incompetent pilot has no malignant intentions! We propose to call the former confidence and the latter trust. Confidence is expectation of competence, and trust is expectation of goodwill and benign intent. The distinction between confidence and trust as defined above may easily be appreciated by many as a useful distinction, although most people do not usually treat the two as distinct concepts. 4 More difficult to grasp

DISCUSSION.

We started with a puzzling empirical finding that Japanese questionnaire respondents in past studies have repeatedly shown a lesser degree of trust than their American counterparts. This result is puzzling to those who think that close, stable, long-term relations are the cradle of trust. If we accept the conventional view that stability of interpersonal and interorganizational relations is one of the distinguishing characteristics of Japanese society, especially in comparison to American society, it seems natural to conclude that stronger trust would have been nurtured in Japanese society. Yet, this logical conclusion was inconsistent with the previous survey results. Our effort to solve this puzzle, and the resulting theory development, required us to abandon this conception of trust. Instead, we adopted an important distinction between trust and assurance. Trust requires the existence of social uncertainty; without social uncertainty trust has no independent role to play. The emphasis on social uncertainty as a prerequisite for trust is in sharp conflict with the aforementioned conception of trust according to which the lack of social uncertainty in close and stable relations is the source of trust. This paradox that trust requires the existence of social uncertainty on the one hand, and yet trust requires the lack of it, on the other, can be resolved only when it is recognized that trust used in these two contexts are qualitatively different. The former, we defined, is trust or general trust, and the latter assurance. Trust requires social uncertainty, and assurance requires the lack of it. What is conventionally considered to characterize Japanese society is mutual assurance (or the lack of social uncertainty) derived from the stability of interpersonal and/or interorganizational relations. In contrast, what has been found to be higher in the United States than in Japan is general trust in situations lacking such assurance. Starting with this critical distinction between trust and assurance, we have developed the following theory of trust,

assurance, and commitment: (a) Commitment formation is the standard solution to the problem caused by social uncertainty. (b) This solution, which has dominated most societies at most historical periods, becomes a liability rather than an asset when opportunity costs increase. (c) Facing the rising opportunity costs, dealing with outsiders with a reasonable reputation can be profitable. (4) Trust helps people move out of committed relations; it provides the booster power needed for taking off the secure ground of committed relations. On the basis of this theory, and on an assumption that networks of committed relations play a more prominent role in Japanese society than in American society, we came up with a set of predictions which we then tested in a cross-national questionnaire survey. Several of our results merit emphasis. First, the survey result indicates that Japanese see more utility in dealing with people through relations or "connections." This result is consistent with the conventional view of Japanese society, and provides at least partial support to the assumption concerning the prominence of networks of committed relations in Japanese society. Second, our survey results clearly replicate our previous finding concerning the cross-national difference in trust. That is, American respondents were much higher in general trust than Japanese respondents. In contrast to this clear, cross-national difference in trust, no systematic crossnational difference was observed with regard to the Caution Scale, which measures how strongly people feel that caution is needed in dealing with others. This result is not inconsistent with our theory, because the combination of trustfulness and caution can be a good trait for those who are prompted to move out of committed relations. Another finding consistent with our prediction was that Americans consider reputation more valid and important than do Japanese. Finally, as predicted, honesty is considered more important by American respondents than by Japanese respondents. Thus, all the predictions concerning the U.S.-Japan differences derived from our theory of trust were supported by the results of this study, though some predictions were more strongly supported than others. This study, however, does not directly test one important theoretically possible prediction: the prediction that the level of assurance would be higher in Japanese society than in American society. Assurance is the feeling of security based on the knowledge that there exists no social uncertainty in a particular relation. One who feels secure in one relation may not feel the same way in another. This relation-specific nature of assurance makes its measurement through a paper-and-pencil method extremely difficult. What is predicted to be different between American and Japanese societies is not the level of such subjective security felt within a specific relation. Americans may feel as secure as do Japanese in the same kind of stable relations; there is no theoretical reason to predict otherwise. Instead, what is predicted to be different is the weight such relations play in each society. The Utility of Relations Scale that partly measures acceptance of in-group favoritism can be considered to represent our first step toward measuring assurance in this sense. More work needs to be done, however, before we are fully prepared to test this prediction. A remaining issue that needs to be addressed in future study, theoretically as well as empirically, concerns the role that knowledge-based trust plays in the overall theoretical picture. In our current theoretical scheme, knowledge-based trust is simply a by-product of close and stable relations and does not play an independent role in the theory. The relationship between commitment and knowledge-based trust, however, may not be so straightforward. On surface, committed relations seem to nurture knowledge-based trust. On the other hand, knowledge-based trust is conceptually distinct from assurance, which is another derivative of committed relations. (What is often treated as personal trust or trust in closely related people is actually a combination of assurance and knowledge-based trust. Future studies should investigate the nature of the intricate relationship between the two in the close relationship.) Information required to build knowledge-based trust is hard to obtain in a

mutually committed relation when assurance is provided by the nature of a surrounding incentive structure. "Honest" behavior in such a relation reveals simply that the partner is prudent (cf. Frank, 1988). Knowing that a person has behaved honestly in a situation where doing so is in his or her own interest (i.e., in a situation where assurance is provided) is of no use in predicting whether or not the person will act honestly when he or she can benefit from acting dishonestly. From this perspective, committed relations are in fact expected to reduce development of knowledge-based trust. More theoretical work is definitely needed here. The findings reported in this paper, taken by themselves, potentially have various limitations. For example, responses to the current questionnaire may reflect factors other than those specified in our theory, factors such as the greater tendency of Americans in comparison to Japanese to see themselves in a positive light (Markus & Kitayama, 1991). This difference in self-esteem between Americans and Japanese may at least partly explain some of the cross-national differences observed in our study. On the other hand, we would like to emphasize that the survey research reported here is a part of our continuing research effort that include laboratory experiments and computer simulations as well. Results of our laboratory experiments have successfully validated the predictive power of our trust scale and previous versions of the trust scale (Sato & Yamagishi, 1986; T. Yamagishi, 1986, 1988a, 1988b, T. Yamagishi & Cook, 1993; T. Yamagishi & Sato, 1986; T. Yamagishi et al., in press). Furthermore, we are currently successfully testing a set of predictions derived from our theory of trust in a new series of experiments and computer simulations.

15 No single methodology, whether it is questionnaire survey or experimentation, is sufficient for testing a comprehensive theory as our theory of trust. The fact that the results of these divergent studies consistently support our theory, we believe, provides the best kind of security against methodological shortcomings inevitably involved in a single study. Many of the findings of this study are consistent with previous findings related to collectivism/individualism. Japanese society (especially in comparison to American society) is often characterized by a culture of collectivism (e.g., Hofstede, 1980), one aspect of which is emphasis on group boundary and preferential treatments given to in-group members (e.g., Triandis, 1989, 1990). Using our terminology, members of a collectivist culture provide mutual assurance in committed relations. Our research findings are not unique in this context. Rather, what makes our study unique among many so called "cross-cultural" studies is that our predictions concerning the U.S.-Japan differences have been derived from a general theory of trust, the logic of which applies equally to Japanese and American societies. This feature of our approach makes it possible to predict the long-term consequences of some macro changes. For example, the prominence and the stability of networks of committed relations in Japanese society and business are currently being challenged by the internationalization of the economy and society.

16 Once networks of committed relations lose their current power in providing mutual assurance, Japanese society will face a major challenge of nurturing general trust. According to our theory, the opening-up of the dosed nature of Japanese society and business has to be accompanied by the nurturing of general trust to fill the chasm created by the demise of the once so strong committed relations. In contrast, American society seems to show signs of retreat to committed relations in response to increasing social uncertainty such as increasing crimes. Either way, our theory asserts that a society founded on general trust rather than committed relations is precarious; it requires a delicate balance between carefully orchestrated nurturing of general trust and the provision of effective and fair social institutions. (We are currently investigating the relationship between trust in people and trust in social institutions.) Japanese society currently faces the problem of creating that balance in response to the pressure for opening-up of the society and the

economy, whereas American society faces the problem of maintaining it in the face of increasing social uncertainty.

The Composite Conspiracy Belief (CCB) Scale: Development, Validation, and Distinction From Related Constructs.

ABSTRACT.

Conspiracy thinking is a multidimensional construct, studied both as a general disposition (conspiracy mindset) and as adherence to specific narratives (conspiracy beliefs). Despite research interest, distinguishing generic conspiracy thinking from related constructs (e.g., paranoid, magical thinking) remains a challenge. The present study aims to develop and validate the composite conspiracy belief (CCB) scale, a new measure of conspiracy thinking that distinguishes itself from similar thinking styles and captures different conspiracy tendencies. Two studies were conducted. Study 1 (N=380) examined the factorial structure of CCB, hypothesizing a third-order hierarchical model based on semi-specific conspiracy narratives: “source of threat” and “type of threat.” Study 2 (N=364) evaluated the differentiation of CCB from magical thinking, social persecution, and generalized suspiciousness. The analyses confirmed the construct, convergent, and incremental validity.

1 | Conspiracy Thinking: A Constellation of Factors.

The term “conspiracist ideation,” often referred to as “conspiracy mentality” or “conspiracy mindset,” is conceptually defined within psychological and social science literature as a generalized dispositional tendency in individuals (Bertin et al. 2022; Imhoff and Bruder 2014; Sternisko et al. 2020) to endorse or exhibit susceptibility towards explanations that attribute political or societal phenomena to secret plots (Bruder et al. 2013; Golec de Zavala et al. 2022). Specifically, this disposition involves: (i) generalized susceptibility, a general tendency to believe in conspiracy theories across various specific contexts, rather than merely holding a specific belief (Bertin et al. 2022; Bruder et al. 2013); (ii) attribution of intentionality, the mindset characterized by attributing the causation of salient events to the hidden, intentional, and malevolent plotting of powerful collective actors (Golec de Zavala et al. 2022; Moscovici 1987; Sunstein and Vermeule 2009); (iii) epistemic distrust, which reflects a generalized political attitude that encompasses a systematic epistemic distrust of established explanations or those in power (Knight and Butter 2021; Nera and Schöpfer 2023). The definition of “conspiracy theory” (CT) is an inherently multidisciplinary field of study, attracting attention from areas such as psychology, philosophy, linguistics, and sociology. The literature reveals a wealth of perspectives in the conceptualization of CTs, often highlighting interconnected aspects of the phenomenon. “Conspiracy thinking” is a multidimensional phenomenon that can be understood both as a general psychological disposition (conspiracy mentality) and as the adherence to specific conspiracy narratives (conspiracy belief). These narratives share structural (conspirators, secret plans, secrecy) and linguistic (metadiscursive references, focus on evidence and This is an open access article under the terms of the Creative Commons Attribution License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited. © 2025 The Author(s). Applied Cognitive Psychology published by John Wiley & Sons Ltd. 2 of 17 Applied Cognitive Psychology, 2025 facts, hypothetical structures) characteristics, often serving as a mechanism to make sense of complex events and to attribute blame to external entities perceived as hostile or powerful.

5 | Conclusion.

This study aimed to develop and validate a new measure of conspiracy thinking, the CCB scale, designed to capture semispecific conspiracy narratives, distinct from other related styles of thinking, while capturing different conspiracy tendencies and distinguishing between various forms of conspiracy theories. To this end, two studies were conducted, the results of which support the hypotheses formulated. Study 1 examined the factor structure of the CCB scale. The results of the factor analyses confirm the first hypothesis of the study, demonstrating that conspiracy thinking, as measured by the CCB, is the result of the covariation of two fundamental aspects: the “source of the threat” and the “type of threat.” With regard to the SCT scale, an exploratory factor analysis revealed the existence of three distinct factors: (PEC), MSC, and EPC. The correlations between CCB factors and SCT dimensions showed strong convergent validity for the CCB scale. The data suggest that CCB effectively captures the general tendency towards conspiracy thinking, which also manifests itself in adherence to specific narratives. Study 2 explored the differentiation of CCB from other similar constructs, such as magical thinking, social persecution, and generalised suspiciousness, in line with the second hypothesis of the study. The results of the incremental validity analyses demonstrated that CCB leads to an improvement in the ability to predict overall SCT scores, even after taking into account the influence of magical beliefs, persecution, and suspiciousness. This highlights that CCB provides a unique and significant contribution. On the one hand, the distinction between CCB and related constructs such as magical thinking, suspiciousness, and paranoia may be overly emphatic. In fact, in a field where conspiracy theories are conceptually linked to other styles of thinking (e.g., the search for illusory patterns is common to both magical and conspiratorial thinking), a certain conceptual and empirical overlap is to be expected and may even be significant. On the other hand, separation (or distinction) can be useful. The literature suggests that, unlike paranoia, which focuses on threats to the individual self, conspiratorial thinking involves the perception of plots by powerful groups that influence the community. The CCB aims to distinguish and capture both the individual part (“they want to harm me”, linked, for example, to threats to health and the body) and the socio-political and intergroup component (“they want to harm us”, linked, for example, to political control), which requires a distinction from generalized interpersonal suspicion. This aspect involves both the construct validity of the measure and its incremental utility, that is, providing a unique and meaningful contribution to the prediction of specific beliefs in conspiracy theories, even after taking into account the influence of related constructs. The CCB scale appears to be a promising tool for measuring conspiracy thinking. Its well-defined hierarchical structure and ability to distinguish itself from related constructs underscore its psychometric robustness. Designed as a semi-specific measure, the CCB is expected to show a good level of generalizability and be less influenced by cultural and temporal context, making it particularly suitable for cross-cultural studies. These results contribute significantly to the literature on conspiracy psychology, providing a more refined tool for future research in this multidisciplinary field.

5.1 | Limitations and Future Prospects.

Despite the promising results emerging from these studies on the CCB scales, it is essential to recognize certain limitations and outline future directions for research. Firstly, most of the data for both studies was collected online, and although different sampling methods were used, the nature of the sample (predominantly Italian) could limit the full generalizability of the results to other cultures. Although the CCB was conceptualized as a generalised measure less constrained by cultural and temporal context, cross-cultural validation in geographical and cultural contexts other than Italy is essential to confirm this characteristic. Future studies should aim to replicate these findings in more heterogeneous samples globally. Another aspect

to consider concerns the weight of social desirability and the tendency to mystify, which is typical of these studies. Although some precautions have been taken, these biases require more sophisticated methods to be controlled. This critical issue may suggest that the variability in belief in conspiracy theories among a wider population has been underestimated. With regard to the SCT scale, it was noted that some items, such as those relating to 5G antennas, climate change and chemtrails, show saturation across multiple factors (PEC and MSC). This indicates the complex and interconnected nature of some conspiracy theories, which can overlap between the political-economic and medical-scientific categories. Although this reflects the reality of many conspiracy narratives, future research could refine the wording of the items or explore more flexible factor models to capture these intersections even more accurately. It should be recognized that the CCB scale, as validated in this study, has limitations regarding its generalizability to other cultures. The “source × type” matrix is a flexible framework that should be adapted to the cultural context in which it is used. Future research is crucial for cross-cultural validation and to explore whether different “sources of threat” are more relevant in other countries to capture the local spectrum of conspiracy beliefs. Furthermore, although the matrix covers the most prevalent categories, it is not exhaustive, and future research could test additional sources or types of threats, especially in different cultural contexts. The two studies addressed the risk of variation in plausibility between items on the scale. While this variability reflects the heterogeneity of conspiracy thinking, it also presents a psychometric risk. Although these data support the internal consistency of the scale, it must be acknowledged that the variation in plausibility is an aspect that deserves further attention. This variation may indicate that, although the scale measures a unitary construct, conspiracy thinking may manifest itself in different forms that vary in terms of perceived credibility. Future research could further explore this distinction, for example by examining the psychological motivations that drive an individual to adhere to more or less plausible conspiracy theories. A potential inconsistency in the wording of one specific item should be noted. Unlike other items that omit the premise of the source's existence (e.g., “The government manipulates...”), item 24 is worded as “Aliens exist and manipulate information...”. This choice was intentional to reflect the fact that the existence of aliens is not a universally accepted belief. However, we recognize that this deviation from formal consistency may not be confirmed in other studies. Although psychometric analyses have confirmed the structural validity of the scale as a whole, it is recommended that future studies explore alternative formulations to ensure complete consistency and further validate the scale. In terms of future prospects, CCB scale offers several avenues of research. (i) Cross-cultural validation: as mentioned, it is crucial to test the CCB in different cultures to confirm its generalizability, especially considering its “generalist” design, which makes it suitable for transnational studies. (ii) Correlates and antecedents: although Study 2 began to distinguish CCB from other styles of thinking, future research could explore a broader spectrum of psychological, social, and demographic correlates, as well as the antecedents that lead to the development of this composite conspiracy mindset. (iii) Behavioral consequences: investigating the implications of CCB on actual attitudes and behaviors (e.g., voting behavior, participation in social movements, acceptance of public health interventions) would be a significant step towards understanding the impact of this construct.

TWENTY-SEVEN.

The Influence of Control on Belief in Conspiracy Theories: Conceptual and Applied Extensions.

Summary: Threats to control have been found to increase belief in conspiracy theories. We argue, however, that previous research observing this effect was limited in two ways. First, previous research did not exclude the possibility that affirming control might reduce conspiracy beliefs. Second, because of artificial lab procedures, previous findings provide little information about the external validity of the control threat–conspiracy belief relationship. In Study 1, we address the first limitation and find that affirming control indeed reduces belief in conspiracy theories as compared with a neutral baseline condition. In Study 2, we address the second limitation of the literature. In a large-scale US sample, we find that a societal threat to control, that citizens actually experienced, predicts belief in a range of common conspiracy theories. Taken together, these findings increase insight in the fundamental relationship between the human need for control and the tendency to believe in conspiracy theories. Copyright © 2015 John Wiley & Sons, Ltd.

INTRODUCTION.

Against the background of economic and financial crises, global warming, wars, and epidemics, conspiracy theories have widespread appeal. The Internet is filled with examples of conspiracy theories, including allegations that 9–11 was an inside job, that the US government was involved in the assassination of John F. Kennedy, or that the US government has been withholding evidence for the existence of intelligent extraterrestrial life. Conspiracy theories can be defined as explanatory beliefs, involving multiple actors who join together in secret agreement and try to achieve a hidden goal that is perceived as unlawful or malevolent (Bale, 2007; see also Zonis & Joseph, 1994). Large numbers of ordinary citizens believe in conspiracy theories, and hence, most conspiracy beliefs cannot be dismissed as pathological (Oliver & Wood, 2014; Sunstein & Vermeule, 2009). Furthermore, accumulating research findings reveal a range of detrimental perceptions and behaviors that are associated with conspiracy beliefs, including health problems, decreased civic virtue, hostility, and radicalization (Inglehart, 1987; Jolley & Douglas, 2014; Swami et al., 2011; Thorburn & Bogart, 2005; Van Prooijen, Krouwel, & Pollet, 2015). As a consequence, there has been a surge in empirical research on this phenomenon in recent years. Although conspiracy theories vary enormously in content, it has been noted that belief in such theories is grounded in similar underlying psychological processes. For instance, a good predictor of belief in one conspiracy theory is belief in a different, conceptually unrelated conspiracy theory (e.g., Douglas & Sutton, 2011; Goertzel, 1994; Lewandowski, Oberauer, & Gignac, 2013; Swami, Chamorro-Premuzic, & Furnham, 2010; Swami et al., 2011, 2013; Van Prooijen et al., 2015; Wood, Douglas, & Sutton, 2012). This suggests that people vary in the extent to which they have a conspiratorial mindset, prompting them to assume evil conspiracies as responsible for impactful societal events. The main psychological process that has been associated with this conspiratorial mindset is the human desire to make sense of their social environment. Early writings by Hofstadter (1966) already noted that conspiracy beliefs help citizens who feel powerless or voiceless to understand complex and distressing societal events (see also Bale, 2007). Consistently, empirical findings suggest that the motivation to make sense of events that potentially threaten one's community predicts belief in conspiracy theories (Van Prooijen & Van Dijk, 2014; see also Van Prooijen & Van Lange, 2014). People's desire to make sense of the social world is closely coupled with the extent to which they experience control over their environment. Various complementary theoretical perspectives, on meaning-making (Heine, Proulx, & Vohs, 2006; Park, 2010; Van den

Bos, 2009), paranoia (Kramer, 1998), and compensatory control (Kay, Whitson, Gaucher, & Galinsky, 2009; Rutjens, van Harreveld, & van der Pligt, 2013), assume that threats to control increase people's mental efforts to make sense of the social world, imbuing the world with meaning, purpose, and order. These insights may explain why conspiracy theories seem to gain momentum particularly following impactful societal events that are likely experienced as control threats by citizens (e.g., a terrorist strike, a war, or a natural disaster; see Pipes, 1997; Robins & Post, 1997; Shermer, 2011). Indeed, research reveals that people are more likely to attribute impactful, harmful societal events (e.g., a politician is assassinated) to conspiracies than societal events that are less impactful or harmful (e.g., someone tries to assassinate a politician but fails; see McCauley & Jacques, 1979), a finding that is attributable to people's sense-making motivation (Van Prooijen & Van Dijk, 2014). In a similar vein, various operationalizations of control threats have been found to predict conspiracy beliefs. For instance, an external locus of control—that is, a dispositional tendency to believe that one's outcomes are controlled by external forces—is correlated with interpersonal mistrust and paranoia (Mirowsky & Ross, 1983) and belief in conspiracy theories (Hamsher, Geller, & Rotter, 1968). Furthermore, a seminal study by Whitson and Galinsky (2008) reveals that experimentally induced control threats increases the extent to which participants perceive patterns, such as images in random noise, patterns in stock market information, and conspiracies. Complementary findings indicate that control threats elicit responses that are widely associated with conspiracy belief, such as attributing increased power to one's enemies (Sullivan, Landau, & Rothschild, 2010), and scapegoating (Rothschild, Landau, Sullivan, & Keefer, 2012). Furthermore, constructs that are closely associated with control threats, such as death anxiety (Newheiser, Farias, & Tausch, 2011), uncertainty (Van Prooijen & Jostmann, 2013), and attitudinal ambivalence (van Harreveld, Rutjens, Schneider, Nohlen, & Keskinis, 2014), have been found to similarly influence conspiracy beliefs. In the following, we discuss how the present contribution is designed to expand on these insights.

GENERAL DISCUSSION The present findings fit into a broad research domain designed to uncover the psychological processes underlying belief in conspiracy theories. Specifically, the extent to which people are able to exert control over their social environment is closely coupled with their desire to make sense of this environment (e.g., Park, 2010; van den Bos, 2009). Such sense-making motivation is a central ingredient of belief in conspiracy theories (Hofstadter, 1966; see also Bale, 2007; Van Prooijen & Van Dijk, 2014). These complementary insights stimulated a wealth of studies illuminating that people are most likely to believe in conspiracy theories when they lack control (Hamsher et al., 1968; Newheiser et al., 2011; Sullivan et al., 2010; Van Prooijen & Jostmann, 2013; Whitson & Galinsky, 2008). The present research was designed to extend these insights in two ways. First, previous research typically investigated the impact of control on belief in conspiracy theories with incomplete research designs, raising questions about the additional possibility that affirmations of control might attenuate conspiracy beliefs. Study 1 of the current contribution addresses this issue and indeed reveals a reduction in conspiracy beliefs when people's sense of control is affirmed. Second, previous findings offered little indications of the external validity of the relation between control and belief in conspiracy theories. Our Study 2 findings, however, reveal that a real-life control threat predicts a range of conspiracy beliefs among a large number of citizens. Taken together, the studies presented here conceptually extend insights on the relation between control and belief in conspiracy theories. Both studies independently hold a valuable insight for theorizing on belief in conspiracy theories. One main implication of Study 1 is that the human need for control is intimately related with belief in conspiracy theories in both directions of a control

continuum. Although in our Study 1, the low control condition did not differ significantly from the neutral baseline condition, it stands to reason that the specific setting of the study was already threatening to control, also in the neutral condition (i.e., the study being situated in the context of controversial public policy, with observable harmful effects for many citizens). Hence, the relation between control and belief in conspiracy theories is in all likelihood bidirectional: Whereas threats to control might increase belief in conspiracy theories (e.g., McCauley & Jacques, 1979; Van Prooijen & Van Dijk, 2014; Whitson & Galinsky, 2008), our findings reveal that affirmations of control might just as well decrease belief in conspiracy theories. This latter point has not been recognized before in this research domain. A main implication of Study 2 is that the relationship between the human need for control and belief in conspiracy theories is not confined to the lab. In popularized writings, it is frequently noted that conspiracy theories gain momentum when society faces uncertain times, such as economic crises, threats of terrorism, climate change, and the like (e.g., Pipes, 1997; Shermer, 2011). Empirical evidence had not yet established that a real-life control threat indeed predicts belief in conspiracy theories. Our reanalysis of the Y2K-bug data indicates that a genuine control threat predicts people's susceptibility to unrelated conspiracy theories, such as belief in a UFO cover-up, and the belief in a Kennedy conspiracy theory. Indeed, these relations hold up even after controlling for trust in the government, and the specific belief in a Y2K conspiracy theory. These findings underscore the external validity of the control–conspiracy belief relation and suggest that societal threats to control are associated with a generally suspicious, conspiratorial mindset. The present research implies that societal developments may predict the waxing and waning of popular conspiracy beliefs over time. Citizens frequently are faced with threatening events or periods, such as intergroup conflict and riots, economic and financial crises, and wars. Based on the present research, it stands to reason that conspiracy beliefs are particularly likely to flourish in such times of societal turmoil. Indeed, it might be speculated that some of these conspiracy beliefs have the potential of further deteriorating these detrimental societal circumstances by undermining the legitimacy of public governance. These considerations suggest that, whenever society is facing a substantial control threat, political leaders have an increased responsibility to install a sense of trust among the public, and to overtly display signs of moral behavior, particularly if they want to avoid increases in perceived threat and the virulent spread of conspiracy beliefs. Although most of the time this will turn out to be easier said than done, some factors that may help political leaders to increase their moral authority are being transparent about their motivations for important decisions (Brockner, DeWitt, Grover, & Reed, 1990; Folger & Martin, 1986), and closely adhering to procedural justice principles (Leventhal, 1980), as these factors are known to support feelings of control. It may also be useful to consider how leaders can reinforce other areas where control is not threatened in order to ameliorate conspiratorial thinking. Also other sources of evidence suggest that the relationship between threatening societal events and belief in conspiracy theories can have substantial macro-political implications. For instance, it has been noted that collective control threats in the form of societal crises—particularly if preceded by a short-lived period of prosperity—predict the rise of politically extremist regimes (Midlarsky, 2011). Empirical findings indeed underscore that fearful socioeconomic circumstances are associated with politically extremist ideologies (Van Prooijen, Krouwel, Boiten, & Eendebak, 2015). These observations are relevant for the current purposes, because political extremism has been found to predict belief in conspiracy theories (Van Prooijen et al., 2015; see also Inglehart, 1987). It is yet unclear what the causal order is of the relation between belief in conspiracy theories and political extremism. What is clear, though, is that both phenomena fuel detrimental societal developments, such as fear, hostility, and intergroup

conflict. Societal threats to control hence can have a major impact on the functioning of society, and this is at least partly due to the processes described in this contribution. Both studies reported herein have their limitations. In keeping with previous studies, Study 1 focused on an experimenter-designed control threat, in a sample of undergraduate university students. A primary concern of Study 1 is therefore the question how meaningful these findings are to predict the influence of societal developments on belief in conspiracy theories. This main weakness of Study 1 is one of the main strengths of Study 2, however, which focused on a genuine control threat in a large sample of US citizens. Study 2, then, was a cross-sectional design that precludes conclusions about cause and effect. Based on Study 2 alone, we cannot be certain whether variations in control caused belief in conspiracy theories or instead that people with a conspiratorial mindset were more likely to perceive the Y2K situation as a threat to control. This limitation, in turn, is addressed by the main strength of Study 1, showing evidence for a causal influence of variations in control on belief in conspiracy theories (cf. Sullivan et al., 2010; Whitson & Galinsky, 2008). Although this finding still leaves open the possibility of reverse-causation (i.e., a conspiratorial mindset might also contribute to the experience of control threat), it does install confidence in our interpretation of the findings observed in the studies presented here. To conclude, the present studies add to an emerging body of literature on the psychological underpinnings of belief in conspiracy theories. Whereas it is well-established that large portions of ordinary citizens believe in conspiracy theories (Oliver & Wood, 2014), there is much that can still be learned about the question of why they do. The present studies sought to contribute to this issue by highlighting how having or lacking control influences the sense-making processes leading up to conspiracy beliefs. In doing so, the studies conceptually refine previous insights on the relationship between control and conspiracy beliefs. It is concluded that the human need for control is closely coupled with their tendency to believe in conspiracy theories, a relationship that can also be observed in applied settings.

TWENTY-EIGHT

Conspiracy Theories: Evolved Functions and Psychological Mechanisms.

Abstract.

Belief in conspiracy theories—such as that the 9/11 terrorist attacks were an inside job or that the pharmaceutical industry deliberately spreads diseases—is a widespread and culturally universal phenomenon. Why do so many people around the globe believe conspiracy theories, and why are they so influential? Previous research focused on the proximate mechanisms underlying conspiracy beliefs but ignored the distal, evolutionary origins and functions. We review evidence pertaining to two competing evolutionary hypotheses: (a) conspiracy beliefs are a by-product of a suite of psychological mechanisms (e.g., pattern recognition, agency detection, threat management, alliance detection) that evolved for different reasons, or (b) conspiracy beliefs are part of an evolved psychological mechanism specifically aimed at detecting dangerous coalitions. This latter perspective assumes that conspiracy theories are activated after specific coalition cues, which produce functional counterstrategies to cope with suspected conspiracies. Insights from social, cultural and evolutionary psychology provide tentative support for six propositions that follow from the adaptation hypothesis. We propose that people possess a functionally integrated mental system to detect conspiracies that in all likelihood has been shaped in an ancestral human environment in which hostile coalitions—that is, conspiracies that truly existed—were a frequent cause of misery, death, and reproductive loss.

INTRO

Conspiracy theories are omnipresent among members of modern and traditional societies (West & Sanders, 2003). A common definition of conspiracy theory is the conviction that a group of actors meets in secret agreement with the purpose of attaining some malevolent goal (e.g., Bale, 2007). Contrary to the view that belief in such theories is pathological (Hofstadter, 1966), large portions of the human population believe conspiracy theories. In 2004, 49% of New York City residents believed the U.S. government to be complicit in the 9/11 terrorist attacks (Sunstein & Vermeule, 2009). In addition, in a nationally representative sample of the U.S. population, 37% answered “agree” to the following statement: “the Food and Drug Administration is deliberately preventing the public from getting natural cures for cancer and other diseases because of pressure from drug companies.” Another 31% answered “neither agree nor disagree,” and only 32% disagreed with this statement (Oliver & Wood, 2014). Belief in conspiracy theories is thus a widespread societal phenomenon and has increasingly drawn the research attention of social scientists (for overviews, see Brotherton, 2015; Douglas, Sutton & Cichocka, 2017; van Prooijen, 2018). This research focused predominantly on the direct, proximate mechanisms underlying conspiracy beliefs but ignored the distal, evolutionary roots and functions of such beliefs. The aim of the current contribution is to fill this void. We pursue the following more specific goals. First, we conceptualize conspiracy theories and identify the psychological mechanisms that interact to characterize belief in such theories. Second, to assess the core question of why conspiracy theories are widely believed, we place the key findings of this growing research domain within the context of evolutionary psychology. Through a synthesis of the empirical literature with theoretical insights from evolutionary, social, and cultural psychology, we put forward two rival hypotheses. The first, called the by-product hypothesis, argues that conspiracy theories are a by-product of a suite of cognitive mechanisms (e.g., pattern perception, agency detection) that evolved for different reasons. The

second hypothesis, which we label the adaptive-conspiracism hypothesis, stipulates that conspiracy thinking is an adaptive feature of the human coalitional mind that evolved (a) to alert ancestral humans to the possibility that others were forming dangerous coalitions against them and (b) to stimulate appropriate actions to fend off such threats. Finally, on the basis of our line of reasoning, we generate novel predictions about potential mediators and moderators of conspiracy beliefs.

Final conclusions.

Modern humans are highly susceptible to conspiracy theories, even when there is little direct evidence to support them. Why are conspiracy theories so widespread and influential among regular citizens? The present review compared a by-product explanation with an adaptive explanation. The by-product hypothesis suggests that conspiracy theories originate from the interaction between a set of psychological mechanisms that are nonspecific for conspiracy theories. The adaptiveconspiracism hypothesis suggests that conspiracy beliefs have the properties of a psychological adaptation that is functionally designed to deal with specific, recurrent dangers posed by hostile coalitions in human evolutionary history. In an ancestral environment in which humans were frequently confronted with coalitional violence, it may have paid to be suspicious of powerful, potentially hostile coalitions. We propose that conspiracy theories are widespread because in the evolutionary history of our species, it was adaptive to hold these beliefs. Whether it is still adaptive for humans in the modern world to be overly susceptible to conspiracy theories remains to be seen.

TWENTY-NINE.

Can Conspiracy Beliefs Be Beneficial? Longitudinal Linkages Between Conspiracy Beliefs, Anxiety, Uncertainty Aversion, and Existential Threat.

Abstract.

Research suggests that conspiracy beliefs are adopted because they promise to reduce anxiety, uncertainty, and threat. However, little research has investigated whether conspiracy beliefs actually fulfill these promises. We conducted two longitudinal studies (NStudy 1 = 405, NStudy 2 = 1,012) to examine how conspiracy beliefs result from, and in turn influence, anxiety, uncertainty aversion, and existential threat. Random intercept cross-lagged panel analyses indicate that people who were, on average, more anxious, uncertainty averse, and existentially threatened held stronger conspiracy beliefs. Increases in conspiracy beliefs were either unrelated to changes in anxiety, uncertainty aversion, and existential threat (Study 2), or even predicted increases in these variables (Study 1). In both studies, increases in conspiracy beliefs predicted subsequent increases in conspiracy beliefs, suggesting a self-reinforcing circle. We conclude that conspiracy beliefs likely do not have beneficial consequences, but may even reinforce the negative experience of anxiety, uncertainty aversion, and existential threat.

In an influential television address in March 2020, Angela Merkel, the German chancellor, described the coronavirus pandemic as the largest societal challenge since World War II (Merkel, 2020). Most people experienced drastic changes in their everyday lives, and voiced questions, such as “Where did the coronavirus come from?” “Is the vaccine dangerous?” and “Is the government really acting in our best interest?” Many people found the official answers to these kinds of questions unsatisfactory, and started to look for alternative explanations, for instance, in conspiracy theories (Nocun & Lamberty, 2020). Conspiracy theories are attempts to explain significant social or political events (Douglas et al., 2019) that usually contradict common and official explanations (Nocun & Lamberty, 2020). They assume that events are the result of plots initiated by malevolent individuals or groups who act in secret (Bruder et al., 2013; Douglas et al., 2017; Imhoff & Bruder, 2014). In most cases, the conspirators are assumed to be powerful (although not necessarily; see Nera et al., 2021). Many different conspiracy theories developed during the coronavirus pandemic, such as that the virus was fabricated in a lab, or that it served to distract from the alleged dangers of the 5G mobile network (Nocun & Lamberty, 2020). Research suggests that conspiracy beliefs are adopted in response to the experience of anxiety, uncertainty, and threat, most likely in an attempt to reduce these negative states (Douglas et al., 2017). Yet it has been suggested that conspiracy beliefs are “more appealing than satisfying” (Douglas et al., 2017, p. 538) and might not actually help deal with anxiety, uncertainty, and threat. Instead, conspiracy beliefs may represent a “self-defeating form of motivated social cognition” (Douglas et al., 2017, p. 541) and may ultimately reinforce the negative experiences that led to their adoption in the first place (Douglas et al., 2017, 2020). We aim to investigate this potential negative feedback loop in a longitudinal design. Longitudinal studies are especially suited for this purpose because they separate stable between-person differences from changes occurring within persons over time (Curran & Bauer, 2011). This allows to examine whether within-person changes in conspiracy beliefs relate to subsequent changes in anxiety, uncertainty aversion, and existential threat (and vice versa). Although there are many other variables related to conspiracy beliefs (e.g., thinking styles, Pytlik et al., 2020; paranoia, Imhoff & Lamberty, 2018; narcissism, Cichocka et al., 2016; or ideology, Nera et al., 2021), the focus of this research is on variables related to uncertainty and fear. These were particularly relevant in the coronavirus pandemic: Almost

everyone experienced substantial uncertainties (e.g., whether another lockdown would occur), existential threats (e.g., becoming infected, losing their job), and heightened levels of anxiety (Schwinger et al., 2020). Hence, withinperson changes in these variables can be expected (whereas personality or ideology variables might be more stable over time). In sum, the pandemic provides a unique opportunity to study how uncertainty and fear-related variables relate to conspiracy beliefs over time: Can conspiracy beliefs be beneficial by reducing anxiety, uncertainty aversion, and existential threat, or do they, instead, reinforce these negative experiences?

General Discussion.

This research aimed to examine whether conspiracy beliefs can provide personal benefits by reducing uncertainty aversion, anxiety, and existential threat, or whether conspiracy beliefs instead reinforce these negative experiences. Two longitudinal studies with different time intervals (two weeks and four months, respectively) demonstrate that conspiracy beliefs likely do not reduce the negative experience of anxiety, uncertainty aversion, and existential threat, but may sometimes even reinforce them. We extend previous research by separating stable between-person effects from withinperson changes in these variables for the first time. Within-Person Changes Over Time Are conspiracy beliefs beneficial or harmful for the individual? In both studies, within-person increases in conspiracy beliefs did not predict reduced anxiety, uncertainty aversion, and existential threat. Increases in conspiracy beliefs were either unrelated to changes in these variables (Study 2) or even predicted increases in uncertainty aversion, anxiety, and existential threat (Study 1). This indicates that conspiracy beliefs are likely not beneficial in this regard. However, we cannot answer conclusively whether conspiracy beliefs, instead, reinforce the negative experience of anxiety, uncertainty, and threat: We observed these harmful effects only in Study 1. It may be that the time intervals in Study 2 were too long to observe these effects. It has been argued that the optimal time intervals to observe longitudinal relations are relatively short, especially for within-person effects (Dormann & Griffin, 2015), and that effect sizes typically decrease as time intervals get larger (Atkinson et al., 2000; Cohen, 1993; Dormann & Griffin, 2015; Hulin et al., 1990). This may explain why we observed only few within-person associations in Study 2. We did not find within-person consequences of coronavirus-related conspiracy beliefs in Study 2. This may be due not only to long time intervals, but also to opposing effects that cancel each other out: Most coronavirus conspiracy beliefs contain some element that downplays the dangers of the virus, which might relieve distress. Yet, most of them also describe threatening scenarios of malevolent, secret forces, which should increase distress. We revealed an additional way in which conspiracy beliefs may be harmful for the individual: Both studies found that increases in conspiracy beliefs predicted even further increases in conspiracy beliefs at the next measurement wave. This effect emerged for both short- and long-term distances, and indicates that conspiracy beliefs are part of a selfreinforcing cycle that results in more and more extreme attitudes (Goertzel, 1994; Swami et al., 2010; Wood et al., 2012). Do anxiety, uncertainty aversion, and existential threat predict conspiracy beliefs? We observed only few within-person associations going from anxiety, uncertainty aversion, and existential threat to conspiracy beliefs. Increases in these variables were unrelated to increases in conspiracy beliefs in Study 1 and only increases in uncertainty aversion were associated with subsequent increases in conspiracy beliefs in Study 2. The absence of these within-person associations does not rule out that within-person effects were present in earlier life stages: The within-person effects we observed pertain only to processes that occurred during our study. All processes that happened earlier in the participants' lives would be captured by the between-person variance. Future research

should examine these relations over different time intervals and during different developmental phases. Bearing in mind that this effect occurred only in Study 2, the cross-lagged effect from uncertainty aversion to conspiracy beliefs might tentatively point to a downward spiral that unfolds over time: People might turn to conspiracy beliefs in an attempt to alleviate the negative experience of uncertainty but do not succeed in this attempt. Instead, they may even experience short-term increases in uncertainty aversion, anxiety, and existential threat.

Stable Between-Person Differences On the between-person level, both studies revealed that people who were, on average (i.e., across all measurements), more anxious, more averse to uncertainty, and/or more existentially threatened than other people were also more likely to hold conspiracy beliefs. These findings are in line with previous work, indicating that conspiracy beliefs are related to anxiety, uncertainty aversion, and existential threat (Douglas et al., 2017; Grzesiak-Feldman, 2013; Swami et al., 2016). Coronavirus conspiracy beliefs were correlated with anxiety and existential threat on the between-person level. People who were, on average, more anxious and existentially threatened also agreed more to a range of unfounded beliefs about the coronavirus. No correlations with uncertainty aversion emerged. It may be that uncertainty averse people found other explanations for the coronavirus crisis that better matched their desire for certainty.

Strengths, Limitations, and Future Research We observed the negative impact of conspiracy beliefs on uncertainty aversion, anxiety, and existential threat only in Study 1. This may be due to different time intervals. In general, it is not uncommon that researchers who study the same phenomenon with different time intervals come across different estimates of lagged effects (Kuiper & Ryan, 2018). The selection of appropriate time intervals is of crucial importance in longitudinal research, yet the actual time interval required for an effect to unfold is rarely known to researchers (Bollen, 1989). Instead, “decisions about when to measure and how frequently to measure critical variables are left to intuition, chance, convenience, or tradition” (Mitchell & James, 2001, p. 533). Choosing anything other than the actual time interval can lead to important biases in estimation. For instance, Bollen (1989) points out that in cases where one variable influences another, and measurement intervals are longer than the actual time intervals, this relation may sometimes be approximated by a reciprocal causal relation, although the one-way nature of the effect would become visible in shorter time lags. Furthermore, Cole and Maxwell (2009) argue that choosing the wrong interval may result in gross underestimations of relations over time. Thus, an important goal for future research consists in identifying the “optimal” time lag for observing potential effects of conspiracy beliefs, that is, the time lag that yields a maximum effect of conspiracy beliefs on anxiety, uncertainty aversion, and/or existential threat (Dormann & Griffin, 2015). Dormann and Griffin (2015) propose an algebraic procedure to do so for traditional CLPMs. This involves collecting data with a time lag that is presumably smaller than the optimal time lag, calculating the optimal time lag (based on effect sizes of stability and cross-lagged parameters), and repeating data collection. Yet, so far, this procedure has not been extended to designs that focus on within-person effects. Dormann and Griffin (2015) suspect, however, that such an extension will reveal very short optimal time lags for most persons and call for more “shortitudinal” studies. There are alternative explanations for why results were inconsistent across studies, for instance, differences in sample composition. Douglas et al. (2017) argue that conspiracy beliefs may be beneficial for some people and detrimental for others. In particular, they argue that conspiracy beliefs may provide benefits for people who are disadvantaged and alienated from society, whereas people who are not disadvantaged may find them distressing. This coincides with our pattern of results: We observed the harmful consequences of conspiracy beliefs only in Study 1, which consisted of highly educated participants. Future research should investigate potential moderators of the consequences of

conspiracy beliefs, such as social status or level of education. Furthermore, future research should investigate whether conspiracy beliefs provide personal benefits in areas that were not the focus of this study. For example, conspiracy beliefs might boost self-esteem by promoting a sense of uniqueness (Imhoff & Lamberty, 2017). Conspiracy beliefs might also provide a community of fellow conspiracy believers and a subsequent positive social identity (Douglas et al., 2017). Yet conspiracy beliefs can also be stigmatizing: Others might avoid or exclude former friends who openly advocate conspiracy beliefs (Lantian et al., 2018). Future research should investigate these potentially opposing personal consequences of conspiracy beliefs. Another limitation of our research is that results may be biased due to unmeasured confounding variables. This prevents us from drawing causal conclusions about the observed processes (Bollen, 1989). For instance, there might be omitted variables that are common causes of conspiracy beliefs, anxiety, uncertainty aversion, and existential threat. This might bias the regression parameters we observed. For example, if conspiracy beliefs were, in fact, not causally related to anxiety, but both were caused by an omitted third variable, a spurious relation between conspiracy beliefs and anxiety might arise (Bollen, 1989). A potential common cause might be, for example, right-wing media consumption.⁴ It is plausible that watching more right-wing television resulted in both increased anxiety (because concerns about economic crises were raised) and conspiracy beliefs (because convincing conspiracy claims were made). Yet it would still be plausible that conspiracy beliefs additionally reinforce anxiety, uncertainty aversion, and existential threat because they promote a threatening worldview filled with suspicion and mistrust. Future research that aims to establish causality should consider these potential common causes (Bollen, 1989). Recently, the RI-CLPM has been criticized because it does not capture the potential effects of causes that explain differences between persons over time and focuses only on fluctuations around individual person means (Lüdtke & Robitzsch, 2021). Yet we argue that, for our purposes, this focus on within-person dynamics is appropriate: If conspiracy beliefs had harmful consequences for the individual, then they should produce higher anxiety as compared with that person's usual (average) levels of anxiety, regardless of whether that person is more or less anxious than others. Nevertheless, future research could profit from considering different aspects of change from competing methodological approaches. For example, the traditional CLPM might provide insights on potential causes that make one person different from another over time (Lüdtke & Robitzsch, 2021). Furthermore, the latent curve model with structured residuals examines both interindividual differences in change over time on the between-person level, and intraindividual change on the within-person level (Curran & Hancock, 2021). Systematically comparing these different models of change could further our understanding of the processes at hand. In addition, future research should apply continuous-time models that treat time as a continuous variable that may take an infinite number of values (Voelkle et al., 2018). These models assume that the processes of interest influence each other at every moment in time, not only at the times of measurement (Kuiper & Ryan, 2018). By using differential calculus, it becomes possible to compute the effects of interest as a function of any arbitrary time interval. Future research should systematically compare results obtained from discrete time models (such as the RI-CLPM) with continuous-time approaches (Voelkle et al., 2018). The pandemic represents an advantage for our research. During normal circumstances, peoples' conspiracy beliefs are likely relatively stable (Bruder et al., 2013), making it more difficult to observe within-person changes. During the pandemic, however, many new conspiracy theories emerged, thus providing suitable circumstances to study the withinperson associations of changes in such beliefs. In addition, the fact that we did not find evidence for any beneficial effects of conspiracy beliefs, despite differences in sample composition, time intervals, and phases of

the pandemic, adds to the robustness of this finding. **Conclusion** Previous research concluded that conspiracy beliefs are attractive for people who are anxious, uncertainty averse, and existentially threatened. However, no prior research examined whether conspiracy beliefs actually help deal with uncertainty and reduce anxiety and perceived threat. We conducted two studies to explore the longitudinal relationships between conspiracy beliefs, uncertainty aversion, anxiety, and existential threat. Findings suggest that conspiracy beliefs are likely not beneficial for the individual, at least with regard to the variables we studied: Within-person increases in conspiracy beliefs were either unrelated to within-person changes in uncertainty aversion, anxiety, and existential threat (Study 2; four-month intervals) or even predicted subsequent increases in uncertainty aversion, anxiety, and existential threat (Study 1; two-week intervals). Our results further suggest that increases in conspiracy beliefs predict even further increases in conspiracy beliefs at the next measurement (both studies). This demonstrates that conspiracy beliefs are part of a self-reinforcing circle. These findings did not extend to coronavirus conspiracy beliefs: The specific content of conspiracy beliefs seems to be crucial for their consequences. Future longitudinal research on the potential harmful effects of conspiracy beliefs for their adherents is required.

THIRTY.

Clarifying the link between anxiety and conspiracy beliefs: A cross-sectional study on the role of coping with stressors.

ABSTRACT.

Recent theoretical models view conspiracy beliefs as an individual reaction to threatening experiences, an assumption that is in line with empirical relationships between conspiracy beliefs and feelings of anxiety and distress. The purpose of this study was to examine whether these relationships can be explained by the frequent use of specific coping strategies. In two consecutive online studies (N1 = 589, N2 = 177), anxiety, coping, and conspiracy beliefs were measured using questionnaires (Study 1 and Study 2) as well as a behavior-based measure (Study 2). Conspiracy beliefs were linked to higher levels of dispositional, but not situational anxiety. With respect to coping with stressors, conspiracy beliefs were positively correlated with vigilance and unrelated to avoidance. No moderator or mediator effects of the individual coping style on the relationship between conspiracy beliefs and anxiety were found. These results imply that individuals who endorse conspiracy theories are rather more anxious and less tolerant to ambiguity. Given the weak effect sizes and the focus of the extant models, however, replications should target the links between coping, anxiety and fear.

1. Introduction.

During the COVID-19 pandemic, public interest in conspiracy theories has rapidly increased. Such theories are often characterized by the allegation that “a group of actors meets in secret to attain some evil goal” (van Prooijen, 2020, p. 16). Recent surveys suggest that a substantial percentage of individuals in many Western societies agree to different conspiracy theories, including those related to COVID-19 (Ibbetson, 2021; Leibovitz et al., 2021). This agreement is not always temporary, but often results from a stable disposition or personality trait (see Frenken & Imhoff, 2021). Searching for individual risk factors, scholars often observed that conspiracy beliefs were better predicted by psychopathology than by general personality traits (for a review, see Goreis & Voracek, 2019). One such pathological factor is trait anxiety, an emotion characterized by hypervigilance and hyperarousal in the face of threat (Sylvers et al., 2011). Although previous research linked conspiracy beliefs to anxiety (e.g., Grzesiak-Feldman, 2013), it remains unclear how increased levels of anxiety contribute to the development of conspiracist mindsets. Based on recent theoretical models, this study attempts to fill this void by exploring the intermediary role of coping with stressors.

2. 1.1. Threat, anxiety and conspiracy beliefs.

Perhaps the most consistent finding in research regarding conspiracy beliefs is a relationship with heightened vigilance for potential threats. Previous research has found positive relationships between conspiracy beliefs and both state and trait anxiety (Grzesiak-Feldman, 2013; Leibovitz et al., 2021; Swami et al., 2016) as well as the perception of threat elicited by other social groups (Imhoff & Bruder, 2014) or societal challenges (Heiss et al., 2021). These results mirror the concept of threat compensation, meaning that “when committed beliefs are violated, people experience an arousal state that prompts them to affirm other beliefs to which they are committed” (Proulx & Heine, 2010, p. 889). In keeping with this idea, threatening situations, such as global pandemics, might challenge certain existing beliefs (e.g., sense of personal control or security) and thus strengthen the affirmation of other, conspiracy-related beliefs (e.g., skepticism regarding authorities or other social groups, see Proulx & Heine, 2010).

Accordingly, recent theoretical models highlight the role of threatening experiences in the development of conspiracist mindsets. These models share the assumption that conspiracy theories are one way of processing seriously threatening experiences (see Jutzi et al., 2020; van Prooijen, 2020).

In that sense, conspiracy beliefs can be regarded as a coping strategy. Endorsing conspiracy theories might help an individual to reduce aversive feelings of anxiety and arousal in the face of potential threat (see Jutzi et al., 2020), which could explain why individuals with elevated levels of anxiety are more vulnerable for such theories. It is less clear, however, which concrete coping behaviors are utilized by individuals with elevated levels of conspiracy beliefs.

1.2. Coping with anxiety and conspiracy beliefs

Different frameworks have been provided to describe interindividual differences in the use of coping behaviors. On the behavioral level, the Model of Coping Modes (MCM; Krohne, 1993; Krohne et al., 2000) distinguishes between two types of strategy that are either characterized by an attentional shift toward the stressor (i.e., vigilant coping) or away from it (i.e., avoidant coping). Both strategies are associated with functional differences: Vigilant coping is supposed to reduce ambiguity, whereas avoidant coping should reduce unpleasant arousal. Hence, vigilance and avoidance are seen as uncorrelated dimensions (Krohne, 1993; Krohne et al., 2000). Depending on the consistency of both types of behavior, individuals can be assigned to one of four personality types (or coping modes) referred to as high-anxious (frequent use of both strategies), repressors (frequent avoidance, infrequent vigilance), sensitizers (frequent vigilance, infrequent avoidance), or nondefensives (infrequent use of both strategies). In the MCM, it is especially the high-anxious type that is associated with unstable or dysfunctional coping, respectively (cf. Krohne, 1993).

The Reinforcement-Sensitivity Theory (RST; Gray, 1982, 1990), in contrast, posits the existence of three systems that predispose individuals to be sensitive to either signals of punishment, reward, or novelty. These systems are labeled as the Behavioral Approach System (BAS), the Behavioral Inhibition System (BIS), and the Fight-Flight System (FFS), respectively, and linked to distinctive neural systems. According to the RST, highly anxious individuals should have a particularly sensitive BIS and thus be especially sensitive to signals of punishment. When being confronted with such stimuli, their typical response should be to terminate ongoing behavioral sequences and to explore their environment and the threatening stimulus (Gray, 1982, 1990). Thus, BIS activation can promote vigilance for potential threats. Avoidant reactions (e.g., escaping), in contrast, are associated with a particular pattern of FFS activation (see Gray, 1982, 1990).

The two models described herein both distinguish two ways of coping with threats: Vigilance and avoidance. These behaviors have been studied in different social groups, but seldomly among individuals who believe in conspiracy theories. To the best of our knowledge, only two studies have examined the actual link between conspiracy beliefs and particular coping behaviors. Marchlewska et al. (2021), on the one hand, found positive relationships between conspiracy beliefs and dysfunctional (i.e., avoidant) coping strategies in two independent samples ($r_1 = 0.26$, $N_1 = 199$; $r_2 = 0.23$, $N_2 = 411$, both $p_s < 0.001$). In a third study ($N_3 = 398$), in addition, remembering an instance of avoidant coping increased the participants' agreement with conspiracy theories compared to more functional coping (i.e., approach coping) and a neutral condition (Marchlewska et al., 2021). Another study by Jutzi et al. (2020; Study 2), in contrast, found a positive correlation between conspiracy beliefs and BIS sensitivity ($r = 0.30$, $p < .01$, $N = 348$), indicating that higher levels of conspiracy beliefs are related to higher vigilance instead of avoidance. Furthermore, BIS sensitivity mediated the relationship between perceived threat elicited by COVID-19 and conspiracy beliefs, suggesting that conspiracy beliefs are associated with a coping style characterized by exploration rather than

avoidance of the stressor. 1.3. The present study Individuals are constantly faced with potential threats and stressors, both at the global and at the regional level. Conspiracy theories can offer a way of coping with these stressors and avoiding feelings of anxiety and stress. In that sense, the endorsement of different conspiracy theories is potentially motivated by the same underlying processes. From a societal perspective, a relationship between coping and conspiracy beliefs could explain why individuals in general are particularly receptive for conspiracy theories in times of crises, such as the COVID-19 pandemic (see Leibovitz et al., 2021). From an individual perspective, it might further our understanding of why some individuals more strongly believe in such theories than others. Accumulating knowledge about conspiracy beliefs and coping behaviors could thus help understanding the behaviors of those who are more receptive to conspiracy theories and aid the development of potential counterstrategies. So far, however, it is not exactly clear which coping behaviors are employed by individuals who believe in conspiracy theories. Previous studies found evidence for both heightened avoidance (Marchlewska et al., 2021) and vigilance (Jutzi et al., 2020). The present research sought to add to this literature and to answer the question whether conspiracy beliefs are associated with an individual tendency to employ specific coping strategies. Furthermore, we aimed at testing whether this habitual coping style can explain extant relationships between anxiety and conspiracy beliefs (e.g., Grzesiak-Feldman, 2013). In two studies, we tested the explanatory value of the MCM and the RST for the development of conspiracy beliefs. Both studies were conducted in large online samples. The full pre-registration forms as well as both data sets can be retrieved from https://osf.io/kwecn/?view_only=ca57fd8cb96c470f9d9987f8101c39ee.

10. General discussion The purpose of the current research was to further clarify the relationship between anxiety and conspiracy beliefs. Aligning with previous studies (e.g., Grzesiak-Feldman, 2013; Swami et al., 2016), conspiracy beliefs were positively correlated with trait anxiety in two consecutive studies. Individuals with higher levels of habitual anxiety appeared to be more prone to believe in conspiracy theories. Longitudinal research suggests, however, that increased trait anxiety is a consequence rather than a cause of conspiracy beliefs (Leibovitz et al., 2021). Given its crosssectional design, our study could not answer the question whether certain individuals are more vulnerable for conspiracy theories due to their anxiety or more anxious due to their concerns with conspiracy theories. This question should be addressed in future research. State anxiety, in contrast, was only correlated with conspiracy beliefs in one of the two studies – a relationship that was obviously due to its shared variance with the trait component (see online Supplement). This finding was in line with previous results (Grzesiak-Feldman, 2013; Swami et al., 2016). As none of the two studies included an experimental manipulation of threat, it was rather ambitious – in retrospect – to expect interindividual differences in state anxiety. Therefore, relationships between conspiracy beliefs and state anxiety might have been underestimated in the present design. Based on recent theoretical developments (Jutzi et al., 2020; van Prooijen, 2020), it was further assumed that conspiracy beliefs offer a way to cope with threats. More specifically, the present research explored whether interindividual differences in coping with actual threats and stressors explain individual differences in conspiracy beliefs. This assumption was tested using two conceptualizations of coping, namely the MCM (Krohne, 1993; Krohne et al., 2000) and the RST (Gray, 1982, 1990). Study 1 suggested that conspiracy beliefs are associated with vigilance, a coping style characterized by active confrontation with the stimulus (see Krohne, 1993). This finding was further corroborated by a relationship between conspiracy beliefs and higher BIS sensitivity in Study 2, implying that when confronted with a stressor, individuals who are

susceptible for conspiracy theories are more prone to inhibit their actual behaviors and actively explore the threatening stimulus. We thus successfully replicated the results by Jutzi et al. (2020), who observed a positive link between conspiracy beliefs and BIS sensitivity. In contrast, higher levels of conspiracy beliefs were not associated with more frequent avoidant coping in Study 1, a finding that contradicts previous results (Marchlewska et al., 2021). According to the MCM, the different coping modes serve to either reduce ambiguity (vigilance) or arousal (avoidance; see Krohne, 1993). Our results suggest that individuals who believe in conspiracy theories are more intolerant to uncertainty, but not to arousal. Contrary to our assumptions, participants with elevated levels of conspiracy beliefs could not be classified as high-anxious (i.e., high vigilance and high avoidance) according to the MCM. Furthermore, no robust moderation or mediation effects through coping style or self-efficacy were observed in either of the two studies. Consequently, it is possible that the explanatory value of the models tested in this study is only limited, especially compared to other models (for a different approach, see Marchlewska et al., 2021).

10.1. Implications

Our results suggest that conspiracy belief is accompanied by elevated vigilance for threats and behavior intended to reduce ambiguity. These findings accord well with prior results implying relationships between conspiracy beliefs and feelings of uncertainty (Jutzi et al., 2020; van Prooijen, 2020) as well as vigilance for threats (Jutzi et al., 2020). Furthermore, our results support the most recent theoretical models postulating that threatening events might promote conspiracy beliefs through sense-making processes (van Prooijen, 2020). One such process might be the selective intake of threat-relevant information that validates one's own reasoning. Individuals who believe in conspiracy theories have been found to focus on conspiracy news rather than on other information, such as scientific evidence (see . . . When feeling anxious, they might be more sensitive for information that corroborates their feelings of threat and danger. Implementing information campaigns and educational programs could help resolving this problem. Previous research has shown that conspiracy beliefs can be diminished by clearly addressing the contents of conspiracy theories and contrasting it with more plausible alternative explanations (Swami et al., 2013). It should also be noted, however, that conspiracy believers are also less susceptible to traditional media and expert sources than they are to digital media and personal contacts (De Coninck et al., 2021). Further, confrontation with potentially threatening information always bears the risk of negative emotions, such as stress and anxiety (De Coninck et al., 2021; Leibovitz et al., 2021). Therefore, it seems essential to convey the relevant information in a way that serves the needs of the addressees both in terms of the medium and the language, possibly by utilizing their own social media channels.

10.2. Limitations and future directions

It is also important to highlight some limitations that might have caused an underestimation of actual effect sizes in the present study. First, the average level of conspiracy beliefs in the present samples was considerably lower than in the previous study by Marchlewska et al. (2021; Study 2), $d = 1.00$ (Study 1) and $d = 0.91$ (Study 2), respectively. Furthermore, females were overrepresented in both samples. Given the extant gender differences in anxiety (Study 1) and coping (Study 1 and Study 2), variance in both variables was thus likely limited. Hence, our results should be interpreted with caution and replicated in more comprehensive samples with respect to the outcome variables. Second, as in previous studies (e.g., Marchlewska et al., 2021), habitual coping was tested using either vignettes that described fictitious scenarios (Study 1) or a questionnaire (Study 2). A more ecologically valid test of coping strategies, however, would have required an experimental design in which participants were confronted with an actual stressor (e.g., Grzesiak-Feldman, 2013; Jutzi et al., 2020). Such designs should be implemented in future studies. These designs would also allow for the testing of relationships between conspiracy beliefs and fear. The aforementioned models conceptualize

conspiracy beliefs as an individual reaction to clearly defined and existentially threatening events (Jutzi et al., 2020; van Prooijen, 2020). Accordingly, popular conspiracy theories make statements about the causes of very specific events (e.g., the spread of COVID-19) rather than abstract threats and perils (e.g., the growing risk of global pandemics). Sylvers et al. (2011), however, described anxiety as an emotion resulting from confrontation with “an ambiguous and uncertain threat” (p. 133), whereas fear was described as an emotion following a concrete, identifiable stressor (see also Talisman & Rohrbeck, 2022). In previous research, some of the most impressive findings were in fact obtained when concrete – rather than ambiguous – stressors were made salient to the participants, such as COVID-19 (e.g., Heiss et al., 2021; Jutzi et al., 2020). A promising avenue for future research could be to link both anxiety and fear to conspiracy beliefs. The revised version of the RST (rRST; Gray & McNaughton, 2000) postulates distinct systems for anxiety (BIS) and fear (Fight-Flight-Freezing System, FFFS) and therefore allows the separate measurement of both emotions. Based on this framework, relationships between conspiracy beliefs and the sensitivity of both systems for concrete stressors should be explored in the future.

11. Conclusion A growing body of literature explored the utility of interindividual difference variables as risk factors for the endorsement of conspiracy theories. The present study focused on the relationship between anxiety and conspiracy beliefs. Relationships between conspiracy beliefs, trait anxiety as well as proactive coping were found, suggesting that individuals who believe in conspiracy theories experience higher levels of anxiety which they try to reduce through confrontation with the stressor. Other than expected, these individuals did not, however, use avoidant coping strategies more frequently. With respect to potential societal interventions, our results hint at the potential of information campaigns and education programs that could reduce both uncertainty and anxiety. Prior to the implementation of such interventions, however, replications are needed.

THIRTY-ONE.

Psychological benefits of believing conspiracy theories.

Abstract Many people believe conspiracy theories, even though such beliefs are harmful to themselves and their social environment. What is the appeal of conspiracy theories? In this contribution, I propose that conspiracy theories have psychological benefits by imbuing perceiver's worldview with meaning and purpose in a rewarding manner. Conspiracy theories enable an alternative reality in which perceivers (a) can defend a fragile ego by perceiving themselves and their groups as important, (b) can rationalize any of their beliefs and actions as legitimate, and (c) are entertained through the opportunity to uncover a mystery in an exciting tale. These are short-term benefits, however, suggesting that conspiracy theories provide people with a form of instant gratification.

Although conspiracy theories are omnipresent, empirical research has mainly emphasized their negative effects. Believing conspiracy theories is associated with poor health choices [1e5], decreased well-being [6,7], and deteriorated social relationships [8]. Conspiracy beliefs also harm society by decreasing public support for policy aimed at addressing genuine problems such as climate change [9; but see 10] and the Covid-19 pandemic [11,12]. Moreover, they are associated with support for populist and politically extreme movements [13e15], and violent activism [16e19]. These findings suggest a paradox: If conspiracy theories are largely harmful for perceivers and their environment, then why do so many people endorse them? The present contribution will examine how perceivers benefit psychologically from conspiracy beliefs. While current theoretical models may imply that conspiracy theories satisfy basic psychological needs or help alleviate threats, empirical evidence does not support that people actually benefit from conspiracy beliefs in this manner. For instance, an evolutionary perspective suggests that susceptibility to conspiracy theories has been adaptive to ancient huntergatherers, to cope with the realistic threat of hostile coalitions. This reasoning, however, only emphasizes how conspiracy theories helped ancestors survive in a Pleistocene environment, and does not hold implications for possible psychological benefits in present-day society [20]. If anything, the evolutionary perspective implies macro-level societal benefits, by explaining why people possess mental systems that make them sensitive to signals suggesting possible collusion. Consistent with this perspective, citizens display stronger conspiracy beliefs in highcorruption than low-corruption countries [21,22]. Motivational perspectives also fall short of clarifying the psychological benefits of conspiracy beliefs. Extensive research has revealed that conspiracy beliefs increase following deprivation of existential, epistemic, and social needs [23]. These findings do not show, however, that conspiracy beliefs subsequently are successful in satisfying these needs. While conspiracy theories may help people understand their social environment when faced with existential threats, the epistemic assumption that hostile conspiracies operate in the shadows is unlikely to make them feel safe or certain. Conspiracy beliefs indeed do not reduce, and sometimes even increase, anxiety, uncertainty aversion, and existential threat [24]. Furthermore, although experiences of social exclusion increase conspiracy beliefs [25], believing conspiracy theories does not restore belongingness needs. Instead, conspiracy beliefs make people vulnerable to stigmatization [26], and predict job loss and social rejection [7]. One can even question how comforting "denialist" conspiracy theories are: These theories may reduce feelings of existential threat in one domain (e.g., by denying the reality of climate change) yet reinforce other existential threats (e.g., the belief that authorities are deceptive). These issues raise the question what the psychological payoff of conspiracy theories is for believers. The core of my argument is that

although conspiracy beliefs may not reduce anxiety or help them maintain social relationships, they do stimulate a sense of meaning and purpose in a specific way that is psychologically rewarding. Through conspiracy theories perceivers can construct an alternative reality in which they are important and legitimate actors, participating in a spectacular narrative. In what follows I more specifically propose that conspiracy theories (1) have ego-defensive benefits by making people feel important, (2) help people rationalize their behavior and therefore make them feel legitimate, and (3) have entertainment value by stimulating feelings of excitement.

Conclusions.

Why are so many people drawn to conspiracy theories? The present contribution has highlighted three complementary ways in which believing conspiracy theories may bring psychological benefits. Conspiracy theories help people defend a fragile ego by exaggerating the importance of themselves and their groups; conspiracy theories make people feel like legitimate actors by rationalizing their beliefs and behaviors; and, believing conspiracy theories entertains people by making them active participants of an exciting tale. The general process underlying these psychological benefits is the potential of conspiracy theories to imbue perceivers' worldview with meaning and purpose in a rewarding manner. Two qualifications of these propositions are in order. First, the described processes are likely to be psychologically beneficial only in the short run. While constructing an alternative reality may be appealing as described here, a risk is that reality catches up with perceivers eventually. Many of the harmful effects of conspiracy theories emerge by promoting choices that may have negative real-life consequences for themselves and others [3,7,11]. Second, the current propositions only focus on the question how perceivers themselves benefit from conspiracy theories. How perceivers' social environment, or society at large, might benefit from conspiracy theories is a different issue. Although conspiracy theories also may have certain benefits for society in that they can increase transparency among decision-makers, and can keep the public attentive to the possibility of actual corruption [56] most social consequences are likely to be negative [1e5,7e12,16e20]. These considerations suggest that conspiracy theories provide a form of instant gratification to people. Somewhat analogous to smoking or gambling, conspiracy beliefs may be psychologically rewarding in the short run; but perceivers and society pay a price for them in the long run. It therefore should be emphasized that the main goal of the present contribution was to understand what makes conspiracy theories appealing despite all of their negative effects. Recognizing that there are psychological benefits to believing conspiracy theories does not imply a recommendation to endorse them, nor is it an argument against interventions to reduce conspiracy beliefs (e.g., debunking and prebunking; [57]). The appeal of conspiracy theories notwithstanding, in the end perceivers and society benefit most from reason and truth.

THIRTY-TWO

Tearing apart the “evil” twins: A general conspiracy mentality is not the same as specific conspiracy beliefs.

Abstract Although sometimes used interchangeably, the present review highlights the important differences between generalized worldviews suspecting conspiracy at play (conspiracy mentality) and specific beliefs about the existence of a certain conspiracy (conspiracy theory). In contrast to measures of beliefs in specific conspiracy theories, those of conspiracy mentality are more stable, less malleable, less skewed in their distribution and less contaminated by other ideological content. These differences have important implications for empirical research and the theorizing of conspiracy beliefs. Building on an analogy of personality traits, we argue that conspiracy mentality is a relatively stable readiness to interpret world events as being caused by plots hatched in secret, whereas specific conspiracy beliefs are then manifest indicators (partially contaminated by other dispositions).

Conspiracy theories exist for virtually any class of events e from natural disasters, celebrity death, (lack of) technological progress, to pandemics [1,2]. Although such specific conspiracy theories appear as diverse as the events they seek to explain, their endorsements cling together in a seemingly close-knit network of conspiracy beliefs [3,4]. People who show relatively strong endorsement of one conspiracy theory also show relatively strong endorsement of many other conspiracy theories [5]. This pattern has led several scholars to assume a monological belief system [3] or a conspiracy mentality [6]. Whereas the emphasis of the former is on the notion that specific beliefs reinforce each other, the latter operates on the assumption that people reliably differ in their general view of the world as determined by malicious plots hatched in secret. Although specific conspiracy beliefs and conspiracy mentality are already markedly different in their definition, psychological research has often used the two concepts interchangeably [7]. In the present paper, building on earlier work [8], we seek to provide a better understanding of both the similarities and differences between specific conspiracy beliefs and broader conspiracy mentality. Similarities ... To a certain extent, it is difficult to draw a firm line between measures of endorsement of a specific conspiracy theory and those tapping into a more general conspiracy mindset. First, items tapping into specific conspiracy theories are typically not very detailed but express rather broad suspicions. Second, some “specific” conspiracy theories are newly created, fictitious conspiracy theories purpose-designed for the current study [9,10]. In this situation, respondents could base their agreement on their attitude toward the allegedly conspiring group (e.g., Red Bull [9]). However, if that group is made up [10], the most plausible explanation for their agreement would be their general intuition whether such secret plots are believable and frequent phenomena. And finally, some measures of a broader conspiracy mindset are the average endorsement of a range of specific conspiracy theories [11e14]. In contrast, scales measuring conspiracy mentality [6,15,16] or similarly labelled general mindsets [17] typically ask participants to indicate their agreement with broader statements about how likely and frequent conspiracies are, without explicitly mentioning specific events or culprits. Independent of the measure, they seem to form coherent groups that systematically differ in their relative degree of either rejecting or accepting statements reflecting conspiracy theories or conspiracy mentality [5]. The nomological networks of conspiracy mentality and specific conspiracy beliefs are largely overlapping. Measures of specific conspiracy theories, conspiracy mentality or general conspirational mindsets [17,18] typically show reliable correlations with automatic cognitive thinking styles, many facets of internal and external threat, as well as need for uniqueness or narcissism (for a

recent meta-analysis, see [40]). Lower formal education is associated with both specific conspiracy beliefs [19], as well as conspiracy mentality [20]. People who feel deprived of control show stronger endorsement of specific conspiracy theories [21] as well as items tapping into conspiracy mentality [6,22]. ... and differences In light of these similarities, it is not surprising that many researchers have used the two variables rather interchangeably. As our core contribution in the present review, however, we want to caution against this confusion by highlighting important differences. In a recent meta-analysis [40], for instance, measures of specific conspiracy beliefs correlate with low cognitive ability, low personal control, and defensive ingroup identity, while measures of conspiracy mentality did not (see also [8]). There are several ways to explain such differential correlations. We will discuss one explanation based on what we call content-contamination in a later section but focus first on one that is a basic difference between measures of conspiracy mentality and endorsement of conspiracy theories: the distribution of agreement across participants.

Conspiracy mentality as a latent disposition behind specific conspiracy beliefs.

In summary, conspiracy mentality seems to be a relatively stable, not highly malleable distal predictor of specific conspiracy beliefs. It taps into meaningful individual differences in the very basic worldview that the fate of the world is determined by plans hatched in secret rather than chance or openly negotiated conflicts. As such, it is probably a relatively pure measure of accepting the existence of conspiracies. It has been shown to reliably correlate with subclinical paranoia [23], increased agency detection [6], and most importantly: the endorsement of specific conspiracy beliefs [21]. Even after controlling for other variables, a general conspiracy mindset typically remains the most robust correlate of specific conspiracy beliefs [24,37e39]. The endorsement of specific conspiracy theories, however, also depends on other factors that share content with the theories. This does not invalidate the idea of a latent disposition. An analogy would be that the personality trait extraversion shows robust correlations with the frequency of going out or calling friends on the phone, but each of these specific behaviors does also depend on other factors (e.g., one's economic situation or whether one's friends live out-of-town or all close-by). Future research should thus better differentiate between specific theories and a general mindset and justify why they use one measure rather than the other.

THIRTY-THREE.

THE STRUCTURE OF NEGATIVE EMOTIONAL STATES: COMPARISON OF THE DEPRESSION ANXIETY STRESS SCALES (DASS) WITH THE BECK DEPRESSION AND ANXIETY INVENTORIES.

Summary--The psychometric properties of the Depression Anxiety Stress Scales (DASS) were evaluated in a normal sample of $N = 717$ who were also administered the Beck Depression Inventory (BDI) and the Beck Anxiety Inventory (BAI). The DASS was shown to possess satisfactory psychometric properties, and the factor structure was substantiated both by exploratory and confirmatory factor analysis. In comparison to the BDI and BAI, the DASS scales showed greater separation in factor loadings. The DASS Anxiety scale correlated 0.81 with the BAI, and the DASS Depression scale correlated 0.74 with the BDI. Factor analyses suggested that the BDI differs from the DASS Depression scale primarily in that the BDI includes items such as weight loss, insomnia, somatic preoccupation and irritability, which fail to discriminate between depression and other affective states. The factor structure of the combined BDI and BAI items was virtually identical to that reported by Beck for a sample of diagnosed depressed and anxious patients, supporting the view that these clinical states are more severe expressions of the same states that may be discerned in normals. Implications of the results for the conceptualisation of depression, anxiety and tension/stress are considered, and the utility of the DASS scales in discriminating between these constructs is discussed.

INTRODUCTION Historically, the relationship between the negative affective conditions of depression and anxiety has been of considerable theoretical and clinical interest (Akiskal, 1985; Clark, 1989; Clark & Watson, 1990; Dobson, 1985; Stavrakaki & Vargo, 1986; Watson, Clark & Carey, 1988). Conceptually, depression and anxiety are quite distinct, but the clinical overlap between the two conditions has long exercised both clinicians and researchers. The concept of stress poses additional problems in the study of negative affective conditions. In addition to precipitating episodes of anxiety and depression, stressful life events are often thought to lead to a characteristic stress response involving chronic arousal and impaired function (e.g. Selye, 1952). Considered as an affective or emotional state (e.g. Lazarus, 1993), the concept of a stress response has clear affinities with anxiety. Recently Gotlib and Cane (1989) emphasised the limitations of existing self-report scales for anxiety and depression, and Clark and Watson (1990) have summarised the evidence relating to the assessment of the two conditions. The essential findings are as follows: (a) Self-report anxiety and depression scales typically correlate between 0.40 and 0.70 across a wide range of patient and non-patient samples; (b) Anxiety scales frequently correlate as highly with depression scales as with other anxiety scales, and depression scales show equal lack of specificity; (c) Clinicians' ratings of anxiety and depression duplicate the relationships found with self-report scales; and (d) Only about half the patients diagnosed as having a depressive or an anxiety disorder exhibit relatively pure syndromes of one type or the other. The two most ambitious research programs designed to differentiate anxiety and depression were conducted by Costello and Comrey (1967) and Beck, Epstein, Brown and Steer (1988). Costello and Comrey began with a large pool of items derived for the most part from existing anxiety and depression scales. The items were administered to successive clinical samples, and iterative factor analyses were performed in the search for items that would define orthogonal factors of anxiety and depression. In the case of the Beck et al. research, a widely used depression scale, the Beck Depression Inventory (BDI), was already available (Beck, Ward, Mendelson, Mock & Erbaugh, 1961; Beck, Rush, Shaw & Emery, 1979). The task was to develop an anxiety scale that would provide maximum discrimination from the BDI and other measures of depression. An initial pool of items was

drawn from pre-existing scales, and was refined on the basis of factor analyses of the responses of a series of outpatient samples. The final 21-item anxiety scale (the Beck Anxiety Inventory; BAI) was found to correlate in the region of 0.50 with the BDI. It is of interest that the final form of the anxiety and depression scales of Costello and Comrey (1967) also correlated in the region of 0.50, despite the stated goal of the authors to derive orthogonal anxiety and depression factors. The present paper focuses on a third research program which aimed to develop self-report anxiety and depression scales that would (a) cover the full range of core symptoms of anxiety and depression, (b) meet high psychometric standards, and (c) provide maximum discrimination between the two scales. The research was carried out over the period 1979-1990 and data were obtained from 30 samples. During testing of the depression and anxiety scales, a new factor emerged from analysis of the non-discriminating anxiety and depression items, with the highest loading items referring to difficulty relaxing, nervous tension, irritability and agitation. Further items were tested to explore the limits of this factor, leading to the development of a new scale which was labelled 'stress' by virtue of perceived similarity of the items to the symptoms of tension or stress (cf. Selye, 1952, 1974). The resulting scales, now referred to as the Depression Anxiety Stress Scales (DASS), were first described by Lovibond (1983; see also Wilson, 1980, 1982). A detailed account of the scale development, normative data, and research applications is provided in the DASS manual (Lovibond & Lovibond, 1993), available from the authors. The DASS items are listed in Table 3. The DASS research strategy differed in several ways from both previous studies (Costello & Comrey, 1967) and subsequent studies (Beck et al., 1988). First, the scales were developed using a boot-strapping strategy in which factors were defined initially in terms of clinical consensus, but were refined empirically using a confirmatory factor analytic technique, multiple groups factor analysis (Harman, 1976). Items were added as well as deleted over successive samples in an iterative procedure which led to the emergence of the stress factor (cf. Tellegen, 1985, pp. 685-688). Second, because of the overlap and inconsistencies between existing anxiety and depression scales, and between the various diagnostic systems for anxiety and depression, no external criteria were used in the development of the DASS scales. In contrast, Beck et al. (1988) selected items in part on the basis of their relationship to DSM-III (American Psychiatric Association, 1980) diagnostic categories for anxiety and depression. Finally, the major development of the DASS scales was carried out with normal, non-clinical samples. Thus, the central aim underlying development of the DASS scales was to generate measures of general negative affective syndromes, guided by existing conceptions but ultimately determined on empirical grounds. The present study was designed to evaluate the psychometric properties of the DASS scales in an independent sample of normal Ss. In particular, it was considered important to assess the generality of the factor structure derived from multiple groups factor analysis by using conventional exploratory and confirmatory factor analyses. Inclusion of the Beck scales (BDI and BAI) provided an interesting comparison in that these scales were developed with a different research strategy but with similar aims to the DASS scales. Furthermore, the factor structure obtained for the Beck scales in the present normal sample could be compared with the factor structure reported by Beck et al. (1988) in a clinical sample, thus providing information about the degree of convergence between the emotional states experienced by normals and by depressed and anxious patients.

DISCUSSION.

Psychometric data This study yielded means, standard deviations and intercorrelations for the DASS scales similar to those observed in previous samples (Lovibond & Lovibond, 1993), and confirmed the satisfactory reliability of the three scales. The factor structure of the DASS was confirmed with two different approaches. First, principal components factor analysis

reproduced the three scales, with the exception of one Anxiety item that performed more weakly than in previous data sets. Second, confirmatory factor analysis indicated that the three scales provided a better fit to the data than either a one-factor or a two-factor solution, and yielded a chi-square value close to that of a completely unrestricted analysis. The analyses confirmed that while the DASS successfully discriminates between three negative emotional syndromes, these syndromes are still moderately highly correlated with each other, and in particular the Stress scale is more closely associated with Anxiety than with Depression.

Relationship between the DASS, BDI and BAI.

The DASS Anxiety scale and the BAI were highly correlated ($r = 0.81$), while the DASS Depression scale and the BDI were somewhat less strongly correlated ($r = 0.74$). However, both of these correlations were much higher than the corresponding cross-correlations of $r = 0.58$ and $r = 0.54$ (respectively, $Z = 12.41$ and $Z = 9.25$, $P < 0.05$), indicating a greater degree of convergent validity than is typically the case for self-report scales (Clark & Watson, 1990). The primary reason for the lower correlation between the DASS Depression scale and the BDI appears to be the inclusion in the BDI of several items which are not strongly or uniquely related to depression. In particular, weight loss, loss of libido, irritability, loss of appetite and somatic preoccupation received low loadings on the Depression factor in the analysis of the combined BDI and BAI items, replicating the analysis reported by Beck et al. (1988). This difference is also reflected in the lower alpha coefficient for the BDI (0.84) compared to the DASS Depression scale (0.91), despite the larger number of items in the BDI (21 versus 14). It is of interest that many of the BDI items with low factor loadings were among those that were tested during the development of the DASS, but had been rejected since they failed to discriminate between the Depression scale and the other two scales. These items included disturbance of appetite/weight loss, sleeping difficulties, tiredness for no reason, lack of energy, poor concentration, indecisiveness, agitation, guilt, lack of interest in sex, early awakening, feeling worst in the morning, mood changes during the day, crying, restlessness, and irritability. Some of these items were in fact more closely associated with the DASS Stress scale and form part of the final version of that scale. It should be noted that the first eight of the above symptoms are included among the criteria for diagnosis of major depression listed in the Diagnostic and Statistical Manual (DSM-III-R) of the American Psychiatric Association (1987). The implication of the present data, that several traditional depressive symptoms are only poorly associated with other components of the depressive syndrome, is of course a contentious one. In particular, clinicians have long regarded somatic symptoms as core features of depression. However, the present findings are supported by previous research on the discriminant validity of individual symptoms. In a review of studies of both clinician-rated and self-reported symptoms of depression and anxiety, Clark (1989, Table 4.3) reported that four symptoms (loss of sexual interest, loss of appetite, overeating/weight gain, and increased sleep) were weak or inconsistent discriminators between patients diagnosed with depressive and anxiety disorders. Thus it would appear that current conceptions of depression, reflected both in popular self-report instruments such as the BDI and in formal diagnostic systems, may include symptoms that are poorly associated with the core depressive syndrome, or that are not unique to depression. By contrast, these symptoms were excluded from the DASS Depression scale during scale development, where discrimination between the three scales was a primary criterion for symptom inclusion. Further research is necessary with clinical samples to determine systematically which symptoms are best related to the overall diagnosis of depression, and which discriminate depression from other diagnoses such as anxiety disorders.

Normal versus clinical emotional states In the present normal sample, the factor structure obtained from factor analysis of the BDI and BAI was highly similar to that reported by Beck et al. (1988) for these instruments on a clinical sample. Similarly, in the development of the DASS, not only the factor structure but also the relative performance of individual items was found to be virtually the same in clinical and non-clinical samples. Furthermore, in the present study, the subscale analysis indicated that the contribution of the various symptoms within each syndrome was relatively constant across severity. All of these findings strongly suggest that the depression, anxiety and tension/stress manifested by non-psychotic clinical outpatients and by normal non-clinical groups differ primarily in severity. This conclusion does not, of course, deny the possibility that specific clinical sub-categories may be distinguished within these general affective disturbances. However, the results do add to evidence suggesting that emotional disorders fall on a continuum with less extreme emotional disturbance (e.g. Farmer & McGuffin, 1989; Vredenburg, Flett & Krames, 1993). That is, clinical disorders may represent the severe, inappropriate or chronic manifestation of syndromes whose essential structure may be discerned in normal Ss.

The nature and differentiation of depression, anxiety and stress The present study confirms that three syndromes, labelled depression, anxiety and stress, may be distinguished from self-report data by the DASS scales. Descriptively, the Depression scale is characterised principally by a loss of self-esteem and incentive, and is associated with a low perceived probability of attaining life goals of significance for the individual as a person. The coherence of these symptoms supports the view that the depressive syndrome is considerably broader than sadness of mood, although as discussed above, several symptoms traditionally regarded as part of this syndrome are not represented in the DASS Depression scale, since they do not appear to be specific to depression. The DASS Anxiety scale emphasises the links between the relatively enduring state of anxiety and the acute response of fear. It is of interest that the conventionally derived anxiety scale of Costello & Comrey (1967) does not share this feature. Indeed, the content of the Costello & Comrey anxiety scale is very narrow, and the scale appears to tap a dimension that might be termed 'nervousness'. By contrast, the BAI, which was constructed by a multi-stage procedure emphasising discrimination from depression at every stage, shares with the DASS Anxiety scale an emphasis on fear-related symptoms. Both scales give weight to somatic and subjective symptoms (cf. Morris, Davis & Hutchins, 1981), and the DASS Anxiety scale additionally addresses situational anxiety. The content of the Stress scale suggests that it is measuring a state of persistent arousal and tension with a low threshold for becoming upset or frustrated. The items that showed the greatest overlap in factor loadings with the Anxiety scale (see Table 3) were those involving nervous tension and nervous energy. This overlap suggests that there is a natural continuity between the syndromes assessed by the Anxiety and Stress scales, and that the point of division between the two may be somewhat arbitrary. Nonetheless, the analyses confirmed that the Stress scale as a whole contains a coherent set of symptoms that may be differentiated from depression and anxiety. The existence of such a syndrome has important implications for any attempt to provide a full analysis of negative emotional states. However, the present results do not comment on the appropriateness of labelling the scale as measuring 'stress'. Further research is clearly necessary to clarify the external validity of this scale, in particular its relationship to constructs in stress research such as life events, appraisal and coping (Coyne & Downey, 1991), and its discriminant validity from anxiety. A central theoretical question that arises in the present research is the basis of the measured association between depression, anxiety and tension/stress. Our findings concur with those of other investigators who have expended considerable effort in attempts to obtain the maximum meaningful discriminations between measures of anxiety and depression. Indeed, the findings of Costello and Comrey

(1967) and Beck et al. (1988), together with those of the present study, suggest that -0.50 may well be an irreducible minimum correlation between self-report scales designed to measure depression and anxiety. In the case of the DASS scales, no item was retained which loaded substantially (greater than 0.25) on the other scales. The absence of overlapping items is largely confirmed by the present data set. Nonetheless, the intercorrelations between the scales are still moderately high. It therefore may be argued that the associations between the DASS scales are not the result of the scales measuring overlapping constructs. Rather, these correlations may reflect common causes of anxiety, depression and stress (cf. the correlation between height and weight). There would seem to be two possible types of common cause of negative affective states: a common vulnerability factor which influences all three states, such as neuroticism (Eysenck & Eysenck, 1964) or negative affectivity (Watson & Clark, 1984), and common environmental activation. We are currently engaged in research aimed at identifying the common and specific factors, both trait and environmental, that underlie the states of depression, anxiety and stress. In summary, the present research provides support for the psychometric properties of the DASS scales and their convergent and discriminant validity with other instruments developed on clinical populations. The DASS scales not only provide measures of anxiety and depression that have been specifically designed to maximise internal consistency and differentiation, but both of these scales are further differentiated from the related state of tension/stress. The capacity to separately measure these three related states may be of considerable use for researchers dealing with the complex links between environmental demands and emotional and physical disturbance. The scales may also be useful to the clinician in clarifying the locus of emotional disturbance, as part of the broader task of clinical assessment (cf. Kendall, Hollon, Beck, Hammen & Ingram, 1987).